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**SAFETY AND HEALTH ASSESSMENT
DOE TIGER TEAM ASSESSMENT
IDAHO NATIONAL ENGINEERING LABORATORY**

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4.0 Safety and Health Assessment

4.0 SAFETY AND HEALTH ASSESSMENT

4.1 PURPOSE

The purpose of the Safety and Health (S&H) Subteam assessment was to determine the effectiveness of representative safety and health programs at the Idaho National Engineering Laboratory (INEL) site. Four Technical Safety Appraisal (TSA) Teams were assembled for this purpose by the US Department of Energy (DOE), Deputy Assistant Secretary for Safety and Quality Assurance, Office of Safety Appraisals (OSA). Team No. 1 reviewed EG&G Idaho, Inc. (EG&G Idaho) and the Department of Energy Field Office, Idaho (ID) Fire Department. Team No. 2 reviewed Argonne National Laboratory-West (ANL-W). Team No. 3 reviewed selected contractors at the INEL; specifically, Morrison Knudsen-Ferguson of Idaho Company (MK-FIC), Protection Technology of Idaho, Inc. (PTI), Radiological and Environmental Sciences Laboratory (RESL), and Rockwell-INEL. Team No. 4 provided an Occupational Safety and Health Act (OSHA)-type compliance sitewide assessment of INEL. The S&H Subteam assessment was performed concurrently with assessments conducted by Environmental and Management Subteams.

4.2 SCOPE

Within the safety and health programs of the INEL site, performance was appraised in the following technical areas: Organization and Administration, Quality Verification, Operations, Maintenance, Training and Certification, Auxiliary Systems, Emergency Preparedness, Technical Support, Packaging and Transportation, Nuclear Criticality Safety, Security/Safety Interface, Experimental Activities, Site/Facility Safety Review, Radiological Protection, Personnel Protection, Worker Safety and Health (OSHA) Compliance, Fire Protection, Aviation Safety, Medical Services, and Firearms Safety.

4.3 APPROACH

The TSA Teams were composed of DOE personnel, employees of DOE Contractors, and outside consultants. The TSAs were conducted according to DOE/EH-0129, "Procedures for Conducting Technical Safety Appraisals," February 1991.

The S&H Subteam assessment was led by four TSA Team Leaders from OSA and was conducted June 17 through July 24, 1991. Guidance and direction were provided by the Deputy Assistant Secretary for Safety and Quality Assurance. A list of the Subteam members, together with their areas of responsibility, is provided in Section 4.9; biographical sketches of the Subteams members are provided in Appendix A.3.

A TSA is designed to be operationally focussed. Therefore, the evaluation by the S&H Subteam focussed on safety operations and the conditions of equipment and facilities. This approach is based on the assumption that a facility and its equipment have been appropriately designed and constructed. Each appraisal addresses whether current operations are being conducted within the scope of operational safety procedures and programs established for specific facilities and activities. A list of DOE Orders referenced in the Report is provided in Appendix I.

The activities of the S&H Subteams were guided by the performance objectives and supporting criteria contained in DOE/EH-0135, "Performance Objectives and Criteria for Technical Safety Appraisals at Department of Energy Facilities and Sites," June 1990, and supplemented with new sections drafted in April 1991 for Explosives Safety and Firearms Safety.

The findings and resulting concerns identified by the S&H Subteam were developed using the performance objectives established for each of the technical areas evaluated. Subsections 4.5.1, 4.5.2, and 4.5.3 identify the findings and concerns associated with each contractor reviewed, ID, and the Department of Energy Field Office, Chicago (CH). Results of the OSHA-compliance sitewide assessment conducted by TSA Team NO. 4 have been included in the Worker Safety and Health (OSHA) Compliance discipline area of each of the other three TSA reports. Therefore, no separate report was prepared by TSA Team No. 4. Although nearly all of the performance objectives were addressed, this report cites only those performance objectives for which a concern was identified. Therefore, the reader is cautioned against forming an opinion of the safety and operational performance within a technical area without first reading the overview concerning that area. When a performance objective is not listed, the omission implies that the Subteam judged all applicable criteria to be met.

The findings and concerns identified by the S&H Subteam were obtained in three ways: (1) observing routine operations, emergency exercises, and the physical condition of the site and facilities; (2) interviewing management, staff, operators, and craft personnel; and (3) reviewing policy statements, records, procedures, and other relevant documents.

A concern addresses a situation that in the judgment of the S&H Subteam either: (1) reflected less than full compliance with a DOE safety and health requirement or mandatory safety standard; (2) threatened to compromise safe operations; or (3) if properly addressed would substantially enhance the excellence of a particular situation, even though that part of the operation was judged to have a currently acceptable margin of safety. Because this last category addressed excellence of operations, more concerns are reported than would result from a strictly compliance-oriented appraisal.

The findings that support each concern immediately precede the concern. The category rating, potential hazard level, and level of compliance for each concern were determined by using the criteria presented in Section 4.7. Most of the concerns, including those directed to DOE, were judged to be Category III, except for 3 that were evaluated as Category I and 31 that were evaluated as Category II. A tabulation of concerns from the appraisals is contained in Section 4.8.

Various self-assessments were reviewed by the Subteam. In some instances the self-assessments were specific documents with formal titles, while in other instances they were a compilation of findings. The following self-assessments and/or self-assessment program documents were reviewed:

- The EG&G self-assessment program documents reviewed consisted of a series of annual TSAs and audits carried out by the Performance

Oversight and Appraisal (PO&A) Group; a report from multiple line organization self-assessment efforts assembled by the Environment, Safety, and Quality (ES&Q) Department; and summary conclusions from the EG&G Idaho General Manager's Office, which are periodically published in the "ES&H Compliance Baseline and Status Report."

- "ANL-W Management - Environment Safety and Health Initial Self-Assessment," April 15, 1991. This document was supplemented by self-assessments from the five ANL-W divisions (Argonne West Division, EBR-II Division, Engineering Physics Division, Fuel Cycle Division, and Fuels and Processes Division).
- "MK-Ferguson of Idaho Company Commitment/Deficiency Management System, All Item Assessment Finding Report," July 8, 1991.
- "MK-Ferguson Baseline Self Assessment," April 15, 1991.
- "PTI Self Assessment Findings," (not dated).
- "Environment, Safety, and Health (ES&H) Critical Self Assessment Draft Rev 0, RESL Portion, Second Quarter, 1991," (not dated).
- "Specific Manufacturing Capability (SMC) Self Assessment," February-April 1991.
- "ID Fire Department Compliance Tracking System Listing," (not dated).
- "DOE-ID Self-Assessment Findings," (not dated).
- "Self Assessment of Environment, Safety, and Health Division (ESHD) Chicago Operations Office (CH)," May 1991.
- "Argonne Area Office-West Self Assessment Action Plan," June 4, 1991.

Tables 4-1 through 4-6 provide a comparison between the findings resulting from the various contractor self-assessments and those concerns identified during the TSAs. During the course of the INEL site appraisal, a significant number of concerns were identified that could only be addressed by ID. A comparison of these concerns, presented in Table 4-7, addresses deficiencies in the clarity of guidance to the contractors and weaknesses in the ID oversight of contractor activities. Also, included in Table 4-7, are the self-assessment comparisons for the relatively few concerns directed to the ID Fire Department, CH, and the Argonne Area Office.

A comprehensive OSHA-compliance appraisal covering general industry and construction worksites was performed. The scope of this OSHA-compliance appraisal involved locations where the majority of employees worked, including 63 major buildings/facilities, processes, services, maintenance buildings, and

TABLE 4-1
COMPARISON OF SELF-ASSESSMENT PROBLEM IDENTIFICATION WITH TSA CONCERNS
NUMBER OF SELF-ASSESSMENT CONCERNS/PERCENTAGE OF TSA CONCERNS/TSA DISCIPLINE BY SERIOUSNESS CATEGORY
EG&G Idaho - TSA Team No.1

TSA DISCIPLINE	Category II			Category III		
	Self	TSA	% TSA	Self	TSA	% TSA
Organization & Administration				10	12	83
Quality Verification				11	13	85
Operations				3	10	30
Maintenance	0	1	0	13	19	68
Training & Certification	1	1	100	5	6	83
Auxiliary Systems				2	5	40
Emergency Preparedness				11	12	92
Technical Support				3	4	75
Packaging and Transportation				2	5	40
Nuclear Criticality Safety				9	14	64
Security/Safety Interface				2	2	100
Experimental Activities				0	4	0
Site/Facility Safety Review				0	8	0
Radiological Protection				6	29	21
Personnel Protection	0	1	0	2	7	29
Worker Safety	1	1	100	8	11	73
Fire Protection				13	14	93
Medical Services				8	8	100
Totals	2	4	50	108	183	59

Note: "% TSA" column indicates the percentage of TSA concerns identified (in whole or in part) in the various EG&G Idaho self-assessment reports.

TABLE 4-2
COMPARISON OF SELF-ASSESSMENT PROBLEM IDENTIFICATION WITH TSA CONCERNS
NUMBER OF SELF-ASSESSMENT CONCERNS/PERCENTAGE OF TSA CONCERNS/TSA DISCIPLINE BY SERIOUSNESS CATEGORY
ANL-W - TSA TEAM No.2

TSA DISCIPLINE	Category I			Category II			Category III		
	Self	TSA	%TSA	Self	TSA	%TSA	Self	TSA	%TSA
Organization & Administration							8	9	89
Quality Verification				1	2	50	8	13	62
Operations							4	12	33
Maintenance							3	3	100
Training & Certification							7	7	100
Auxiliary Systems							4	4	100
Emergency Preparedness				1	1	100	5	5	100
Technical Support							6	10	60
Packaging and Transportation							7	12	58
Nuclear Criticality Safety							1	5	20
Security/Safety Interface							1	1	100
Experimental Activities							0	1	0
Site/Facility Safety Review							2	5	40
Radiological Protection							9	15	60
Personnel Protection				2	3	67	7	9	78
Worker Safety	1	1	100				4	6	67
Fire Protection							5	5	100
Totals	1	1	100	4	6	67	81	122	66

Note: "% TSA" column indicates the percentage of TSA concerns identified (in whole or in part) in the various ANL-W self-assessment reports.

TABLE 4-3
COMPARISON OF SELF-ASSESSMENT PROBLEM IDENTIFICATION WITH TSA CONCERNS
NUMBER OF SELF-ASSESSMENT CONCERNS/PERCENTAGE OF TSA CONCERNS/TSA DISCIPLINE BY SERIOUSNESS CATEGORY
MK-FIC - TSA TEAM No.3

TSA DISCIPLINE	Category I			Category II			Category III		
	Self	TSA	%TSA	Self	TSA	%TSA	Self	TSA	%TSA
Organization & Administration							2	8	25
Quality Verification							5	7	71
Training & Certification							1	6	17
Emergency Preparedness							2	8	25
Packaging and Transportation							1	6	17
Radiological Protection							0	1	0
Personnel Protection				1	1	100	2	4	50
Worker Safety	2	2	100	10	11	91	0	1	0
Fire Protection							0	2	0
Totals	2	2	100	11	12	92	13	43	30

Note: "% TSA" column indicates the percentage of TSA concerns identified (in whole or in part) in the MK-FIC self-assessment report.

TABLE 4-4
COMPARISON OF SELF-ASSESSMENT PROBLEM IDENTIFICATION WITH TSA CONCERNS ON THE
NUMBER OF SELF-ASSESSMENT CONCERNS/PERCENTAGE OF TSA CONCERNS/TSA DISCIPLINE BY SERIOUSNESS CATEGORY
PTI - TSA TEAM No.3

TSA DISCIPLINE	Category II			Category III		
	Self	TSA	% TSA	Self	TSA	% TSA
Organization & Administration				0	8	0
Quality Verification				3	3	100
Operations				1	1	100
Auxiliary Systems				0	2	0
Emergency Preparedness				1	2	50
Technical Support				1	1	100
Packaging and Transportation				0	3	0
Site/Facility Safety Review				1	2	50
Radiological Protection				1	1	100
Personnel Protection				0	2	0
Worker Safety	1	1	100	0	1	0
Fire Protection				1	2	50
Aviation Safety				0	1	0
Firearm Safety				1	7	14
Totals	1	1	100	10	36	28

Note: "% TSA" column indicates the percentage of TSA concerns identified (in whole or in part) in the PTI self-assessment report.

TABLE 4-5
COMPARISON OF SELF-ASSESSMENT PROBLEM IDENTIFICATION WITH TSA CONCERNS
NUMBER OF SELF-ASSESSMENT CONCERNS/PERCENTAGE OF TSA CONCERNS/TSA DISCIPLINE BY SERIOUSNESS CATEGORY
RESL - TSA TEAM No.3

TSA DISCIPLINE	Category II			Category III		
	Self	TSA	% TSA	Self	TSA	% TSA
Organization & Administration				1	4	25
Quality Verification				1	4	25
Operations				2	5	40
Maintenance				0	1	0
Training & Certification				0	1	0
Auxiliary Systems				2	3	67
Emergency Preparedness				3	8	38
Technical Support				2	5	40
Packaging and Transportation				0	11	0
Site/Facility Safety Review				0	3	0
Radiological Protection				4	21	19
Personnel Protection	0	1	0	0	2	0
Worker Safety				0	2	0
Fire Protection				0	2	0
Firearm Safety				0	2	0
Totals	0	1	0	15	74	20

Note: "% TSA" column indicates the percentage of TSA concerns identified (in whole or in part) in the RESL Idaho self-assessment report.

TABLE 4-6
COMPARISON OF SELF-ASSESSMENT PROBLEM IDENTIFICATION WITH TSA CONCERNS
NUMBER OF SELF-ASSESSMENT CONCERNS/PERCENTAGE OF TSA CONCERNS/TSA DISCIPLINE BY SERIOUSNESS CATEGORY
ROCKWELL-INEL - TSA TEAM No.3

TSA DISCIPLINE	Category II			Category III		
	Self	TSA	% TSA	Self	TSA	% TSA
Organization & Administration				2	7	29
Quality Verification				0	4	0
Operations				2	4	50
Maintenance				4	5	80
Training & Certification				4	5	80
Auxiliary Systems				2	10	20
Emergency Preparedness				8	10	80
Technical Support				4	5	80
Packaging and Transportation				3	6	50
Site/Facility Safety Review				2	3	67
Radiological Protection				5	13	38
Personnel Protection	0	1	0	3	9	33
Worker Safety	0	5	0			
Fire Protection				2	2	100
Totals	0	6	0	41	83	49

Note: "% TSA" column indicates the percentage of TSA concerns identified (in whole or in part) in the Rockwell-INEL Idaho self-assessment report.

TABLE 4-7
COMPARISON OF SELF-ASSESSMENT PROBLEM IDENTIFICATION WITH TSA CONCERNS
NUMBER OF SELF-ASSESSMENT CONCERNS/PERCENTAGE OF TSA CONCERNS/TSA DISCIPLINE BY SERIOUSNESS CATEGORY
ID, ID FIRE DEPARTMENT, CH, AND ARGONNE AREA OFFICE

TSA DISCIPLINE	Category II			Category III		
	Self	TSA	% TSA	Self	TSA	% TSA
Organization & Administration				0	4	0
Quality Verification				0	3	0
Operations				0	1	0
Training & Certification				3	4	75
Auxiliary Systems				1	1	100
Emergency Preparedness	0	1	0	1	4	25
Packaging and Transportation				0	3	0
Nuclear Criticality Safety				1	2	50
Radiological Protection				0	3	0
Personnel Protection				0	1	0
Worker Safety				0	1	0
Fire Protection				3	4	75
Aviation Safety				0	2	0
Firearm Safety				0	1	0
Totals	0	1*	0	9	34*	26

Note: "% TSA" column indicates the percentage of TSA concerns identified (in whole or in part) in the DOE self-assessment reports.

*The 35 concerns directed to DOE included 3 that were not described in the summaries in Section 4.4.3 because they were separately identified as DOE-related concerns.
(See Concerns PT.4-1, PT.4-2, and WS.4-8).

5 construction sites. As a result of this OSHA-compliance safety appraisal, 627 noncompliance issues were identified. Of these, 7 were categorized as willful (1 percent), 581 were categorized as serious (93 percent), and 39 were categorized as other than serious (6 percent). The high percentage of serious noncompliance issues results from the emphasis on identifying that level of deficiency. Furthermore, de minimis issues noted during the appraisal are not included in the inspection forms.

Drawing upon the extensive experience of its appraisers, the S&H Subteam has made an effort to identify some of the responsible factors in each statement of concern. However, the Subteam recognizes that this effort has limitations because Subteam members are not fully familiar with the details of the day-to-day operations at INEL. Therefore, the site contractors should consider the findings, as well as the statements of concern, as possibly symptomatic of some set of deeper root causes. Finally, the site contractors and their corporate management should search out and correct those root causes to ensure that improvements in the safety of the operation will be sustained.

4.4 SAFETY AND HEALTH ASSESSMENT SUMMARY

The INEL site is complex by the nature of its size, mission, differing programs and activities, and the number of contractors. Operating relationships between EG&G Idaho and other contractors adds to the complexity, particularly since the agreements defining responsibilities and authorities of various contractors are neither well defined nor documented. The problem of providing coherent and consistent guidance and oversight is further complicated by the fact that ANL-W reports to CH, although ID is responsible for providing guidance to ANL-W in such areas as emergency preparedness and fire protection.

Many safety improvements were in progress at INEL site facilities at the time of this appraisal; however, many initiatives remain to be refined, developed, and implemented before the desired safety culture is institutionalized across the site. Change is underway, but the rate of change and the reactive nature of many INEL responses raises questions about the effectiveness and permanence of many of the safety initiatives and improvements. Program changes that are underway need to be accelerated, procedures to fully implement these new programs need to be developed, and acceptance of line safety responsibility and oversight activities within the contractors, ID, and CH organizations need to be strengthened. Further, safety excellence, rather than simple compliance with DOE requirements, needs to be promoted. It was evident by the many serious OSHA-compliance violations that Worker Safety and Health (OSHA-compliance) requirements are not fully understood by INEL-site contractors.

Summaries of the safety and health assessments conducted by the S&H Subteam (TSA Teams No.1, No.2, and No.3) are presented, respectively, in Sections 4.4.1, 4.4.2, and 4.4.3. Results of the OSHA-compliance sitewide assessment conducted by TSA Team No.4 have been included in the Worker Safety and Health (OSHA) Compliance discipline area of each of the three TSA reports. Therefore, no separate report was prepared by TSA Team No.4.

4.4.1 EG&G Idaho, Inc.

The S&H Subteam (TSA Team No.1) appraisal of the EG&G Idaho programs at INEL indicates that a very serious effort is being dedicated to improving company activities to an acceptable performance level with respect to the new safety culture stipulated for all DOE sites. However, deficiencies remain and, accordingly, significant improvements are required before the programs can be judged to have achieved an acceptable performance level. A total of 198 concerns are presented in this section of the report, distributed throughout all of the 18 technical areas examined. Eleven of the concerns (all Category III) are addressed to ID, RESL, and the ID Fire Department. Two Noteworthy Practices were identified.

Of the 187 concerns directed to EG&G Idaho, none were designated Category I; four were designated Category II; and the remainder (183) were designated Category III. The four Category II concerns addressed deficiencies in: the implementation of controls in preventive maintenance, the certification process for equipment operators, the laser safety program, and guarding of moving machinery and using hand tools (OSHA noncompliance).

EG&G Idaho management has established an effective, though somewhat complicated, system of independent environment, safety, and health (ES&H) oversight; however, for some of the departments' internal audit groups, the stipulated "independence" was considered questionable. Administrative controls are in place, including a large number of Safety Analysis Reports (SARs), although there is no centralized control to manage the system for their preparation and revision. ES&H goals are specified and safety of operation is emphasized, but some of the individual departments have not published their safety program documents. The EG&G Idaho self-assessment program is extensive and in many areas comprehensive; however, the information is not easily accessed by external auditors.

The overall appraisal of quality verification at EG&G Idaho indicates that its Quality Assurance (QA) Program is a well established and mature program, documented and implemented through a well-structured hierarchy of policies, requirements, and procedure manuals that satisfy the requirements of DOE 5700.6B. The EG&G Idaho self-assessments and appraisals have identified specific areas needing improvement, both in the written quality verification program and in its implementation. Many of these improvements have been completed; others are on track for timely completion. Moreover, some areas needing additional improvement were noted during this appraisal. These generally included inadequacies in: (1) protection and control of QA records and documents, (2) reporting and correction of quality problems, (3) establishment and compliance with procedures, (4) adoption of commercial industry good practices, and (5) implementation of DOE directives. This appraisal also identified the need for the DOE to establish a clearly defined policy to direct the Inservice Inspection activities at the Advanced Test Reactor (ATR).

Overall, the EG&G Idaho operations functions were judged to contribute effectively to their multiple programs. The operations organization structure is well defined and understood, as are the responsibilities and authorities

for each management, supervisory, and professional position. Most deficiencies discussed in the detailed findings and concerns can be traced to several root causes, including aging facilities; a lack of full implementation of the requirements contained in DOE 5480.19, "Conduct of Operations Requirements for DOE Facilities"; and inadequate management safety controls.

EG&G Idaho maintenance management recognizes the importance of maintenance in fulfilling their stated mission. Inspections of many EG&G Idaho buildings and facilities revealed that equipment critical to safe operations and program support is being well maintained. Many preventive maintenance procedures are issued for performance without being reviewed by safety personnel to ensure that safety hazards and control requirements are detailed in the procedures; several instances were noted where personnel had performed preventive maintenance tasks involving work with hazardous chemicals. Tracking and trending of maintenance performance does not include many of the applicable performance indicator goals cited in DOE 4330.4A. EG&G Idaho has a formidable task ahead to achieve full compliance with DOE 4330.4A. This task has been acknowledged by maintenance management, and an implementation plan is being developed.

EG&G Idaho management of company-wide training issues is seriously deficient, and ID has provided little in the way of formal requirements or guidance in these areas. This situation is evidenced by: (1) a lack of any company-wide standards or requirements for the conduct of training; (2) a lack of any formal mechanisms for coordination or communication among training organizations; (3) an unreliable company-wide training information system; and (4) uneven quality in training materials, facilities, and implementation. Significant problems identified during this appraisal with equipment operator certifications illustrate the potential difficulties with the present system. EG&G Idaho has identified almost all of the weaknesses in their training programs and has begun to address many of the needs. The most visible example of this effort is the development of a draft company-wide matrix that identifies training requirements mandated by regulation, DOE Order, or company requirements for all categories of employees. EG&G Idaho has established a Mandatory Unit Manager Development Program that includes a Requirements Awareness Program. This initiative was cited as a Noteworthy Practice.

An excellent waste minimization program has been successfully implemented at EG&G Idaho. Six concerns in the area of auxiliary systems were identified during this appraisal. Two of these address the lack of a clear identification of what constitutes auxiliary systems. A third concern addresses the lack of a documented program on control of potentially contaminated liquids that would be generated by decontamination of an injured person in the Central Facilities Area (CFA) Medical Facility. A fourth concern addresses the control of water chemistry in the storage pool in which the Three Mile Island fuel residue is stored. The remaining two concerns addressed the ventilation systems and the lack of a formal procedure to test a backup diesel generator.

The level of emergency preparedness at EG&G Idaho is acceptable and improving. Most of the concerns cited in this technical area result from the application of the new emergency preparedness requirements cited in the recently issued

DOE 5500.3A and from the OSHA hazardous materials emergency planning requirements specified in 29 CFR 1900.120. (DOE contractors have until November 1991 to provide an implementation plan for DOE 5500.3A.) Key issues identified in this appraisal relate to the new requirements for the development of Emergency Planning Zones for each radiological and non-radiological hazard identified in safety reviews, and to the development of agreements with regard to initial preplanned actions during an emergency.

In the technical support area, the appraisal developed concerns related to SAR content, coverage, and compliance and to trending for safety and operational enhancement. The SAR deficiencies were in the areas of compliance with DOE Orders, accuracy of the SAR status data base, and lack of SAR coverage for two facilities requiring SARs. The SARs and their associated Operational Safety Requirements (OSRs) were deficient in a number of areas, but the individual deficiencies were not universal to all EG&G Idaho facilities and activities appraised. The nature of the compliance deficiencies related to the lack of sufficient documentation of assumptions in accident analyses, insufficient descriptions of accident response actions, lack of assurance of compliance with current design codes, and missing elements of accident analyses. A data base maintained for tracking the status of SAR developments and scheduled updates was found to have a significant amount of incorrect, incomplete, and/or out-of-date information. In this form, the data base is not a useful management tool. No SARs are in place for operations at the Bldg. TAN-666 Liquid Waste Facility and at the CFA Chemistry Laboratory. Risks of these operations are being accepted by management without SARs or other documentation. Little formal trending of safety equipment and/or process performance is being conducted.

Packaging and transportation operations were being performed safely; however, this appraisal identified five concerns, several of which could lead to potential safety problems. Onsite transportation is being conducted in accordance with the latest guidance from the Department of Transportation (DOT). Self-assessments performed by EG&G Idaho for most packaging and transportation activities are well conducted. The ID division for ES&H oversight routinely inspects and appraises INEL contractors on their packaging and transportation activities.

Overall, nuclear criticality safety at EG&G Idaho is effectively managed. This success can be attributed to the dedication and conscientiousness of the staff, and the relatively small amount of fissile material that is processed. Major problems are: (1) because of the volume of work, some criticality issues cannot be covered by the only criticality engineer (assigned to the Power Reactor Programs Department); (2) control of documentation relating to criticality safety is not assigned to a knowledgeable central organization; and (3) the signs relating to criticality safety are misleading and in need of major revision. ID is doing a creditable job in overseeing the criticality safety function.

Security Inspectors were found to control the site adequately during an emergency exercise observed by the S&H Subteam; however, they demonstrated inadequate knowledge of alternative routes for emergency response vehicles and for evacuation. Security Inspectors have not been required to receive all of

the training required for unescorted access to EG&G Idaho facilities. EG&G Idaho was found to provide appropriate safety reviews of proposed new or modified security facilities.

The experimental activities principal staff, with some exceptions noted herein, have a well-conceived, dynamic program. The review aspects of the experimental safety envelope follow a chronological pathway mandated by well-understood Standing Directives. The interworking relationship with operations appears effective. While the operating structure for experimental activities, in three experimental groups, provides enhanced focusing in the three areas of interest, enhanced communication between experimental groups is needed where responsibility is shared for a particular experiment.

The independent safety review and appraisal system is documented except for the lack of a company procedures document assigning responsibility and setting the basic requirements for independent appraisals and audits. EG&G Idaho describes their safety review system to include the Nuclear Safety Review Group, Environmental Management Oversight Committee, Line Management Independent Review System (LMIRS), ad hoc Committees, and the PO&A Group. While all of these organizations play a part in safety, only PO&A and LIMRS satisfy the requirements contained in DOE Orders for independence. PO&A performs appraisals and audits and LIMRS performs technical safety reviews. PO&A has issued its own appraisal procedures, which they use as their authority to perform appraisals of operating facilities. There are weaknesses in this document that could restrict appraisal activities or reasonable resolution of safety issues.

EG&G Idaho line management has not effectively discharged its responsibility for radiological safety; overall performance has been marginal at best. The EG&G Idaho radiological safety oversight program, which ensures that the operation is in compliance with appropriate DOE Orders, standards, codes, and accepted industry practice, is ineffective and lacks sufficient scope and technical depth. Major deficiencies observed were related to contamination control, radiation zoning and posting, internal dosimetry, external dosimetry, egress monitoring, air sampling, and nuclear accident dosimetry. Ineffective utilization of key radiological safety staff was also observed. Equally ineffective is the ID radiological protection oversight of the EG&G Idaho program. The site health physics service activities for internal and external dosimetry and for instrument calibration are under separate organizational entities and are not integrated. The lack of a centralized service activity and the lack of sufficient applied development activities impact the quality of performance.

The health and safety programs at EG&G Idaho were noted to be controlling real personnel hazards in all technical areas except for those related to the use of lasers. Each of the 12 EG&G Idaho departments has established, or is establishing, a functionally independent health and safety program. Where positive elements of this approach were identified, they were uniquely the result of the efforts of an individual health and safety professional. Quality in implementation of the EG&G Idaho health and safety program varies significantly between various departments. There is no single organization within EG&G Idaho having the authority to direct line organization compliance

in safety and health responsibilities. The ES&Q Department of EG&G Idaho which is responsible for Health, Safety, and Quality Programs Oversight, (the ES&Q Department) has been ineffective in identifying significant deficiencies. At the time of the appraisal, there were no means by which EG&G Idaho could assess the overall state of the health and safety program at the site. A self-inspection program initiated by the INEL Supercomputing Center was cited as a Noteworthy Practice.

Fire protection requirements contained in DOE Orders, the EG&G Idaho Safety Manual, and National Fire Protection Association (NFPA) standards are not being fully implemented by the various departments within EG&G Idaho. Line management is responsible for the development, maintenance, and implementation of written programs to comply with DOE "improved risk" criteria. The individual departments are at various stages of compliance with these requirements. The Power Reactor Programs and Waste Management Departments are currently implementing very sound programs; the fire protection programs in the other EG&G Idaho departments are below standard. The ID Fire Department provides fire suppression and other emergency response functions for the INEL site; however, it cannot effectively respond to an emergency with the required personnel, emergency apparatus, and equipment. Moreover, if required, the Fire Department does not have the capability of effectively responding to a second emergency situation on the INEL site. Coordination agreements between the various contractor fire brigades and the ID Fire Departments have not been formalized. An aggressive NFPA 1500 compliance plan is in place to correct the majority of deficiencies noted for the ID Fire Department.

The EG&G Idaho Medical Department provides services to all prime contractors at the INEL site. The present organization structure, and the lack of written medical service agreements between EG&G Idaho and other INEL prime contractors, inhibits satisfactory management communication and satisfactory environmental and personnel interfaces between the numerous INEL contractor organizations. As a result, there is no assurance that all employees who require medical surveillance or other occupational examinations are identified. Moreover, there is no formal review and audit program to ensure timely identification of deficiencies and deviations from prescribed medical practices. All medical facilities are substandard and functionally inadequate.

4.4.2 Argonne National Laboratory-West

The ANL-W facilities and operations were appraised by the S&H Subteam (TSA Team No. 2). Even though many changes were underway during this appraisal, the new DOE culture goals associated with safety excellence are slow to be achieved. A total of 134 concerns were identified, 129 of which were directed to ANL-W and 5 to DOE. The 5 DOE concerns were directed to CH (1), the Argonne Area Office (2), ID (1), and the ID Fire Department (1).

Of the 134 concerns, one was identified as Category I, 7 were identified as Category II, and 126 were identified as Category III. The Category I concern and six of the Category II concerns were directed to ANL-W, and one of the Category II concerns was directed to ID.

The Category I concern resulted from subcontractor employees working in proximity to a power shaft on a diesel generator that had not been properly locked-out or rendered inoperative.

The seven Category II concerns involved the following deficiencies: (1) a lack of engineering analysis to support "accept-as-is" dispositions of nonconformances; (2) continued fabrication of fuel elements by departing from erroneous procedures without properly documenting the discrepancy and correcting the procedures; (3) work control practices not uniformly applied, and in some cases not used at all, across the site's five divisions; (4) improper use of lockout/tagout procedures; (5) poorly managed asbestos abatement initiatives that resulted in release of fibers to occupied spaces that exceeded EPA concentration guidelines; (6) significant weaknesses in the ANL-W emergency preparedness program related to the timely and proper classification of emergency events and notification of offsite organizations; and (7) insufficient written directives from ID to ensure the effective command, control, and oversight functions during emergencies.

Several significant safety- and health-related deficiencies were identified by TSA Team No. 2. These were evidenced both by the nature and extent of the findings and concerns, the number of combined Category I and Category II concerns, and the high percentage of concerns indicating noncompliance with mandatory requirements, such as DOE Orders and Federal regulations. First, ANL-W management has failed to properly integrate safety and health initiatives into its line functions. Specific instances were observed where line managers made safety-related decisions without a full appreciation and understanding of their implications; for example, lack of work control on the diesel generator, the "accept-as-is" disposition of the sodium line weld, and deficiencies noted within asbestos abatement practices. Line management has relied on the technical self-sufficiency of the organization to solve safety problems rather than to use appropriate safety professionals, as was the case with deficiencies noted in the management of asbestos abatement activities. Second, management has relied on the use of safety margins to justify poor safety practices. The "accept-as-is" dispositions for nonconformances have been used instead of taking the necessary steps to correct deficiencies when they are detected, and the classification of the fuel manufacturing facility as a nonnuclear facility indicated a lack of appreciation of potential nuclear hazards. This points to underlying weaknesses in the day-to-day operations and management activities and an erosion of the safety margin that an effective management and quality assurance program should provide. Third, ANL-W has failed to establish an effective work control system. The failure to properly lockout the diesel generator identified in the Category I concern and the inconsistent use of work permits are evidence that effective work control practices have not been implemented across the site. Fourth, the ANL-W site is managed as individual divisions rather than a single, unified organization. Inconsistent use and implementation of procedures, inconsistencies with respect to work control practices, the lack of an effective system to track safety- and health-related findings and commitments, and training programs that vary from division-to-division are deficiencies that have resulted from a fragmented approach to managing the site. Fifth, loss of experienced nuclear criticality safety staff, due to transfer and impending retirements and the lack of a management staffing plan addressing

future needs, may adversely affect the safe operation of ANL-W facilities in the future. Finally, CH and the Argonne Area Office have failed to provide effective oversight of ANL-W as evidenced by the large number of serious safety deficiencies noted across the site as part of this appraisal.

ANL-W has not developed a consistent and effective culture to attain, verify, and improve quality sitewide. Each division is at a different stage in the implementation of their own QA program. EBR-II and Fuel Manufacturing lead the others, but ineffective implementation of work controls resulted in two Category II concerns related to disposition of nonconformances and inspections to verify conformance. Other major sitewide quality concerns include an ineffective review/audit program, a misunderstood and ineffective nonconformance control system, a material control and procurement system that does not preclude using inappropriate items, and a lack of management commitment and vigilance to achieve line quality improvement, as evidenced by the findings of this assessment.

Operations are conducted in an acceptable manner and facility housekeeping is excellent; however, concerns were identified that indicate corrective action is required. The most significant concern is related to the condensate drain line in the EBR-II containment structure that is terminated downstream of the high-efficiency particulate air filters, and downstream of the radiation monitors. This condition, in noncompliance with Technical Specifications, has existed since the facility was constructed, and this calls into question the process used to assure compliance. In addition, concerns have been raised with respect to work control practices that are not adequate for maintenance personnel performing the work; temporary procedure notices that are not being canceled as required; deficient lockout and tagout procedures that are being employed; and functional labels that have not been placed on all valves and equipment. The use of a fifth shift to improve training for operators and supervisors, a goal of the move toward excellence, has not been implemented at EBR-II.

The lack of management oversight by ANL-W and CH resulted in the concern identified by the Team related to classifying the fuel manufacturing facility as nonnuclear even though large quantities of fissile uranium are handled. Management has not demonstrated their commitment to update and complete operational and maintenance procedures for the fuel cycle facilities by using schedules and milestones to track and assess progress.

Maintenance at ANL-W is performed by six program groups and the Support Services Department. This fragmentation of work carries over to procedures, policies, and work rules, and has resulted in the identification of a concern regarding lack of uniform maintenance work control. Trending efforts using maintenance data and subsequent root cause analyses of equipment failure is not performed. Another concern resulted from ineffective procedure review from both safety and programmatic aspects. Overall, site housekeeping and maintenance is very good.

There is no comprehensive or formally implemented training program that covers all of ANL-W. EBR-II, as a Category A reactor, has long had requirements for a more structured training program and, therefore, has a more comprehensive

and auditable program. As a result, since April 1991 EBR-II has been providing General Employee Training and ES&H training (e.g., hazard communication and laser safety) to all ANL-W employees. Training, however, has not been formally implemented in many areas, including fire protection, radiation protection, worker safety, emergency preparedness, quality verification, technical support, auxiliary systems, and packaging and transportation. Training in laser safety and hazards communications does not meet mandated requirements. In addition, job task analyses have not been performed.

Auxiliary systems are in good condition. Procedures for some activities needed to be upgraded for consistency between the different divisions at the site. Training of personnel for some activities was informal (on-the-job). Personnel in charge of maintaining and operating these systems were found to be knowledgeable and aware of system problems and operating parameters. The good overall condition of the facilities appeared to be due more to the efforts of experienced and dedicated personnel rather than rigorous system safety analysis, procedures, training, and data documentation and trending.

The emergency preparedness program has an effective emergency response plan and is being upgraded to meet the new requirements of revised DOE Orders. Implementing procedures are being developed, but are not all in place. Deficiencies identified in the TSA exercise conducted as a part of this assessment resulted in a Category II concern related to the ANL-W capability to perform emergency classifications and to notify offsite emergency management officials. Another category II concern was addressed to ID for lack of written directions to ensure effective command and control during emergencies.

Technical support activities are being provided in a satisfactory manner in each of the five separate divisions by competent staff. There are several weaknesses identified in the ANL-W technical support area including lack of DOE Order compliance and sufficient audit processes; lack of technical support self-assessment completeness and accuracy; lack of documentation and configuration control within several of the divisions; poor procedure development and compliance; lack of responsiveness in updating SARs; insufficient technical support training; insufficient equipment monitoring and trending; and marginal implementation of the environmental and waste management programs.

The packaging and transportation functions are performed professionally by dedicated and knowledgeable personnel; however, they are being performed in a fragmented manner. There is no transportation safety manual to guide performance, and there is no formal oversight organization established. A focal organization and a dedicated packaging and transportation safety manual is needed to capture the requirements of updated regulations, standards, and DOE Orders, and to uniformly integrate the data into packaging and transportation plans and procedures. Uniform training requirements are not established, and distribution of lessons learned to personnel involved in packaging and transportation activities is not occurring. To meet the requirements of DOT proposed regulations, management needs to take action for

procurement of new casks and obtain DOT and DOE temporary exemption for the use of intersite waste shipment casks.

The ANL-W nuclear criticality safety practices work effectively to minimize the potential of a criticality accident. Competent specialists, conservative mass limits and controls, and redundant fissile material accountability procedures all contribute to the assurance of criticality safety. However, formal sitewide policy and procedures do not provide guidance for responsibilities and practices within the divisions. Also, the startup of new facilities and the retirement of some specialists suggest that a management plan for resource allocation is needed.

The interface between the ANL-W safety and security organizations is functioning effectively. A special nuclear materials vault was designed with security features not meeting all Life Safety Code requirements. After analysis by safety professionals, a variance was requested, of and granted by, DOE. Security inspectors were found to be highly professional and knowledgeable of various safety aspects of security measures. A single concern noted the lack of a formal system for the tracking to resolution of action items resulting from safety reviews of security projects.

The experimental activities conducted at ANL-W consist of both in-core and out-of-core reactor irradiations and, for the most part, are conducted by the ANL-W staff. Most, but not all, experiment proposals are developed using a guide that, for the in-core reactor experiments, is very detailed. The proposals are extensively reviewed for impacts to reactor safety, and authorized if found to satisfy established requirements. Out-of-core experiments are not subjected to the same protocols or rigor. The safety and health issues are not given the same rigorous review as the other safety areas, even though ANL-W has a dedicated ES&H staff. This lack of comprehensive, independent review of safety and health issues resulted in the only concern noted in this functional area.

Safety review committees have addressed nuclear safety questions well. However, the safety of nonnuclear facilities has not received the same level of attention. The independent review and appraisal system does not assure ES&H coverage in sitewide operations. ANL-W recognizes this and is working to bring the safety of nonnuclear facilities up to par with nuclear facilities. They are also just beginning to trend operating experience data to improve safety and reliability.

There is no clear delineation of radiation protection assignments and authorities. Formal classroom training in radiation protection is non-existent. Implementation of DOE 5480.11, has not been accomplished and little headway has been made in that direction. An existing approved implementation plan to reach compliance has not been followed, tracked, or implemented. Many elements of a good as-low-as-reasonably-achievable (ALARA) program are missing. Lack of instrument calibration makes it doubtful that accurate dose rates and contamination levels are being determined. Operational excellence was noted, however, in the areas of vertical communications, individual competence, source control, and occurrence reporting and investigation.

The organizational system to implement and enforce the health and safety program at ANL-W is in a state of development. Coordination among line management, division safety and health personnel, and Safety, Environment, and Safeguards personnel has not been fully established to effectively implement the health and safety program.

Numerous deficiencies were found within the personnel protection program regarding issues of hazard recognition and control, hazard communication, training, exposure monitoring, construction safety, laser safety, hearing conservation, confined space entry, respiratory protection, and personal protective equipment. Three Category II concerns were identified that noted (1) lack of a uniform and effective lockout/tagout program, (2) failure to control the asbestos hazard during abatement activities, and (3) lack of an effective work control program to address health and safety hazards.

With regard to worker safety, ANL-W management has not adopted a coordinated effort aimed at development and implementation of an effective sitewide safety and health compliance program. Decisions to comply with mandatory safety and health requirements are based, in part, on the probability of an accident occurring rather than taking an aggressive preventative approach to compliance.

Fire protection concerns were expressed in the areas of organization and administration, public protection, impairment of operations, fire department operations, and program implementation. The actual ANL-W fire protection engineering capability is excellent, but documentation of reviews and other documentation needs improvement.

4.4.3 Selected Contractors, INEL

Morrison Knudsen-Ferguson of Idaho Company

The operations of MK-FIC were reviewed by the S&H Subteam (TSA Team No. 3), which identified 57 concerns. These concerns included 2 Category I concerns and 12 Category II concerns. Four additional concerns related to MK-FIC were directed to the ID.

The large number and severe nature of these Category I and II concerns indicates the presence of a serious management problems. That these safety problems can exist at a construction site suggests that the discipline brought to bear by the contractor and ID line management is insufficient to ensure that the line safety responsibility is satisfactorily discharged. MK-FIC policy firmly states that safety considerations take priority over construction schedules; however, the practices observed do not confirm the implementation of this policy. In addition, the problems suggest extensive and persistent failure of the contractor internal safety overview capabilities and procedures, and raises questions concerning the competence of the ID overview of MK-FIC operations.

The two Category I concerns noted deficiencies in ladder and scaffolding safety, and floor, wall openings, and stairways safety.

The 12 Category II concerns include such issues as noncompliance with requirements regarding general safety, concrete and masonry construction safety, electrical safety, respiratory protection practices, fire protection and prevention, welding and cutting safety, handling of hazardous materials, and excavation safety. The contractor's unwillingness to take effective action, such as curtailing construction when necessary, and lack of concern with the quality of breathing air for supplied air respirators were also noted.

MK-FIC accomplishes its function principally by managing subcontractors, including providing ES&H oversight. The oversight function is performed under severe time constraints, contributing to an unsatisfactory level of safety performance. Safety oversight of subcontractors is provided by job supervisors, which is a conflict of interest.

MK-FIC has developed a formal, comprehensive quality verification program for the technical requirements of the construction mission; however, the program does not address safety and health requirements in audits and surveillance performed on MK-FIC and subcontractors. In addition, the large number of OSHA findings in the MK-FIC self-assessment indicates that the training and verification programs are not effective.

The MK-FIC program for performance-based training is just now being formulated and staffed. Only one lesson plan has been prepared for the new performance-based training, and it was judged to be inadequate for ensuring consistent training from class-to-class. MK-FIC does not provide training for, or assess the training provided by, the subcontractors to ensure that DOE worker safety and health standards are understood. Development of a quality performance-based training program is expected to be slow.

The appraisal showed that MK-FIC has a very limited program in emergency preparedness. This program does not meet the requirements of the DOE 5500 Order series for Emergency Preparedness planning, procedures, training, and documentation.

MK-FIC considers the packaging and transportation of hazardous materials at INEL to be the responsibility of EG&G Idaho or of the individual INEL operating contractors at each site. However, MK-FIC does move hazardous materials within the construction sites using untrained and unqualified personnel. Subcontractors are informed of hazardous waste minimization and handling requirements, but there appears to be no oversight to ensure adherence to the instructions. In summary, MK-FIC has no packaging and transportation program.

MK-FIC construction management and oversight personnel are potentially exposed to radiation and radioactive material at operating facilities. Facility operating contractors establish annual individual exposure limits for such personnel; however, there are no consistent requirements among operating contractors and thus exposures may not be ALARA.

MK-FIC has a sound industrial safety program for their employees. They have required subcontractors to establish safety plans and have recently begun

training some subcontractors in construction topics. However, in enforcing subcontractor compliance with industrial safety requirements, MK-FIC has been unwilling to shutdown unsafe jobs when circumstances warranted such action. The lack of effective safety enforcement constituted a Category II concern.

In industrial hygiene, MK-FIC relies on each operating contractors' industrial hygienists, calling upon them when an issue arises. Programmatic oversight and inspection are not required, thus the control of health hazards is not assured.

The Worker Safety and Health (OSHA) Compliance Team (TSA Team No. 4) inspected the Fuel Process Restoration (FPR) project and found extensive violations and hazardous conditions in all areas of the site, including two Category I and numerous Category II noncompliances. The inspection confirmed that a major contributor to the highly unsatisfactory state of construction safety at this site can be attributed to the failure of ID to exercise control and oversight, and to enforce the safety and health provisions of the contractual agreements in effect at INEL.

There is no formal fire protection program. Fire protection is declared the responsibility of subcontractors, but no onsite review is conducted by MK-FIC. The site has a serious fire risk from the use of large quantities of wood of questionable fire resistance in a three-story building foundation. Lighting and escape provisions are unsatisfactory. A prefire plan for the site has not been made available to the ID Fire Department.

Protection Technology of Idaho, Incorporated

PTI facilities and operations were appraised by the S&H Subteam (TSA Team No. 3), which identified a total of 37 concerns. An additional four concerns related to PTI, were directed to the ID. There were no Category I concerns, but one Category II concern was identified related to heating conservation and ventilation control. In addition, one Noteworthy Practice was identified in the area of firearms safety.

PTI management has made good progress in resolving safety-related issues inherited by PTI from the previous contractor. The PTI management has improved the implementation of safety and health initiatives as demonstrated by an exemplary firearms safety program, an excellent performance-based training program, and a revised quality program that incorporates safety and health requirements.

However, PTI has not been effective in meeting the requirements for independent safety review and appraisals because they have allowed a conflict of interest to reduce review objectivity. Lack of expertise in some critical areas has made it necessary for PTI to rely on services provided by EG&G Idaho. Problems with this interface have been encountered in the areas of fire protection, engineering, packaging and transportation, radiological protection, and auxiliary systems support for PTI facilities. These difficulties result, in part, from the lack of formally defined user/support contractor interface agreements. In addition, PTI has not accepted full responsibility for the facilities it occupies. These interface problems

indicate that the ID has not been sufficiently diligent in its oversight of PTI to assist in the resolution of problems between its contractors.

The PTI ES&H Department has been given an excessively broad role in the establishment of operating procedures and, thus, has a conflict of interest in its oversight role. Communication on a regular basis with the widely dispersed guard force on safety matters is difficult. The effectiveness of the methods used to communicate safety-related information to the guard force has not been verified by PTI.

PTI has developed a quality program that addresses the compliance requirements for safety and health; when it is fully implemented, it should assist with the required cultural change that is currently taking place at PTI.

PTI operations are conducted in a disciplined manner with appropriate detailed documentation. However, PTI does not yet have an effective lockout/tagout system, although one is being developed. Interaction with other site contractors in security matters is effectively conducted.

PTI obtains both site support services and vehicle maintenance services from EG&G Idaho except for helicopter maintenance, which is effectively performed by PTI in their own facilities. Maintenance on PTI-operated equipment at plant entrance duty stations is satisfactorily handled by the resident contractor's maintenance organization.

PTI has an excellent performance-based training program. The instructor and administrative staff level is adequate to support the company training needs and goals. PTI uses an annual development plan to schedule all required recurring training and professional enhancement training. PTI management is committed to training and has provided the resources necessary for a quality program.

For the auxiliary systems, PTI depends on EG&G Idaho for necessary services. Mistakenly, PTI has adopted the attitude that they have no responsibility for these systems. PTI needs to acknowledge its responsibility for facilities such as the firing range ventilation system and the diesel powered generator provided to supply the alarm control system and communications, since they are necessary for the performance of the PTI mission.

The appraisal found that PTI has a well-developed emergency preparedness program with sound management support. PTI is developing readiness assurance plans and hazards assessment; however, improved technical rigor for safety and health aspects is required to strengthen the overall program. In addition, PTI's emergency preparedness training and communications assets need to be reviewed for adequacy.

PTI is involved in packaging and transportation activities both in providing onsite escorts for shipments by other site contractors and as the shipper. The escort activity is handled very professionally. Packaging and transportation of the hazardous wastes generated by PTI are dependent upon EG&G Idaho shipments from PTI, but the transportation activity is hampered by an inadequate EG&G Idaho Hazardous Materials Transportation Manual.

For the identification and control of hazards associated with day-to-day operations, a firing range SAR and individual safety analyses for hazardous operations are in place. PTI is less effective in meeting DOE Order requirements for independent safety oversight and appraisals; they are not fully aware of the requirements for periodic appraisals and triennial reviews of the safety program and they have no safety review committee.

The radiological protection program at PTI is in the process of being upgr to include the elements necessary for ensuring appropriate application of radiation protection requirements. PTI management has only recently recognized its responsibilities for radiation control for its personnel. Previously PTI had relied upon EG&G Idaho and the other contractors for services such as dosimetry, radiation training, and guidance in radiation protection activities.

The PTI safety and health program functions well with regard to meeting requirements of security and aviation safety Orders. However, for industrial hygiene, PTI relies on the services of the EG&G Idaho industrial hygienists. PTI does not request routine inspections or programmatic involvement by EG&G Idaho. As a consequence, PTI's respiratory protection program was of particular concern because of the absence of professional oversight.

While PTI takes a proactive approach to worker safety, and is ahead of any other contractor observed by TSA Team NO. 3 during this appraisal, it does not yet meet all of the DOE/OSHA requirements. Excellent programs are in place and most are carried out in an effective manner.

PTI does not have fire protection capabilities within its own organization. This service has not been supplied by the site support contractor, EG&G Idaho, to PTI's satisfaction. A long-standing specific problem, which remains unresolved, is the lack of an audible fire alarm in Bldg. CF-609. A fire safety problem with the helicopter hangars WAS addressed recently but modifications are not yet complete.

The PTI pilots, flight safety engineers, and maintenance personnel are performing satisfactory. The hangar facility has had multiple problems, which have not been addressed by the site support contractor, EG&G Idaho, until recently. ID has not provided safety oversight since 1989 and has historically allowed EG&G Idaho to neglect PTI's facilities. As a result of problems with the hangar, maintenance activities are inconvenienced. The hangar problem is currently being addressed by ID management and should be resolved by the end of the fiscal year.

Aircraft safety is satisfactory. Because of the hangar problem referred to above, the helicopters are parked outside the building and maintenance is impeded. This problem is exacerbated by the unreliability of the particular model of engine in the helicopters. Both problems are being addressed.

PTI management is committed to excellence in the implementation of the DOE Firearms Safety Program. Continued emphasis is required in the implementation of weapons handling procedures. PTI has taken several progressive and

proactive management measures in the past 18 months to turn around a previously deficient firearms safety program.

Argonne National Laboratory-West

TSA Team No. 3 also performed the appraisal of firearms safety at ANL-W. It was found that the ANL-W protective force firearms safety program is moving towards compliance with DOE 5480.16. The ANL-W firearms safety self-assessment program is in its initial stages, but will require that definite proactive measures be taken by management to improve the program. The ANL-W Industrial Safety Department must become involved in actual oversight of ANL-W firearms-related activities and become involved in the ANL-W firearms safety self-appraisal program. A Noteworthy Practice was identified related to the incorporation of training exercises into training on the hazards associated with the impact of bullets and other projectiles on sensitive materials.

Radiological and Environmental Sciences Laboratory

The RESL facilities and operations at INEL were appraised by the S&H Subteam (TSA Team No. 3), which identified a total of 75 concerns, one of which designated as a Category II concern. An additional five concerns related to RESL were directed to ID. The Category II concern addressed the lack of a maintenance procedure for ensuring that a shock sensitive explosive, perchloric acid, does not build up in fume hood duct work.

An important concern is related to the problems associated with the site support contractor/user interface between EG&G Idaho and RESL. This relationship has given rise to numerous problems with significant safety implications in the areas of technical support, packaging and transportation, auxiliary systems, radiation protection, maintenance, and fire protection. The small size of the RESL staff makes it necessary for it to rely upon the services of others, and such services must be timely and of high quality if RESL's work is not to suffer. However, it has no authority to enforce a satisfactory response from EG&G Idaho. The large number of problems arising from the user/support contractor relationship and the tardiness of their resolution suggests that ID has not been sufficiently diligent and forceful in its oversight.

There is no safety oversight focal point in RESL, and the Laboratory capability for this function is doubtful. Meetings with working level personnel are not extensively used for safety communication, and are not held regularly.

RESL has a quality program plan that has been approved by ID; however, procedures are in draft form and in varying degrees of implementation. Branch plans and procedures are not consistent and the QA Program does not specifically address the safety and health compliance requirements. RESL does not have a person with QA experience dedicated to QA on its staff.

A completely revised RESL Manual was recently issued covering policy and management instructions. However, the manual does not implement the conduct of operations to the working level, as required by DOE 5480.19. Despite this,

the scientifically knowledgeable employees at RESL are making a sincere effort towards a more disciplined and well documented conduct of operations.

Contrary to a previously stated general concern, site support contractor and programmatic maintenance services are provided in a satisfactory manner by EG&G Idaho for most RESL maintenance areas, although a concern was expressed about the lack of a requirement for notification before starting work.

RESL has only recently recognized its operating responsibility for facilities such as the fume hood ventilation and waste systems. Waste management deficiencies have been identified and resolutions initiated. In the hood ventilation system, however, RESL depends excessively on the site support contractor, EG&G Idaho, and RESL expertise in this area is not properly utilized. Additional resources need to be allocated to safety functions.

The RESL training program is unstructured; however, ID has approved a Training Program Manual that details the training requirements for its personnel including RESL. Additional program development will be needed to ensure that training is performance-based. RESL recently hired an industrial hygienist who conducts health and safety training for the staff.

The RESL emergency preparedness program was evaluated based on its support functions to other activities at the INEL. The expectations identified within various ID and contractor plans are far beyond RESL's current capability. The RESL role during emergency situations has been confused by erroneous guidance from ID, and this needs to be corrected. The RESL Manual does not address, and RESL has not allocated, sufficient resources to comply with the DOE 5500 Order series.

RESL has little need for a technical support organization for its activities; however, it is in the process of developing procedures that use EG&G Idaho or outside consultants, when needed. Deficiencies were identified with respect to timeliness of analytical services, definition of readiness review requirements, and interface agreements with the site support contractor.

RESL has not recently needed to perform packaging and transportation activities; consequently, it has an inadequate packaging and transportation program, but management erroneously assumes that the capability exists. The packaging and transportation capability at RESL is minimal, and will take a substantial effort to reach compliance, yet there are very few resources devoted to that goal. The RESL packaging and transportation activity suffers from an inadequate EG&G Idaho Hazardous Materials Transportation Manual.

RESL has major deficiencies in the safety review area. ID has not established an independent internal safety review function for RESL, and neither the independent periodic appraisals nor triennial reviews mandated by DOE 5482.1B, have been performed. Line management is aware of its responsibilities, and measures to define and implement appropriate programs are in process.

The RESL Radiation Protection Program does not comply with DOE 5480.11. Appropriate priority, organizational responsibility, authority, and accountability for the program are not clearly defined. Health physics

procedures are deficient in the structure and detail needed to ensure effective control of radiation and radioactive materials.

The RESL industrial safety and industrial hygiene programs have been in a process of upgrade for the last 6 months, since the addition of an industrial hygienist to the RESL staff. The program is reasonably comprehensive, although implementation is incomplete.

RESL uses large quantities of perchloric acid in fume hoods. The potential for buildup of shock-sensitive explosives in the perchloric acid exhaust systems has not been effectively addressed and this has resulted in a Category II concern.

The RESL facility is in a state of transition toward achieving compliance with DOE Orders and OSHA standards. While most of the issues resulting from the inspection are minor, RESL management needs to become more involved in employee awareness programs to assist in identifying safety and health concerns.

RESL does not have the capability to perform a fire protection survey, which is urgently needed. ID has recently performed a walkdown survey that did not address a number of important fire hazards, including the perchloric acid explosion hazard (referred to above), a liquid storage vault containing low flash-point solvents, and an unsprinklered bunker building housing radioactive sources and containing combustible material.

Rockwell-INEL

Rockwell-INEL facilities and operations at INEL were appraised by the S&H Subteam (TSA Team No. 3), which identified a total of 89 concerns. An additional three concerns were directed to ID. There were no Category I and six Category II concerns. One Noteworthy Practice was identified in the area of radiological protection.

The Category II concerns include the quality of breathing air supplied to respirators, machine guarding, fork lift and crane operations, guarding of energized electrical equipment, flammable liquid storage, and asbestos sampling and employee notification.

Numerous safety-related initiatives are in the early stages of development or implementation and, in general, appear headed in the proper direction. This includes, for example, conduct of operations, sitewide training, and a new safety review system. However, conduct of operations is not fully implemented and has not reached the working level; performance-based training for operators, maintenance staff, radiation protection personnel, and supervisors is under development, but not fully implemented; and the site safety review system is well defined in policy and procedure documents, but not fully implemented. The Rockwell-INEL facilities are staffed with competent technical personnel who have a sound understanding of operations. Rockwell-INEL management is committed to making the necessary changes to improve the safety culture at the site, but their approach to safety has been narrowly

focussed on compliance issues rather than developing a better understanding of the encompassing nature of safety issues.

Rockwell-INEL has diluted line management responsibility for safety by making incorrect assignments and by establishing a narrow focus on a compliance approach to safety, which can result in a lack of emphasis on a wide range of potential safety problems. In addition, oversight provided by an internal safety review committee are subject to a conflict of interest.

Rockwell-INEL has recently made a major revision to its QA Program to reflect safety and health compliance requirements and to change the format and hierarchy of documents. The safety and health compliance procedures, training, and implementation of the new procedures is still in the formative stages. Rockwell-INEL personnel have a positive attitude toward the changes taking place, which should be helpful in establishing the revised program.

Operations at the Specific Manufacturing Capability (SMC) facility are staffed by personnel who appear well qualified to perform their duties and who are aware of their responsibilities. However, a rigorous documented operator training and certification program is lacking to verify the capabilities of personnel. Conduct of operations upgrading is underway, but has not yet fully reached working level personnel.

The SMC maintenance organization does not have formal documented training records; consequently, assurance of workers qualifications is rarely possible. Computerized retrievable maintenance records are kept, from which an effective predictive maintenance program could be prepared. However, such a program does not exist. Both corrective and preventive maintenance programs are being executed in a satisfactory manner.

Rockwell-INEL management has demonstrated a commitment to the development and implementation of a performance-based training program for operators, maintenance staff, radiation protection personnel, and supervisors. Job descriptions and task analysis, which will form the basis for instructor guides and lesson plans, are being developed. Initially, these are focused on high risk tasks. The training program at Rockwell-INEL is headed in the right direction.

The principal problems identified in the auxiliary systems area included a lack of a clear definition of responsibilities and a detailed line safety review process. As a result, procedural deficiencies and a failure to perform safety surveillances related to the SAR/OSRs were noted.

The Rockwell-INEL emergency preparedness program is not coordinated with other contractors colocated at the same site with respect to impact of emergencies or response resources. Because of the low hazard of the facility, planning has been appropriately directed at onsite consequences. The Rockwell-INEL emergency plan addresses all of the required program elements, but not with sufficient technical rigor.

Rockwell-INEL has a well defined, but not fully implemented, technical support system. Resources and qualifications of the technical staff appear to be

appropriate for present needs. Deficiencies were identified with respect to SAR/OSR quality and currency, OSR incorporation into procedures, as-built drawings, performance monitoring, and use of codes and standards.

The Rockwell-INEL packaging and transportation program has been functional for some years and has developed a substantial resident expertise. Careful attention to detail has resulted in a functionally successful program, but the documentation involved is deficient in some respects. The Rockwell-INEL packaging and transportation activity suffers from an inadequate EG&G Idaho Hazardous Materials Transportation Manual, and ID has issued a confusing implementation order. These document deficiencies need to be rectified.

The Rockwell-INEL site/facility safety review system is well defined, but has not been fully implemented. The Rockwell-INEL Independent Safety Review Committee has recently developed implementing procedures, although these are still in draft form. Deficiencies were identified with respect to annual safety appraisals, triennial reviews of the system, and potential conflicts of interest within the safety committee.

The concerns identified in the Rockwell-INEL radiological protection program related primarily to the lack of technical rigor of the program. The staff appeared to be competent, dedicated, and effective. The Rockwell-INEL uranium operation was found to be exceptionally clean. The contamination control surveillance frequency provides rapid alerting of potential problems. Radiation doses have been maintained at a small fraction of the DOE limits. A Noteworthy Practice was identified in the area of radiological protection relating to the used posters to assist waste handlers and packagers in identifying proper waste containers and different waste forms.

Rockwell-INEL has a mature health and safety program, but it is troubled by staff turnover. Deficiencies were found in the hazardous work permit, laser safety, respiratory protection, health monitoring, and hazard communications programs. Deficiencies in the respiratory protection program were considered a Category II concern because of hazards inherent in the use of supplied air respirators.

Rockwell-INEL has not informed DOE of the need for a Type B investigation concerning a high incidence of a serious repetitive motion illness. Although ID personnel were incidentally aware of this problem, no action was taken to initiate the investigation. Overall, considerable work will be required to achieve excellence in industrial hygiene.

Safety and health programs and procedures are not well documented and consistently enforced at Rockwell-INEL. Training for critical operations such as laser use, fork lifts, and hazard communications are seriously deficient. For example, hazard communication is in place, but appeared to be loosely enforced and not understood by employees or managers. Materials are precariously stacked and stored without concern for the potential of collapse. Rockwell-INEL needs to conduct aggressive OSHA-compliance inspections of all of their facilities at SMC.

Rockwell-INEL has well protected facilities from a fire protection perspective. However, prefire plans are outdated and assurance of an emergency exit capability for Bldg. TAN-628 is needed.

**SAFETY AND HEALTH ASSESSMENT
FINDINGS AND CONCERNS
EG&G**

4.5 SAFETY AND HEALTH FINDINGS AND CONCERNS

4.5.1 EG&G Idaho, Inc.

4.5.1.1 Organization and Administration

4.5.1.1.1 Overview

The appraisal addressed all eight performance objectives for the Organization and Administration technical area. Judgments were based on:

- Discussions with EG&G Idaho top-level and middle management personnel.
- Discussions with the Director, Safety Division - Office of ES&H Oversight, DOE Field Office, Idaho (ID).
- Discussions with EG&G Idaho mechanics and equipment operators.
- A meeting with EG&G Idaho union representatives (Teamsters; Amalgamated Transit Union; and Oil, Chemical, and Atomic Workers), including members of local union leadership.
- Review of a substantial number of management-related EG&G Idaho documents, including news bulletins and meeting minutes.
- Tours of all EG&G Idaho operating facilities, plus document control and storage facilities.

The structure of the EG&G Idaho organization is defined in organization charts, which can be assembled, but are not available in a single, easily-accessed document. The responsibilities and authorities associated with each position are recorded in job descriptions maintained current by each Unit Manager's office. A highly developed, but somewhat complicated system of independent ES&H oversight is in place. A clearly independent oversight element is managed by the Environment, Safety, and Quality (ES&Q) Department. However, for some of the operating departments' internal audit functional groups, the stipulated "independence" was determined to be questionable, as reported in other sections of this report (e.g., Sections 4.5.1.13, 4.5.1.14, and 4.5.1.15). Other deficiencies noted were incomplete information feedback to contributors to the self-assessment program, the lack of Memoranda of Understanding (MOUs) between INEL prime contractors, the failure to impose the same safety standards on subcontractor employees as those imposed upon EG&G Idaho employees, and incomplete monitoring of internal communications.

An incident reporting system is in place to meet the requirements of DOE Orders. Corrective action programs for responding to recommendations of internal and external audits and incident investigations are in place; delinquent actions (less than 120 days) are reported by the ES&Q Department to the General Manager in a special monthly report. Administrative controls (Technical Specifications for Reactor Facilities and Operational Safety Requirements (OSRs) for Non-Reactor Facilities) derive from a large number

(approximately 66) of SARs. The entire system for maintaining these SARs, however, suffers from a lack of centralized control to manage their preparation, review, update, and approval. Management has also failed to provide central control over other vital company-wide activities and has not uniformly provided effective training to support ES&H program elements. In addition, DOE and ID policy guidance to EG&G Idaho management has not always been complete and unequivocal.

Policy statements in the EG&G Idaho, Inc. Resource Manual, January 8, 1991, and the EG&G Idaho, Inc. Safety Manual, December 29, 1989, express a strong commitment to safe work practices. These manuals also require that each department "institute and maintain a written safety program" involving all employees through safety and health corrective action teams. This mandate is implemented to different degrees in the various departments, although every department requires attendance at monthly or bimonthly safety meetings and has active safety incentive program elements. ES&H goals are specified and progress in achieving them is tracked, but the degree to which this information is publicized varies among departments.

The EG&G Idaho safety policy is based upon the EG&G, Inc. corporate safety policy statement. The EG&G Idaho Acting General Manager reports to the EG&G, Inc. Chairman of the Board. Communications between the local and national corporate units are well structured and function effectively; they include quarterly meetings between the EG&G Idaho Acting General Manager and the corporate Board Chairman, a monthly letter report citing any concerns, and frequent telephone conversations.

A highly-structured and well-developed system of management assessment is officially incorporated into an established practice entitled "Management by Walking Around" (MBWA). The Resource Manual requires that all managers perform MBWA on a regular basis, and this mandate is followed. This technique is well understood by employees at all levels and (as indicated from employee interviews) is exploited as an effective device for communicating safety concerns. This and other more formal efforts (internal TSAs) culminate in an overall self-assessment program. However, because of this program's multifaceted structure, the self-assessment reports are not easily audited. Moreover, the EG&G Idaho management does not consistently require tracking and trending of performance indicators.

Generic job descriptions are prepared by the Human Resources Group of the Administration Department. Job-specific descriptions are obtained (in the format of an information questionnaire) from the job position supervisor and are reviewed for revision at least annually. A performance plan and appraisal system for all nonbargaining employees has been established, which is understood throughout the organization. The plan is agreed upon early in the calendar year by employee and supervisor to document expectations; the appraisal is held late in the calendar year to assess performance against the plan. Much importance is attached to the process, and the effectiveness was judged to be very high. Bargaining unit employees are given an annual appraisal, but do not agree in advance with their supervision upon a performance plan. Because of the intrinsic nature of the union-management relationship, this appraisal element was not judged to have much impact on the

performance of bargaining unit employees.

A detailed examination of the EG&G Idaho system of document control indicated good management and no serious problems. The Records and Information Management Systems (RIMS) Unit performs certain centralized functions of document control, but other activities (such as control of classified documents) are distributed throughout the organization. Nonetheless, the system works effectively. RIMS maintains a centralized document storage warehouse in the Central Facilities Area (CFA) for all INEL prime contractors and monitors compliance with the "dual facility" storage requirements specified in ASME NQA-1-1989. Although not required by ASME NQA-1-1989, the fire protection and other controls to prevent document deterioration are in place. One deficiency noted was that EG&G Idaho management does not effectively control all aspects of the preparation, review, and implementation of procedures.

Fitness for Duty programs are established for EG&G Idaho employees. Information on program elements are disseminated to all employees, including the availability of a confidential Employee Assistance Program. Discussions with a cross-section of employees determined that all phases of the program are well publicized and well understood. There is no evidence that substance abuse is a serious problem in the EG&G Idaho organization. Training is available for managers and supervisors on techniques for identifying aberrant behavior. This training is required for all Human Reliability Program and Personnel Security Assurance Program designees and their managers/supervisors.

Followup was performed on concerns identified under Organization and Administration in the previous TSAs conducted at the Advanced Test Reactor (ATR). By letter (N.S. Burrell, Director, Reactor Research and Technology Division, ID, to F.C. Fogarty, Manager Power Reactor Research Programs, EG&G Idaho, Inc.) dated June 11, 1991, ID stipulated that two concerns in the organization and administration area of the 1989 TSA remain open, specifically OA.2-1 and OA.2-2. Their current status was reviewed through discussions with the ATR technical personnel responsible for their defined corrective actions. Corrective actions on these concerns have not been completed and, consequently, both concerns must remain open. An amended milestone schedule reflecting the delays in completion of the corrective actions to satisfy the concerns is not currently available.

4.5.1.1.2 Findings and Concerns

OA.1 SITE/FACILITY ORGANIZATION

PERFORMANCE OBJECTIVE: Management should organize and manage the site/facility's work, programs, and resources so that safety and health are an integral part of the personnel duties and requirements are consistently implemented.

- FINDINGS:**
- The EG&G Idaho self-assessment program is composed of several elements; viz,
 - Oversight by the ES&Q Department, the principal components of which are a series of annual TSAs of 8 areas and 100-150 additional audits (in various ES&H-related disciplines) carried out each year by the Performance Oversight and Appraisal Group;
 - Multiple line management efforts, information from which is assembled by the ES&Q Department and culminated in a report submitted quarterly to ID; and
 - Summary conclusions from the General Manager's Office, which are included in a periodically published ES&H Compliance Baseline and Status Report.

This intricate program structure tends to complicate information feedback to organizations that contribute to the program.

- Discussions with Group Managers revealed that they do not receive copies of all self-assessment documents.
- This concern is not addressed in the EG&G Idaho self-assessment.

CONCERN:
(OA.1-1)
(H3/C2)

The information feedback practices of the EG&G Idaho, Inc. self-assessment program do not ensure that all contributing organizations receive copies of the self-assessment reports.

- FINDINGS:**
- Although the EG&G Idaho Medical Program Group provides services to most of the other prime contractors at INEL, written agreements MOUs defining the working relationships between contractors with respect to medical services are not in place.
 - Discussions with personnel in the EG&G Idaho Medical Program Group revealed current and past difficulties in complying with requirements of DOE 5480.8, that derived from the lack of an MOU addressing personnel management and facilities. (See Section 4.5.1.18.)

- Discussions with ID management indicated that no constraint is imposed by either ID or the DOE Field Office, CH on negotiating MOUs between INEL contractors. Despite this fact, the Management and Operations Subteam of the Tiger Team has determined that only one MOU between contractors has been negotiated and approved for any area of joint activity. (See Section 5.5.)
- This concern is partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(OA.1-2)
(H2/C2)

Memoranda of Understanding between Idaho National Engineering Laboratory contractors, essential to some phases of operations, are not in place.

FINDINGS:

- Discussions with EG&G Idaho management indicated that ES&H standards are not specifically defined or identified in all existing subcontracts as required by DOE 5483.1A.
- The Oil, Chemical, and Atomic Workers local union leadership expressed a concern (based upon their observation) that subcontractor employees working at INEL do not follow the same safety rules as those placed upon EG&G Idaho employees.
- The perception that subcontractor employees at INEL do not adhere to the same ES&H standards as those imposed upon EG&G Idaho employees was affirmed by a group of mechanics in the Facilities and Maintenance Department and by a group of equipment operators in the Waste Management Department.
- See Concerns SS.4-1, SS.4-2, and PP.2-6.
- This concern is addressed in the EG&G Idaho self-assessment.

CONCERN:
(OA.1-3)
(H2/C1)

Contrary to the requirements of DOE 5483.1A, environment, safety, and health requirements stipulated for EG&G Idaho, Inc. employees are not being uniformly imposed upon onsite subcontractor employees or employees of other Idaho National Engineering Laboratory prime contractors who work at EG&G Idaho, Inc. facilities.

FINDINGS:

- EG&G Idaho management has not provided definitions of what constitutes "auxiliary systems." (See Concern AX.1-2.)
- Emergency Communications and Response Plan detailed procedures for offsite transportation have not been prepared, as required by 49 CFR 172.600. (See Concern PT.5-1.)
- Mass limit postings at EG&G Idaho do not satisfy all

requirements of DOE 5480.5. (See Concern CS.4-1.)

- Posting of radiological areas is not consistent throughout EG&G Idaho facilities and in some cases does not comply with DOE 5480.11. (See Concern RP.3-2.)
- ATR management has not implemented a shift turnover process that ensures that an accurate facility status is communicated between shifts crews, as required by DOE 5480.19. (See Concern OP.7-2.)
- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(OA.1-4)
(H1/C1)

EG&G Idaho, Inc. management does not monitor internal communications to ensure necessary flow of environment, safety, and health related information, which results in failure to comply with some Federal regulations (e.g., DOE 5480.19).

OA.2 ADMINISTRATION

PERFORMANCE OBJECTIVE: Administrative programs and controls should be in place to ensure policies concerning health and safety are administered throughout the facility.

- FINDINGS:**
- The number of SARs currently in use for EG&G Idaho facilities and operations now totals about 66. Many of these SARs do not follow a consistent format.
 - A new SAR manual specifying a standard format has been prepared (EG&G Idaho Guide for the Preparation of Safety Analyses and Safety Analysis Documentation, Volumes 1 and 2, January 1991), but is still officially a draft.
 - There is no single EG&G Idaho organization with responsibility to manage issuance of SARs and to ensure that the SARs are maintained current, although a proposal has been made to vest this responsibility with a unit of the ES&Q Department. (Interoffice Correspondence, R.C. Nelson to H.P. Mann, June 13, 1991).
 - See Concerns TS.2-1, TS.2-2, TS.2-3, CS.1-3, and CS.5-1.
 - This concern is addressed in the EG&G Idaho self-assessment.

CONCERN:
(OA.2-1)
(H3/C2)

There is no centralized control system for managing preparation, review, update, and approval of Safety Analysis Reports.

- FINDINGS:**
- The overall management system does not provide control over packaging and transportation activities at EG&G Idaho, as required by DOE 5480.3. (See Concern PT.1-1.)
 - EG&G Idaho line management is not effectively discharging its responsibility for compliance with DOE requirements for radiation protection. (See Concern RP.1-1.)
 - Health and Safety Program requirements are ineffectively organized and inconsistently translated into lower-tier documents. (See Concern PP.2-5.)
 - There are no company-wide standards for the maintenance of training records. (See Concern TC.1-3.)
 - EG&G Idaho has not established company-wide standards for the performance of maintenance, as required by DOE 4330.4A. (See Concern MA.1-4.)

- There is no centralized control system for managing preparation, review, update, and approval of SARs. (See Concern OA.2-1.)
- This concern is partially addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. management does not provide central control over many vital company-wide activities, resulting in reduced efficiency and noncompliance with DOE Orders, such as DOE 5480.3.
(OA.2-2)
(H2/C1)

- FINDINGS:**
- The quality of the design, development, conduct, and evaluation of training programs among some EG&G Idaho organization units does not meet generally accepted industry practices. (See Concern TC.1-1.)
 - The equipment operator certification process does not ensure that personnel certified are proficient in all aspects of the relevant operation, or that recertification is properly conducted, as required by 29 CFR 1910.178-181. (See Concern TC.4-2.)
 - Hazardous material emergency training, required by 29 CFR 1910.120, has not been effective in that the threats of radiological and nonradiological hazards are not properly factored into emergency planning. (See Concern EP.3-1.)
 - Due to the low level of training and coordination, the various EG&G Idaho fire brigades cannot ensure the prompt termination of incipient fires or ensure proper interface with the ID Fire Department. (See Concern FP.6-3.)
 - Training on EG&G Idaho facility-specific hazards is required, but has not been enforced for PTI Security Inspectors assigned to these facilities. (See Concern SS.4-1.)
 - This concern is partially addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. management has not uniformly provided effective training to support company environment, safety, and health program elements, resulting in noncompliance with Federal regulations such as 29 CFR 1910.178.
(OA.2-3)
(H1/C1)

- FINDINGS:**
- ID is not fulfilling all requirements relating to functional appraisals as set forth in its ES&H Oversight Manual. (See Concern CS.1-5.)
 - ID 5480.5A does not provide clear guidance for fighting fires involving fissile material. (See Concern CS.3-1.)

- ID has not established standards for the development, conduct, or evaluation of INEL training, including that provided by EG&G Idaho. (See Concern TC.1-4.)
- DOE has not established a clearly defined policy to direct the inservice inspection activities at the ATR. (See Concern QV.6-2.)
- The technical support functions provided by RESL to the routine dosimetry processing program are in conflict with the role of RESL as the Performance Evaluation Laboratory for the DOE Laboratory Accreditation Program for Personnel Dosimetry. (See Concern RP.5-5.)
- This concern is not addressed in the EG&G Idaho self-assessment.

CONCERN:
(OA.2-4)
(H2/C2)

The DOE policy guidance to EG&G Idaho, Inc. management is not always complete and unequivocal.

OA.3 MANAGEMENT OBJECTIVES

PERFORMANCE OBJECTIVE: Site/facility management objectives should ensure commitment to safe operation, including enforcement of approved work practices and procedures.

- FINDINGS:**
- The EG&G Idaho Safety Manual (Section 1.0, General Policy and Responsibilities, Paragraph 3.2, EG&G Idaho Responsibilities, February 14, 1991) stipulates that "Each department shall establish and maintain a written safety and health program..." However, this requirement is not uniformly observed by each department; e.g.,
 - The Power Reactor Programs Department is only now in the process of establishing a safety committee with responsibility to prepare an annual department safety program plan, with input from representatives of the entire cross-section of employees.
 - The Facilities and Maintenance Department issues an annual safety program plan, but does not solicit input from the lower levels of the organization in formulating the plan.
 - The Waste Management Department prepares an annual safety program plan and maintains a sophisticated status board that cites safety goals and records program progress; moreover, each employee commits to achieving department safety goals in his/her annual performance plan and appraisal. However, the safety program plan is not available as a written document, as required by the EG&G Idaho Safety Manual.
 - This concern is partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(OA.3-1)
(H2/C1)

Not all departments have formal written safety program plans, as required by the EG&G Idaho, Inc. Safety Manual.

OA.5 MANAGEMENT ASSESSMENT

PERFORMANCE OBJECTIVE: Management and supervisory personnel should monitor and assess facility activities to improve performance in all aspects of the operation.

- FINDINGS:**
- The self-assessment system for EG&G Idaho operations consists of several components; viz,
 - Line management programs at the departmental and group levels based on the findings of internal inspections and operational analysis;
 - An independent oversight function of the ES&Q Department with multiple components including annual TSAs of 8 specified program areas and 100-150 audits each year in various ES&H-related disciplines; and
 - A top-level management element that highlights major administrative deficiencies.

The multifaceted structure of the self-assessment program complicates its reporting system.

- Reports (or in some cases status sheets) are issued for each of the program components cited above. The reports for the different program components are prepared independently, however, and no effort has thus far successfully consolidated the findings and concerns into a comprehensive, company-wide report.
- As a result, most of the S&H Subteam members were unable to audit the self-assessment program in a way that would enable simple comparisons with the Subteam's findings and derived concerns. Auditability of the internal appraisal system is required by DOE 5482.1B, Section 9.d.(2)(c).
- An extensive effort by EG&G Idaho personnel to organize self-assessment information into the subject categories specified in "Guidance on Environment Safety and Health (ES&H) Self-Assessments" (Letter, J. D. Watkins (S-1) to Secretarial Officers, et al., July 31, 1990) failed to produce documents that facilitated the self-assessment audit.
- This concern is not addressed in the EG&G Idaho self-assessment.

CONCERN:
(OA.5-1)
(H3/C1)

The company-wide EG&G Idaho, Inc. self-assessment reporting system is not readily auditable, as required by DOE 5482.1B.

FINDINGS:

- There is no independent safety oversight of packaging and transportation activities, as required by DOE 5480.1B and DOE 5482.1B. (See Concern PT.1-2.)
- The EG&G Idaho independent review and appraisal system for the criticality safety program does not satisfy all requirements of DOE 5480.5, Section 9. (See Concern CS.1-6.)
- The EG&G Idaho line management method of operation is allowing safety review committees to function as technical support staffs; thereby, not complying with the full intent of DOE 5480.5, DOE 5480.6, or DOE 5482.1B. (See Concern FR.3-1.)
- The Safety and Operations Review Committee lacks an independent review member for health physics. (See Concern EA.2-2.)
- The EG&G Idaho independent oversight program does not comply with DOE 5482.1B. (See Concern RP.2-2.)
- The installation of radiation generating devices is not independently reviewed by qualified staff outside the operating organization to ensure compliance with DOE 5480.4. (See Concern RP.3-4.)
- ATR Inservice Inspection Plans lack the independent oversight equivalent to that required of an inservice inspection program at a commercial nuclear reactor. (See Concern QV.6-1.)
- This concern is partially addressed in the EG&G Idaho self-assessment.

**CONCERN:
(OA.5-2)
(H1/C1)**

The EG&G Idaho, Inc. management oversight programs do not consistently assure independent review where it is required by DOE Orders such as DOE 5480.5 and DOE 5482.1B.

FINDINGS:

- EG&G Idaho is not trending maintenance performance in all areas required by DOE 4330.4A. (See Concern MA.1-3.)
- Significant deficiencies found during informal QA surveillances are not tracked and are not included in the trending of quality problems. (See Concern QV.1-1.)
- There are no formalized trending systems for monitoring performance of safety equipment and for enhancing performance of operations. (See Concern TS.4-1.)
- This concern is addressed in the EG&G Idaho self-assessment.

CONCERN:
(OA.5-3)
(H2/C1)

EG&G Idaho, Inc. management assessment systems do not consistently require tracking and trending of performance indicators, resulting in noncompliance with DOE Orders such as DOE 4330.4A.

OA.7 DOCUMENT CONTROL

PERFORMANCE OBJECTIVE: Document control systems should provide correct, readily accessible information to support site/facility operations.

- FINDINGS:**
- No procedure exists that prescribes the process for qualifying EG&G Idaho standard procedures for nondestructive examination, as required by the EG&G Idaho Quality Manual. (See Concern QV.7-1.)
 - Power Reactor Programs Department criticality procedures are not required to be reviewed and renewed often enough to satisfy ANSI/ANS-8.1-1983. (See Concern CS.1-7.)
 - EG&G Idaho preventive maintenance procedures do not include detailed instructions to accomplish work in a safe and controlled manner, as required by DOE 4330.4A. (See Concern MA.8-1.)
 - There is no EG&G Idaho procedures manual for packaging and transportation activities; as a result procedures are fragmented in the many organizations involved in packaging and transportation. (See Concern PT.1-1.)
 - No procedure has been provided for testing the diesel in Bldg. TAN-607. (See Concern AX.6-1.)
 - This concern is partially addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. management does not effectively control all aspects of preparation, review, and implementation of procedures, resulting in noncompliance with DOE Orders such as DOE 4330.4A.
(OA.7-1)
(H2/C1)

4.5.1.2 Quality Verification

4.5.1.2.1 Overview

The seven performance objectives in the quality verification technical area were addressed in this TSA of EG&G Idaho. The appraisal was conducted by means of personnel interviews, document reviews, and site and facility inspections. Interviews were conducted with: line managers who are responsible for the achievement of quality for specific projects, programs, and site services; cognizant QA professionals who directly support these projects, programs, and site services, and who verify the achievement of quality; and independent QA professionals who are responsible for oversight activities that include audits, surveillances, and appraisals. Throughout the conduct of the appraisal, EG&G Idaho personnel exhibited an excellent attitude toward quality, and their commitment to quality was evident in both words and actions. The documents reviewed included: policy and requirements manuals; implementing procedures and standard practices; quality program plans; and QA records, e.g., personnel certification records, training records, purchase orders, inspection and test records, audit and appraisal reports, calibration reports, and nonconformance reports. The sites and facilities inspected included: Receiving Inspection, Bldg. CF-601A; Stores Warehouse, Bldg. CF-601; Trupac II Loading Facility, Bldg. WM-618; Drum Venting Facility, Bldg. WM-615; Radioactive Waste Management Complex (RWMC); Standards and Calibration Laboratories, Bldg. CF-698; Records Storage Facility, Bldg. CF-674; Materials Testing Laboratory, Bldg. CF-602; Test Reactor Area (TRA); and the Dimensional Test Facility, Bldg. TRA-653.

The EG&G Idaho QA Program was found to be a well established and mature program documented and implemented through a well thought out hierarchy of policy, requirements, and procedure manuals that satisfy the requirements of DOE 5700.6B. It is administered and overviewed by competent line and oversight management. The EG&G Idaho self-assessment and appraisal programs have identified specific areas needing improvement both in the written program and in its implementation. Many of these improvements have been completed; others are on track for timely completion. No significant QA program deficiencies were identified during this appraisal. However, some areas needing additional improvement were noted: protection and control of QA records, reporting and correcting conditions adverse to quality, and recording and correcting information in QA records.

No significant deficiencies were identified related to procurement and supplier control. EG&G Idaho policies, procedures, and practices related to procurement planning, supplier selection and evaluation, and acceptance and control of purchased items and services were found to be in accordance with DOE 5700.6B. However, several areas needing improvement included establishing document controls for the standard procurement QA clauses and the Evaluated Supplier's List, including the establishment of procedures for their use and maintenance, adoption of industry good practices for the procurement and use of commercial grade items, and implementation of DOE direction regarding the reporting and disposition of suspect/counterfeit items.

No significant deficiencies were identified related to receiving and pre-installation inspections. EG&G Idaho policies, procedures, practices, and facilities related to receiving inspection, including inspector certifications, were found to be in accordance with DOE 5700.6B. However, methods beyond inspections and document reviews, such as material tests for verifying the validity of supplier certifications, need to be specified, and guidance for the selection and application of these methods for specific procurements needs to be established.

No significant deficiencies were identified related to the calibration program. EG&G Idaho policies, procedures, practices, and facilities related to calibration of measuring and test equipment, including personnel certifications, were found to be in accordance with DOE 5700.6B. However, documenting the evaluations to determine the impact on items inspected or tested using calibrated equipment that is subsequently found to be out-of-tolerance, and adopting industry good practices for the control and calibration of installed plant instruments and controls, need improvement.

No significant deficiencies were noted related to identification and control of hardware and materials. EG&G Idaho policies, procedures, practices, and facilities related to identification of hardware and materials, control and disposition of nonconforming items, and storing and distributing hardware and materials were found to be in accordance with DOE 5700.6B. However, two areas needing improvement are: strengthening the technical justifications that support accept-as-is dispositions for nonconforming items, and directly involving safety review in accept-as-is or repair dispositions for nonconforming items.

No significant deficiencies were identified related to inspections. EG&G Idaho policies, procedures, practices, and facilities related to in-process inspection and inservice inspection (ISI), including personnel certifications, were found to be in accordance with DOE 5700.6B. However, several areas needing improvement included establishing a clearly defined DOE policy to direct the ISI activities at the ATR; adopting commercial nuclear reactor practices for the implementation of the ATR ISI Program; and defining the qualification and certification requirements for Level III Inspection and Test technicians, Level I, II, and III Construction Field Engineers, and Level III Nondestructive Examination (NDE) Examiners.

No significant deficiencies were identified related to the control of special processes. EG&G Idaho policies, procedures, and practices related to NDE, including personnel certifications, were found to be in accordance with DOE 5700.6B. However, procedures for the qualification of company standard NDE procedures need to be established. Welding and other special processes were not included in the scope of this appraisal.

4.5.1.2.2 Findings and Concerns

QV.1 QUALITY PROGRAMS

PERFORMANCE OBJECTIVE: Administrative programs and controls should be in place to ensure policies concerning quality are administered for each facility throughout the site.

- FINDINGS:**
- Various EG&G Idaho records are not defined in governing standard practices as QA records and, therefore, may not be handled, protected, or stored as required for QA records. Examples include training records, surveillance records, internal appraisal records, trend analysis records, QA auditor certification examinations, and completed QA audit checklists.
 - Line organizations responsible for the storage of QA records have not consistently implemented the requirements of the EG&G Idaho Quality Manual, particularly QP-17, "Quality Records," June 19, 1990, as it relates to dual storage facilities. Specific deficiencies include the lack of dual storage facility descriptions, filing systems, access controls, accountability measures for removed records, and measures for replacing, restoring, or substituting lost or damaged records.
 - The EG&G Idaho Requirements and Systems organization Standard Practice RS-SP-5, "Inspection Stamp Control," July 9, 1990, requires the users of stamps to assure that stamps make clear and legible impressions. Inspection stamps are smeared or otherwise illegible on many QA records. Examples where this condition was found include site work requests, crane inspection records, inspection instructions, and nonconformance reports (NCRs).
 - No proceduralized method exists to escalate significant deficiencies found during the informal QA surveillances, performed by the EG&G Idaho Performance Oversight and Assessment organization, to ensure that corrective actions are established and tracked to completion, and that the deficiencies are included in the quality trend analysis program.
 - Changes to EG&G Idaho policies and procedures are not always well planned or coordinated, which has resulted in conflicting procedures (e.g., for root cause analysis), procedure changes lagging behind changes in practices (e.g., for self-assessment), and changes in practices lagging behind procedure changes (e.g., for preparation and maintenance of training records).

- The ES&Q Department has not issued a Corrective Action Request (CAR) in several years. The ES&Q Department Standard Practice SP-1.11, "Corrective Action Request," January 18, 1991, applies to significant conditions adverse to quality that could be identified during the course of QA audits, appraisals, document reviews, inspections, and trend analyses. However, SP-1.11 is not referenced in the procedures governing these activities, either as a means to obtain corrective action or to escalate corrective action, even though other corrective action methods are specified (e.g., NCRs and Occurrence Reports). Examples of significant conditions adverse to quality that might be more effectively reported and corrected using a CAR include:
 - Two construction NCRs (CNCR T-III-022, issued May 23, 1991, and CNCR T-III-024, issued June 14, 1991) that pertain to noncompliance with ID 5700.6C, ASME/NQA-1, and MIL-STD-45662A requirements for the control and calibration of survey instruments that may affect the whole site; and
 - The discovery of about 6,900 pounds of suspect/counterfeit bolts in the inventories of several EG&G Idaho facilities.
- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(QV.1-1)
(H3/C1)

Some requirements of the EG&G Idaho, Inc. Quality Manual, such as those related to controlling quality assurance records and documents, reporting and correcting adverse conditions, and legibility of recorded information, have not been fully implemented.

FINDINGS:

- Accepted industry practices prohibiting the use of obliterating techniques for making corrections or changes to QA records have not been adopted in the Quality Manual or in lower-tier implementing procedures. Several QA records were found that had been corrected or changed by the use of white-out, erasures, or type-overs. Changes to standard procurement QA clauses and inspection instructions, for example, have been made by obliteration, without being dated, and/or without the identification of the person(s) making or authorizing the changes.

- Accepted industry practices requiring the use of indelible ink when recording information in QA records have not been adopted in the Quality Manual or in most lower-tier implementing procedures. Several QA records were found that were filled out in pencil. Examples are bidders list/abstracts, and inspection planning and execution checklists.
- The temporary storage requirements for QA records as specified in QP-17, paragraph 5.1.6.c., of the Quality Manual are potentially misleading. The requirements appear to be limited to "... records withdrawn from a single or alternate single storage facility..." However, ASME/NQA-1-1989, Supplement 17S-1, paragraph 4.4.3, has no such limitation and applies to completed QA records prior to their submittal to dual or single permanent storage. As a result, these records are not subject to the required level of protection. For example, completed QA audit records are often stored without adequate protection for up to 5 months before being processed and submitted to dual storage.
- Some accepted industry practices for the control of computer software have not been adopted in the Quality Manual or included in all department lower-tier implementing procedures. These practices are best defined in the ASME/NQA-2, Part 2.7, "Quality Assurance Requirements of Computer Software for Nuclear Facility Applications."
- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(QV.1-2)
(H3/C2)

The EG&G Idaho, Inc. Quality Assurance Program has not adopted accepted, applicable commercial industry practices related to methods for recording or correcting information in quality assurance records, protection of quality assurance records, and control of computer software.

QV.2 PROCUREMENT AND SUPPLIER CONTROL

PERFORMANCE OBJECTIVE: Provisions should be established for the control of purchased material, equipment, and services; for selection and control of suppliers; and for assessing the adequacy of procurement activities.

- FINDINGS:**
- The EG&G Idaho standard procurement QA clauses, which specify the QA requirements applicable to a particular purchase order (PO) and which become attachments to the PO, are not subjected to the document control requirements of the EG&G Idaho Quality Manual nor are their use and maintenance controlled by written procedures.
 - The Evaluated Supplier's List is not subjected to the document control requirements of the Quality Manual, nor are its use and maintenance controlled by written procedures.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(QV.2-1)
(H3/C1) The standard procurement quality assurance clauses and the Evaluated Supplier's List are not controlled, as required by the EG&G Idaho, Inc. Quality Manual.

- FINDINGS:**
- With the exception of the Power Reactor Programs Department, EG&G Idaho has not adopted accepted industry practices for the procurement, evaluation, and use of commercial grade items for safety-related applications. These practices are best defined in the Electric Power Research Institute guidelines for the procurement, technical evaluation, receipt, and use of commercial grade items for nuclear safety-related applications.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(QV.2-2)
(H3/C2) EG&G Idaho, Inc. has not adopted accepted industry practices for the procurement and use of commercial grade items for safety-related applications.

- FINDINGS:**
- On March 8, 1991, the Assistant Secretary for Nuclear Energy issued a memorandum to the heads of DOE Field Offices reporting to Nuclear Energy that provided minimum requirements to identify and purge suspect/counterfeit parts from DOE facilities. EG&G Idaho has not fully implemented these requirements that were transmitted to EG&G Idaho, as a phased approach, by the INEL Defective Parts and Components Steering Committee.
 - Suspect/counterfeit fasteners were found to be installed in the Automatic Gravity Lifting Fixture, the Trupac II

Loading Facility, the Trupac II Trailer, and the Drum Conveyor adjacent to the Drum Venting Facility at the RWMC.

- Suspect/counterfeit bolts had been recently purchased by EG&G Idaho but were rejected at Receiving Inspection. The condition was reported in NCR CR-3122 and the suspect items were returned to the vendor.
- An EG&G Idaho Occurrence Report has not been issued to report the discovery of approximately 6,900 pounds of suspect/counterfeit bolts in inventories, the discovery of suspect/counterfeit bolts during receiving inspection (NCR CR-3122), or the discovery of suspect/counterfeit bolts used for lifting a motor at the ATR (NCR M-1621).
- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(QV.2-3)
(H2/C1)

EG&G Idaho, Inc. has not fully implemented the minimum requirements contained in the March 8, 1991, memorandum from the Assistant Secretary for Nuclear Energy regarding suspect/counterfeit parts.

QV.3 RECEIVING AND PRE-INSTALLATION INSPECTIONS

PERFORMANCE OBJECTIVE: Provisions should be established for the inspection of purchased material, equipment, and services in accordance with documented procedures by trained personnel.

- FINDINGS:**
- The requirements in QP-7, "Control of Purchased Items and Services," August 31, 1990, of the EG&G Idaho Quality Manual, regarding measures to verify the validity of supplier certificates, are not fully implemented in Company Procedures CP-3.1, "Preparation of Outside Requisitions," and CP-9.9, "Quality Engineering Reviews," both dated November 16, 1990.
 - Verification measures beyond inspections and documentation reviews, such as material chemical and physical tests, are not required to be specified in POs or inspection instructions. In addition, documented guidance for selecting and applying the methods that would be appropriate for a particular procurement is not provided.
 - With the exception of bottled welding gases, material tests to verify supplier material certificates are not being performed.
 - See Concern PT.1.3.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(QV.3-1)
(H3/C1)

EG&G Idaho, Inc. has not fully implemented some of the measures required by the EG&G Idaho, Inc. Quality Manual to verify the validity of supplier certifications.

QV.4 CALIBRATION PROGRAM

PERFORMANCE OBJECTIVE: Provisions should be made to ensure that tools, gages, instruments, and other measuring and testing devices are properly identified, controlled, calibrated, and adjusted at specified intervals.

- FINDINGS:**
- Evaluations of the impact on items inspected or tested using calibrated equipment that is subsequently found to be out-of-tolerance are not being documented by all EG&G Idaho organizations that own or use this equipment. Examples include: Receiving Inspection; TRA Dimensional Test Facility; Facilities and Maintenance Department Tool Crib at the Test Area North (TAN); and the Science and Technology Department Battery Laboratory.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(QV.4-1)
(H2/C1)

Evaluations of the impacts on items inspected or tested using calibrated equipment that is subsequently found to be out-of-tolerance are not being documented, as required by the EG&G Idaho, Inc. Quality Manual.

- FINDINGS:**
- The requirements of QP-12, "Control of Measuring and Test Equipment," June 19, 1990, of the EG&G Idaho Quality Manual are also applied to the control of installed plant instruments and controls. These requirements are based upon MIL-STD-45662A, "Calibration System Requirements," which is mandated by ID 5700.6C. Some of these requirements are not practical or effective for the control of installed plant instruments and controls. Controls that are more applicable to installed plant instruments and controls are defined in ASME/NQA-2, Part 2.4 (ANSI/IEEE Standard 336-1985), ASME/NQA-2, Part 2.16 (ANSI/IEEE Standard 498-1990), and ANS 3.2-1988.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(QV.4-2)
(H3/C2)

EG&G Idaho, Inc. has not adopted many accepted industry practices for the calibration and control of installed plant instruments and controls.

QV.5 IDENTIFICATION AND CONTROL OF HARDWARE/MATERIALS

PERFORMANCE OBJECTIVE: Provisions should be established to identify and control the use or disposition of hardware, materials, parts, and components as well as to ensure that incorrect/defective items are not used.

- FINDINGS:**
- The technical justifications in EG&G Idaho NCRs that support an accept-as-is disposition are often very weak or nonexistent. Supporting documentation, e.g., calculations, analysis or test results, is neither attached to nor referenced in some NCRs. Examples of NCRs with missing or weak technical justifications include T-III-008, RWMC-23, PS-0027, ERP-001, M-1576, and CR-3136.
 - The calculations attached to EG&G Idaho NCR M-1621, which were used as the basis for accepting the use of suspect/counterfeit lifting bolts, are inadequate in that:
 - References are not provided for the sources of the equations used or the values of the bolt torque (160 foot-pounds), the axial load (2,500 pounds), or the allowable stress for mild steel.
 - No basis is provided for the assumption that the suspect/counterfeit bolt is at least as good as a mild steel bolt.
 - A sketch is not provided that shows the number of bolts used, their relative locations, and their configuration in relation to the applicable axial and shear loads.
 - There is no evidence that the calculations were checked for accuracy by an independent, qualified engineer.
 - The preload stress may be 12 times larger than specified due to an error in the calculation.
 - When the deficiencies noted for NCR M-1621 were identified to Power Reactor Programs management, the deficiencies were corrected immediately.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(QV.5-1)
(H2/C1)

The technical justifications provided in EG&G Idaho, Inc. nonconformance reports that are used to support accept-as-is dispositions, are not always in accordance with the EG&G Idaho, Inc. Quality Manual.

FINDINGS:

- EG&G Idaho NCR dispositions, particularly accept-as-is and repair, are not required to be approved by representatives of Industrial, Radiological, Environmental, and Nuclear Safety Departments.
- The Material Review Group (MRG) is composed, as a minimum, of the cognizant line representative responsible for the nonconforming item and the cognizant quality engineer. They are initially tasked with the responsibility for determining the impact of the disposition on the item's safe operation or use.
- If the MRG identifies a potential impact on safety, it requests the involvement of the applicable safety representative; however, the MRG may not be expert enough to identify a real safety impact.
- This concern was not addressed in the EG&G Idaho self-assessment.

**CONCERN:
(QV.5-2)
(H2/C2)**

EG&G Idaho, Inc. nonconformance reports, which are dispositioned accept-as-is or repair, are not afforded a review equivalent to the review of the original specifications by independent safety personnel.

QV.6 INSPECTIONS

PERFORMANCE OBJECTIVE: Prerequisites should be provided in written inspection procedures with provisions for documenting and evaluating inspection results.

- FINDINGS:**
- Changes to the EG&G Idaho ISI Plans for the ATR are not required to be reviewed and approved by ID, as would be done by the Nuclear Regulatory Commission in the commercial nuclear industry. However, copies of ISI Plan changes are submitted to ID for informational purposes only.
 - Contrary to commercial nuclear practices, noncompliances with, and deviations from, the inspection and testing requirements specified in the EG&G Idaho ATR ISI Plans, except for those few specifically identified in the ATR Technical Specification surveillance requirements, are not considered Technical Specification violations and are not reported as such. These conditions, however, are reported and resolved internally using NCRS.
 - The services of an Authorized Nuclear Inservice Inspector, as defined and specified in the ASME Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," or equivalent independent oversight, are not used by EG&G Idaho to ensure the technical adequacy of the implementation of the ATR ISI Plans.
 - In September 1990, EG&G Idaho prepared an informal report (EGG-MS-9254) entitled, "Review of Inservice Inspection and Nondestructive Examination Practices at DOE Category A Test and Research Reactors." The report was prepared at the direction of the Headquarters, DOE, Office of Nuclear Safety Self-Assessment. It compares the ISI and NDE practices at five DOE Category A reactors, including the ATR, with the ISI and NDE practices at commercial nuclear reactors. ATR management had not reviewed the findings and recommendations of this report to effect corrections and improvements to the ATR ISI Plans.
 - The EG&G Idaho informal report, EGG-MS-9254, concluded that deficiencies in the ISI programs at the DOE Category A reactors can be attributed in part to the fact that "no clearly defined DOE policy directs ISI activities at these facilities."
 - No DOE Orders or correspondence could be found that provide direction to EG&G Idaho on the establishment and implementation of the ATR ISI Plans, particularly regarding the degree to which the intent of the ASME Boiler and Pressure Vessel Code, Section XI, is to be applied.

- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. Advanced Test Reactor Inservice Inspection Plans lack the rigor of an inservice inspection program at a commercial nuclear reactor.
(QV.6-1)
(H3/C2)

FINDINGS: • This concern was not addressed in the ID self-assessment.

CONCERN: DOE has not established a clearly defined policy to direct the inservice inspection activities at the Advanced Test Reactor.
(QV.6-2)
(H3/C2)

FINDINGS:

- The EG&G Idaho Requirements and Systems organization Standard Practice RS-SP-8, "Certification of Quality and Safety Professionals," October 18, 1989, implements the qualification and certification requirements specified in the EG&G Idaho Quality Manual for Level I and II Inspection and Test technicians, but does not for Level III Inspection and Test technicians.
- The EG&G Idaho Engineering organization Standard Practice ESP 2.12.13 Rev A, "Construction Quality Assurance Training and Certification," March 25, 1991, implements the qualification and certification requirements specified in the Quality Manual for Construction Field Engineers, but does not include criteria distinguishing between the qualification requirements for Level I, II, and III certified personnel.
- The EG&G Idaho Requirements and Systems organization Standard Practice RS-SP-8 implements the qualification and certification requirements specified in the Quality Manual for Level I and II NDE Examiners, but does not for Level III NDE Examiners.
- In the "Safety and Quality Activities Qualification/Certification List," dated June 6, 1991, several individuals are indicated as having: (a) Level III certification in the General, Leak Test, Dimensional, Electrical/Electronic, and Fuel inspection disciplines; (b) Level II and III certification in the Electrical, Mechanical, and Civil construction field engineering disciplines; and (c) Level III certification in the Magnetic Particle, Liquid Penetrant, and Ultrasonic NDE techniques.
- This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: Some of the personnel qualification and certification
(QV.6-3) requirements specified in the EG&G Idaho, Inc. Quality Manual
(H3/C1) have not been fully implemented.

QV.7 CONTROL OF SPECIAL PROCESSES

PERFORMANCE OBJECTIVE: Provisions should be established to ensure the acceptability of special processes such as welding, heat treating, nondestructive testing, and chemical cleaning, and that special processes are performed by qualified personnel using qualified procedures and equipment.

- FINDINGS:**
- The procedure for the qualification of special NDE procedures is provided in the Nondestructive Materials Characterization Unit Directive NDMC-1.5, "NDE Special Procedures," May 30, 1991. However, there is no existing EG&G Idaho procedure that prescribes the process for qualifying the standard procedures for performing NDE that are contained in the EG&G Idaho Company Procedures Manual.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: No procedure exists that prescribes the process for qualifying EG&G Idaho, Inc. standard procedures for nondestructive examination, as required by the EG&G Idaho, Inc. Quality Manual.
(QV.7-1)
(H3/C1)

4.5.1.3 Operations

4.5.1.3.1 Overview

The eight performance objectives in the Operations technical area were addressed in this appraisal. The appraisal was conducted by means of interviews with management; technical support; operating personnel; and a review of manuals, procedures, charters and records. Facilities visited and reviewed included: ATR, TAN, Waste Experimental Reduction Facility (WERF), RWMC, Stored Waste Examination Pilot Plant (SWEPP), and the Power Burst Facility (PBF).

Overall the operation functions were judged to contribute effectively to the various programs. Most items discussed in the detailed findings and concerns can be traced to several root causes including aging facilities, a lack of full implementation of requirements contained in DOE 5480.19, "Conduct of Operations for DOE Facilities," and where a greater level of safety could be attained. Ten concerns were generated.

The operations organization structure is well defined and understood, as are the responsibilities and authority for each management, supervisory, and professional position.

Activities in the ATR control rooms were conducted in a business like and professional manner and were limited to appropriate personnel. Oral communications as observed in the ATR Control Room during normal operation, a reactor shutdown, and a maintenance outage were excellent. Instructions were clear and concise; critical safety and plant instructions were given and acknowledged using a formal protocol. Operators performed their functions in a timely manner and documented the tests and measurements required by the Technical Specifications/OSRs for which they are responsible during observation and review of the data sheets.

The assessment at the WERF incinerator filter house revealed the bags in use do not have the maximum available fire rating. A higher fire-rated bag would improve fire safety for this operation.

There was an awareness of DOE 5480.19 throughout the entire line organization with varying degrees of compliance. The RWMC, and the SWEPP appear to have a low priority for obtaining resources to assist in implementing the requirements as judged by the estimate of 6 months for some compliance.

By observation and by review of the data sheets, the operating conditions for equipment are effectively monitored, and appropriate corrective action is initiated when required.

A review of backup measurements at the TAN Hot Cell water pool revealed no system to detect leaks on the outside of the water pool in the event of a crack in the concrete structure. There are no test wells surrounding the pool or other detection devices to monitor leaks to the environment and no near-term schedules to drain the water from the pool.

The appraisal indicated equipment needed for operational activities is readily available to shift personnel. During the interviews and tours, the operators exhibited a vigilance for, and capability of, diagnosing off-normal and emergency conditions for their area of responsibility.

Shift turnovers were observed at the ATR for the Reactor Control Room and the Auxiliary Systems Control Room. In the auxiliary control room they were deficient for log book entries to state when the operators assumed responsibility. In the Reactor Control Room there was a rather cursory examination of the control room panel.

The human factors observed in the areas toured generally revealed good equipment and line labeling practice; however, some exceptions led to a concern regarding the implementation of coding conventions. The ATR markings and labels for piping and valves was very clear and legible. Illumination levels were adequate in the areas visited. Controls and their associated displays were grouped in close proximity to each other to eliminate ambiguity and facilitate ease of operation as observed during the tour.

The assessment for the ATR revealed a lack of compliance with DOE 5480.19 in areas of logkeeping, shift turnover, and operator aids. In a variety of areas there was evidence that a safety program has not been implemented that ensures safety in the workplace is in accordance with the EG&G Idaho Safety Manual.

The self-assessment performed by the Waste Management Department is a good example of understanding and acceptance of DOE 5480.19. Much emphasis has been made for compliance. As stated in the self-assessment, there is concern that EG&G Idaho does not have the technical resources required to prepare and provide oversight of the SAR/OSR process. The Team concurs with this self-assessment evaluation. The Waste Management Department self-assessment was an excellent example of executing management skills for planning, leading, organizing, and controlling operation.

The self-assessment by the ATR Department identified a number of safety issues. One receiving strong management support involves reducing personnel contamination to ALARA. A review of Unusual Occurrence Reports at the ATR during the past year indicates this emphasis is desirable and should be continued. The ATR Internal Assessment Program currently being implemented at ATR will, when fully implemented, provide an excellent tool for monitoring and improving ATR operating standards relative to the requirements of DOE 5480.19.

EG&G Idaho has not implemented a document control system which ensures operations are conducted using current and correct procedures, drawings, and other references as required by DOE 5480.19.

4.5.1.3.2 Findings and Concerns

OP.2 CONDUCT OF OPERATIONS

PERFORMANCE OBJECTIVE: Operational activities should be conducted in a manner that achieves safe and reliable operation.

- FINDINGS:**
- The fire rating of the filter bags at the WERF incinerator filter house are not as high as those available to the industry.
 - A bag fire at the WERF incinerator filter house could result in exposure to people and extensive damage to the equipment and building.
 - The present fire rating of the filter bags is 500° F.
 - The temperature of the flow into the filter house is about 300° F.
 - The incinerator design is in compliance with design requirements.
 - Sparks from the incinerator can be a fire initiator by passing through the duct system and impinging on the filter bags.
 - The self-assessment for this area indicates there has been a lack of disciplined culture for verbatim compliance with procedures and other directives.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(OP.2-1)
(H2/C2) The filter bags used in the Waste Experimental Reduction Facility incinerator filter house do not have the maximum available fire rating.

- FINDINGS:**
- The Advanced Test Reactor Critical (ATRC) Facility overhead crane pendant had Operation Tag No. 11 attached. The log was dated May 10, 1991, and indicated the stop button was sticking. Further review revealed:
 - Neither a site work request nor an assessment input form addressing the problem had been submitted.
 - The sticking stop button resulted in the crane being immobilized and unable to lift or lower a load.
 - The stop button had stuck on several occasions.

- The crane is used for critical lifts over the ATRC core.
- The crane had not been removed from service.
- Two incompatible chemicals, which when combined would result in the release of chlorine gas, were stored under the sink in the ATR Chemistry Laboratory. The chemicals were ammonium hydroxide-(28 percent solution) and household bleach. Further review revealed:
 - The ammonium hydroxide had been used for leak detection testing of a chlorine injection system.
 - The chlorine injection system is no longer in use, and therefore, there is no need for the ammonium hydroxide.
 - The Material Safety Data Sheets (MSDS) for both chemicals were not among those retained in the Process Control Room for the Chemistry Laboratory, nor were they readily available.
 - The chemistry inventory and MSDSs had been reviewed by the Chemistry Supervisor for correctness and completeness within the past 10 days.
- Several 100-pound gas cylinders were loosely tied to a drain pipe with rope.
- A 5-ton overhead chain fall, 670-H.4, located on the south side of the ATR second basement, was available for use and was not marked to indicate that it had been inspected and tested.
- See Concerns WS.4-7, WS.6-1, RP.1-1, WS.3-1, OA.3-1.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(OP.2-2)
(H2/C1)

Advanced Test Reactor management has not implemented a safety program that ensures safety in the workplace is in accordance with the EG&G Idaho, Inc. Safety Manual.

OP.3 OPERATIONS PROCEDURES AND DOCUMENTATION

PERFORMANCE OBJECTIVE: Approved written procedures, procedure policies, and data sheets should provide effective guidance for normal and abnormal operation of each facility on a site.

- FINDINGS:**
- A one page document (labeled "NOFORN") was located on the ATR reactor control console bench and is used by the operator as a reference to control the reactor power split. This operator aid was not dated, labeled, signed, nor designated as an operator aid.
 - Two documents located on the ATR reactor control console bench, which are used by the operator as references, were dated and initialed, but were not identified as operator aids or marked to indicate they were controlled copies. The documents are "Summary of Cycle 93B-1 Powers," pages 30 and 31, and "Instrument Settings and Power Limitations Summary Sheet."
 - An operator aid entitled "normal operation 1 run 2 standby," located on Panel 670 HVB-3 at ATR, was not identified as such.
 - All operator aids at ATR that are in place for an extended period (greater than 1 to 2 years) are added to the "permanent aid" list and are dropped from the operator aid inventory. These operators aids are no longer subject to the controls required by the applicable DOE Order.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: Test Reactor Area management has not implemented an operator aid (OP.3-1) program to ensure that all operator aids reflect current plant (H3/C1) information, as required by DOE 5480.19.

- FINDINGS:**
- Drawing Change Form FCF 7.9.18.4-2 associated with Drawing 418330 Rev. R was incorrectly entered in the controlled set of drawings in the ATR Process Control Room. The "old-material" on the drawing was not identified and the change did not identify the electrical panel to which it applied.
 - In the ATR Control Room, a rack contains Natural Emergency Procedures 7.1.3.3, "Quick Steps to Evacuation." These procedures addressed the actions to be taken by four positions on the operating staff. The procedures are not controlled copies in that they were not uniquely numbered, dated, and signed, and were not marked as controlled copies.

- A copy of Standing Directive 17.3.2, "Fissile and Radioactive Material Handling," April 3, 1971, was stored in a container attached to the face of the ATRC Facility fissile material storage cabinet. The document was uncontrolled in that it was not marked to identify it as a controlled copy.
- An updated table of contents for the EG&G Idaho Facility Maintenance Manual, a controlled document, was issued on February 12, 1990, via a mailgram instead of making a revision to the document, as required by Standing Directive 16.2.1, "Document Configuration Control."
- The microfilm drawing files maintained at TAN, TRA, and CFA are routinely updated by Facility and Administrative Support. However, this process does not include formal acknowledgement of the receipt of new drawings, as required by ASME NQA-1-1989, for controlled documents.
- Distribution of drawings made from the TAN, TRA, and CFA files are not controlled, nor are all drawings marked to indicate their status or intended use.
- See Concern MA.8-2.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(OP.3-2)
(H2/C1)

EG&G Idaho Inc. has not implemented a document control system that ensures that operations are conducted using current and correct procedures, drawings, and other references, as required by DOE 5480.19.

OP.4 FACILITY STATUS CONTROLS

PERFORMANCE OBJECTIVE: Operations personnel should know the status of the systems and equipment under their control, and the effect of non-operational systems and equipment on continued operations. They should ensure that systems and equipment are controlled in a manner that supports safe and reliable operation.

- FINDINGS:**
- A leak of radioactive water to the environment could go undetected from the fuel storage basin at TAN. The concrete structure is embedded in the earth without provision for sampling seepage, if a leak should occur.
 - The inside of the pool is unlined, but coated with epoxy paint.
 - Three Mile Island core debris and spent Loss-of-Fluid Test fuel are stored in the basin. Present plans to transfer the fuel to dry storage is estimated to not be completed until 1997.
 - There are no-near term schedules (2 to 3 years) for removing the water and taking the basin out of service.
 - Special studies have been ongoing during the past 2 1/2 months for comparing evaporation data with water replacement to the basin. This data is being used as an additional confirmation for leakage detection.
 - There are no environmental test wells or other outside detection systems surrounding the pool storage basin.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(OP.4-1)
(H2/C2) No provision exists to detect or monitor leaks on the outside of the Test Area North Hot Shop water pool.

- FINDINGS:**
- The review revealed an awareness for the requirements in DOE 5480.19 throughout the line organization; however, the ATR, RWMC, TAN, and WERF were implementing the requirements at different levels of compliance.
 - At the RWMC, the management believes that about 6 months would be required for total compliance to be achieved with DOE 5480.19 requirements.
 - Some examples of activities to be completed are:
 - Develop systems for independent verification,

- Add greater detail to round sheets for daily inspections, and
- Draft formal shift checklist for turnover during the 10-hour day shift.
- ATR expects to complete Operator Conduct of Operations training in about 30 days.
- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(OP.4-2)
(H3/C1)

The conduct of operations requirements specified in DOE 5480.19 have not been fully implemented.

FINDINGS:

- ATR Technical Specifications, Table 4.1.1, Section C.3, page 123, requires that the siphon breaker be tested, "every four years or prior to any reactor startup following any system major fouling or siphon breaker damage."
- ATR Technical Specifications, Table 4.1.1, page 130A, specifies the definitions used for the frequency of testing including the grace periods; i.e.,

monthly = less than or equal to 40 days
annual = less than or equal to 15 months

Definitions for the frequency of testing for those tests having a periodicity greater than annually are not provided in Table 4.1.1.

- The ATR Periodic Checks and Test Requirements document indicates the siphon breaker was due for testing on March 18, 1990. However, the test was not accomplished until May 31, 1990; 10 weeks past the due date and, hence, 10 weeks past the frequency of testing specified in the ATR Technical Specifications.
- A reactor outage is required to test the siphon breaker. The ATR Long Range Outage Schedule, February 14, 1991, indicates that there was an outage 7 days prior to the due date of the siphon breaker test. In addition, there were two outages after the anniversary date of the siphon breaker test and prior to the outage in which the test was performed.
- ATR Operations notified ID of the Technical Specification noncompliance event on July 12, 1991, some 16 months after the event. The event was classified as an unusual occurrence in accordance with DOE 5000.3A.

- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(OP.4-3)
(H3/C1)

The Advanced Test Reactor Technical Specifications do not prescribe the actions to be taken when a surveillance requirement is not met.

OP.7 SHIFT TURNOVER

PERFORMANCE OBJECTIVE: Turnovers conducted for each shift station should ensure the effective and accurate transfer of information between shift personnel.

- FINDINGS:**
- Log book entries were not made during the process operator shift turnover to indicate when actual responsibility for the shift was assumed. A new Standing Directive requirement for doing so had recently been identified, but had only been partially implemented.
 - The ATR Operations Standing Directive 11.1.16 requires log book entries to record when responsibilities are assumed.
 - The ATR Status Boards located in the Reactor Control Room are normally updated only once per 8-hour shift and, therefore, may not reflect the current status of the ATR facility, as required by DOE 5480.19 and Power Reactor Programs ATR Operations Standing Directive 11.1.16.
 - At the ATRC facility the status board did not reflect the status of testing associated with SWR-TR068.
 - The ATRC Operations Tag Log entries are incomplete; they lack the requisite Assessment Input Form numbers. In addition, the log is not routinely reviewed by the ATRC Manager, as required by DOE 5480.19.
 - The ATR Experiment Log 2C-S/2C-E initial entry at the start of the shift does not include the information required by ATR Standing Directive 11.2.2 and the logkeeping instruction sheet contained in the front of the logbook; i.e., date, name of the operator, and log identification.
 - The Senior Reactor and Experiment Engineer reviews and signs the Reactor Operators Log after each shift. However, there is no indication that the Shift Manager and Reactor Operator routinely review the Reactor Operators Log.
 - The responsible Reactor Operator was observed to be changed several times during a shift on June 22, 1991. There were no entries made in the Reactor Operators Log to reflect these changes.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(OP.7-1)
(H3/C1)

The Advanced Test Reactor facility logkeeping practices do not meet the requirements of DOE 5480.19 with regard to timeliness, accuracy, and review.

FINDINGS:

- The Shift Managers Status Board was not reviewed by the Shift Manager as part of the shift change process, as required by ATR Standing Directive 11.1.16.
- The Shift Managers Status Board was not reviewed by the Reactor Operator as part of the shift change process.
- The section of the ATR Shift Manager Turnover Status Sheet, (June 22, 1991, Shift N-3), "Abnormal Conditions-Experimental Loops," did not reflect the status indicated on the ATR Experiment Loop Operating Status Board, "TRS-38 amp bad-TRAMO reading TC's every 2 hrs w Pot"; in addition, Item 4 "non-routine required checks" of the turnover status sheet did not address the taking of thermocouple readings every 2 hours.
- Reactor Console Operators do not use a checklist to guide shift turnover.
- This concern was not addressed in the EG&G Idaho self-assessment.

**CONCERN:
(OP.7-2)
(H3/C1)**

Advanced Test Reactor management has not implemented a shift turnover process that ensures that an accurate picture of facility status is communicated between shifts, as required by DOE 5480.19.

OP.8 HUMAN FACTORS

PERFORMANCE OBJECTIVE: Human factor considerations should be incorporated in the design, layout, and operation of all facilities on the site to facilitate operator control, information processing, and the recognition and proper response to alarms, instruments, and other equipment.

- FINDINGS:**
- Color coding conventions at the ATR facility are not consistent. Red lights are used to indicate both energized and shutdown conditions, and green lights are used to indicate operating and deenergized conditions.
 - The ATR Secondary Coolant Pump "power on" light is green, but the flags associated with the pump control switch are colored green for "off" and red for "on."
 - Numerous valves at ATR were not labeled. An equipment labeling program has been established and labeling of critical equipment is progressing.
 - In Bldg. CFA 614 an electrical panel, which was used in a building energy management program, had a handwritten sign affixed that stated "Danger High Voltage Stay Out." The panel had no other identifying markings.
 - In Bldg. CF-603 Mechanical Equipment Room 2, a transformer and its isolation breaker have no identifying labels.
 - Numerous valves in Bldg. TAN-603 Boiler Room have no identifying labels.
 - The log sheets used by the ATR operators, when making rounds, indicate the normal operating range of many parameters. However, those instruments observed at TAN, TRA, and CFA which are used to monitor operations-related activities, were not color banded or marked to identify normal and abnormal ranges of operation.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(OP.8-1)
(H3/C2)

EG&G Idaho, Inc. has not implemented a coding convention program that is consistent with generally accepted industrial practices.

4.5.1.4 Maintenance

4.5.1.4.1 Overview

The appraisal of maintenance at EG&G Idaho addressed all eight of the performance objectives. Information for the appraisal was obtained from interviews with maintenance and operational managers, supervisors, and craftpersons. In addition, information was gained by review of maintenance and programmatic policy, procedural documentation, and by extensive reviews of real property and facility equipment. The primary buildings visited and inspected included: Bldgs. CF-614, CF-621, CF-622, CF-623, CF-665, CF-671, CF-679; TAN-603, TAN-604, TAN-607, TAN-636, TAN-660; TRA-608, TRA-609, TRA-625, TRA-635, TRA-642, TRA-653, TRA-670, TRA-671; PER-609; and WMS-603. At many of these buildings, supporting utility buildings, yards, and storage sheds were also inspected.

The importance of maintenance to the ability of EG&G Idaho to fulfill its stated mission has been clearly recognized by its management. EG&G Idaho maintenance management recognizes achieving full compliance with DOE 4330.4A is a formidable task, and is in the process of developing an implementation plan. Facility inspection plans are in place to identify deficiencies for correction to upgrade and maintain real property. Inspection of many of EG&G Idaho's buildings and facilities revealed most equipment critical to safe operations and program support was being well maintained. Work control and tracking systems are being put in place that will provide more visibility to equipment deficiencies and maintenance activities. EG&G Idaho needs to make improvements in a number of areas to achieve compliance with the maintenance objectives of DOE 4330.4A.

Maintenance procedures do not contain sufficient detail to ensure work is performed in a safe and controlled manner. Many corrective and preventive maintenance procedures do not include certification of work completion and detailed instructions for accomplishment of post-maintenance testing. Many preventive maintenance procedures are not reviewed by safety personnel prior to being issued for performance to ensure safety hazards and requirements are detailed in the procedures. These maintenance activities frequently rely on craft supervisors to assess the hazards involved and establish the necessary controls to mitigate the hazards. Several instances were noted where personnel had performed preventive maintenance tasks involving work with hazardous chemicals, and safety controls had not been included in the preventive maintenance instructions. Since this represents a significant personnel hazard, the concern in this area has been designated as Category II.

EG&G Idaho maintenance policies and standards do not include the elements necessary to achieve compliance with DOE 4330.4A. Documents are not readily available to the staff that clearly define the responsibility and authority of maintenance managers and supervisors. Tracking and trending of maintenance performance does not include many of the applicable performance indicator goals cited in DOE 4330.4A. A graded approach to maintenance has not been established. However, some departments have started the process of facility and equipment classification for implementation of the graded approach.

EG&G Idaho's maintenance backlog is not being effectively managed and continues to increase. Resources are not being allocated to reduce the backlog, and with implementation of new work control and tracking systems, visibility of this backlog has not been maintained. Maintenance managers indicated this backlog is being transferred to the new systems to provide better visibility and control.

Reviews of worksites revealed deficiencies in control of lockouts/tagouts, post-maintenance cleanup, testing of hoisting and rigging equipment, and use of safety equipment. Housekeeping deficiencies were noted in some out-of-the-way areas; however, most facilities were clear of trash and industrial debris.

4.5.1.4.2 Findings and Concerns

MA.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Maintenance organization and administration should ensure effective implementation and control of maintenance activities.

- FINDINGS:**
- Exempt Position Questionnaires define responsibilities of each manager, supervisor, and professional in the organization; however, these are considered "limited access" documents and are primarily used for personnel and salary issues, and for developing role clarity for employees.
 - Exempt Position Questionnaires do not define authority for management, supervisory, and professional positions.
 - Quality Program Plans in the Facilities and Maintenance Department do not address organizational responsibilities with respect to the Maintenance Program.
 - Some Standard Practices address responsibility by task; however, many do not address authority for management, supervisory, and professional positions.
 - See Concern PP.1-1.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. does not have documents that are readily available to the staff, which define responsibility and authority of each management, supervisory, and professional maintenance position, as required by DOE 4330.4A.
(MA.1-1)
(H3/C1)

- FINDINGS:**
- A graded approach to maintenance has not been implemented by EG&G Idaho. However, some departments have initiatives in place to establish a graded approach.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. has not integrated a graded approach into the development and implementation of maintenance programs, as required by DOE 4330.4A.
(MA.1-2)
(H3/C1)

FINDINGS:

- Maintenance goals have not been established or trended, as required by DOE 4330.4A. For example:
 - The performance Model Trend Summary for the TAN Facilities Group does not include maintenance goals and trending for rework, overtime, personnel errors, training, and work backlog.
 - The performance Model Trend Summary for the CFA Facilities Group does not include maintenance goals and trending for personnel errors, overtime, job-specific and safety training, and work backlog.
 - The performance Model Trend Summary for the CFA Program Support Group does not include maintenance goals and trending for personnel errors and work backlog. However, a backlog summary by job type and craft is prepared monthly.
 - The TRA Maintenance Organization Performance Sheet does not include maintenance goals in some areas.
- CFA Maintenance Organization craft efficiency is measured as a percentage of craft hours forecast on the Site Work Release. This forecast is provided by the planner/scheduler and is not based on past history or third party work standards.
- RWMC Maintenance Management indicated the only maintenance goal established and trended was number of preventive maintenance items scheduled versus the number of preventive maintenance items completed.
- See Concern TS.4-1.
- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(MA.1-3)
(H3/C1)

EG&G Idaho, Inc. has not established maintenance goals and is not trending maintenance performance in all areas required by DOE 4330.4A.

FINDINGS:

- Standards are not clearly established for conduct of the maintenance program in areas such as cleanliness, bolting, and use of sealants.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(MA.1-4)
(H3/C1)

EG&G Idaho, Inc. has not established technical standards for the performance of maintenance, as required by DOE 4330.4A.

MA.2 CONDUCT OF MAINTENANCE

PERFORMANCE OBJECTIVE: Maintenance should be conducted in a safe and effective manner to support each facility condition and operation on the site.

- FINDINGS:**
- Preventive maintenance procedures in some EG&G Idaho departments are not reviewed by safety personnel. For example:
 - Facilities and Maintenance Department preventive maintenance procedures are issued for performance without review by safety personnel.
 - WERF preventive maintenance procedures performed by operations personnel were marked to indicate they had not been reviewed by safety personnel since 1987.
 - RWMC preventive maintenance procedures are issued without review by safety personnel.
 - In two instances, CFA maintenance personnel were observed performing preventive maintenance involving hazardous chemicals without a Safe Work Permit or Job Safety Analysis, as required by the EG&G Idaho Safety Manual, Revision 37, April 15, 1991.
 - In some EG&G Idaho departments, decisions on the hazards involved and use of Safe Work Permits for preventive maintenance activities is left to the supervisor responsible for the maintenance.
 - Hold points for hazardous work control checks are not included in many preventive maintenance procedures.
 - Two recently completed preventive maintenance tasks involving hazardous chemicals were performed at TAN. Contrary to the requirements of the EG&G Idaho Safety Manual, Revision 37, April 1991, a Safe Work Permit addressing these tasks was not issued.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(MA.2-1)
(H1/C1)
CAT. II

EG&G Idaho, Inc. has not implemented controls in preventive maintenance programs that minimize exposure of personnel to significant hazards during the performance of work, as required by DOE 4330.4A.

- FINDINGS:**
- Many signatures in work packages were illegible.
 - Preventive and corrective maintenance procedures at TRA, TAN, and WERF do not include certification of satisfactory completion of work.
 - Discussions with a CFA Unit Manager indicated that there is no requirement for certification by the job supervisor that the workmanship of the job is acceptable.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(MA.2-2)
(H3/C1)

Certification of satisfactory completion of maintenance work and traceability of the certifier is not included in many EG&G Idaho, Inc. corrective and preventive maintenance procedures, as required by DOE 4330.4A.

- FINDINGS:**
- CFA Site Work Release (SWR) 001873 required, in part, "lockout/tagout of C and D circulating pumps with boundary tags on the tagged valves." Although the job was in progress, the involved craftspersons could not explain what the quoted statement meant with respect to lockout/tagout.
 - The SWR did not identify the specific valves to be tagged.
 - A single step required that two crafts (Pipefitter and Electrician) perform lockout/tagout, but provisions were included for only one signature.
 - One energy source ("C" auxiliary pump) was not included in the lockout/tagout.
 - At Bldg. TAN-603, the boiler annual Preventive Maintenance Procedure No. 474 was being performed. This procedure did not include specific instructions as to which mechanical and electrical energy sources were to be locked-out/tagged-out. Review of this work found propane gas supply manual block valves were closed, but not locked-out/tagged-out. The electrical lockout/tagout of two solenoid-operated valves was being relied upon to isolate the gas supply.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(MA.2-3)
(H2/C1)

Lockouts/tagouts are not being performed in a manner that ensures the safety of individuals conducting work, as required by DOE 4330.4A and 29 CFR 1910.147.

FINDINGS:

- EG&G Idaho work control and tracking systems do not include provisions for identifying and tracking maintenance rework.
- There is no documented requirement or practice to review maintenance rework for generic implications.
- This concern was not addressed in the EG&G Idaho self-assessment.

**CONCERN:
(MA.2-4)
(H3/C1)**

EG&G Idaho, Inc. has not established a program to increase maintenance effectiveness through the identification, documentation, and analysis of rework as required by DOE 4330.4A.

MA.3 MAINTENANCE FACILITIES, EQUIPMENT AND MATERIAL

PERFORMANCE OBJECTIVE: Facilities, equipment, and material should effectively support the performance of maintenance activities.

- FINDINGS:**
- In Bldg. TAN-603, overhead hazards existed where tools and equipment had been left laying on an overhead walkway that had no toeboard.
 - A small Chem-O-Lene (acetylene substitute) gas leak existed in the welding and brazing area of Bldg. CF-622. (This deficiency was immediately corrected.)
 - The room surrounding the paint booth area in Bldg. CF-623 is poorly illuminated. It receives no light other than that provided from the paint booth area.
 - Bldg. CF-623, Room 103, the sign maker area, does not have forced air ventilation. During a tour of this area, fire doors were noted to be propped open to provide adequate ventilation.
 - Egress through a fire door in Bldg. CF-623 was blocked by a tool caddie, trash can, and a stool.
 - The Machine Shop at TRA is crowded with machines to the point where safety could be compromised. (Discussions with TRA personnel indicated initiatives have been proposed to resolve this crowded condition.)
 - The underground boiler fuel oil storage tank fill connections outside Bldg. CF-671 were not marked.
 - See Concern WS.4-1.
 - This concern was partially addressed by the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. maintenance management is not controlling facility work areas in accordance with generally accepted industrial practices to ensure the safety of personnel in those areas.
(MA.3-1)
(H2/C2)

- FINDINGS:**
- Some portable lifting/pulling equipment in CFA and TAN tool issue rooms was not marked to indicate periodic testing and inspection had been performed.
 - One piece of portable lifting/pulling equipment stored in a TAN tool issue room had a damaged hook, but was not marked to indicate the equipment was not to be used. (This piece of equipment was immediately removed from service.)

- Markings on the Bldg. TAN-607 spare parts area crane indicated the crane was overdue for periodic inspection and testing and was not tagged out-of-service.
- A chain hoist in Bldg. TRA-670 was not marked to indicate periodic inspection and testing had been accomplished. Subsequent investigation revealed the preventive maintenance checklist for inspection and load test of this 5-ton manual trolley hoist (670-H-4) had been incorrectly modified by issuing a change to the associated Site Work Request (PTRA 10436). This change to the checklist was not reviewed and approved, as required by TRA Maintenance Operations Directive No. 12.3.10, and resulted in the manual trolley hoist not being fully inspected and tested to the requirements of the DOE Hoisting and Rigging Manual, Issue #3, Revision 10-87.
- See Concerns WS.4-7 and PP.4-1.
- This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(MA.3-2)
(H3/C1)

The EG&G Idaho, Inc. hoisting and rigging program does not ensure all equipment available in the workplace has been tested and inspected in accordance with 29 CFR 1910, Subpart N; DOE 4330.4A; and the Department of Energy Hoisting and Rigging Manual, Issue #3, Revision 10-87.

FINDINGS:

- Two electricians performing preventive maintenance on energized electrical equipment in Bldg. TRA-671 were not wearing safety glasses with side shields, as required by ANSI Z 87.1-1989.
- The Safe Work Permit associated with Site Work Request RI986, Hydrostatic Testing of an isotope production capsule transport container, had not been signed and approved by a safety representative even though the work had been completed.
- Two electricians were observed working as a team, shoulder-to-shoulder in front of an open energized, 480V, controller cubicle. Their proximity to each other and the energized circuits was such that neither could act as a backup man, as required by the Safe Work Permit and the EG&G Idaho Safety Manual, Revision 37, April 15, 1991.
- Several maintenance personnel in two different groups were noted in Bldg. TRA-671 (an area in which hearing protection apparatus is required to be worn) without wearing hearing protection apparatus.

- Several maintenance personnel in an area of Bldg. CF-622 where grinding operations are performed were not wearing safety glasses with side shields, as required by ANSI Z 87.1-1989.
- See Concern WS.3-1.
- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(MA.3-3)
(H2/C1)

Personnel safety equipment postings and procedure requirements are not being adhered to by EG&G Idaho, Inc. maintenance personnel as required by DOE 4330.4A and the EG&G Idaho, Inc. Safety Manual, Revision 37, April 15, 1991.

FINDINGS:

- Post-maintenance cleanup was noted to be poor in several CFA, TRA, and TAN work areas.
- In Bldg. TRA-671, the area under the deck grating was littered with wire, pipe fittings, cigarette butts, paper, and other debris.
- In Bldg. CF-679, cardboard and paper debris was on top of the battery charging panel.
- In Bldg. CF-614, several equipment rooms and heating and ventilation equipment areas in the overhead were littered with industrial debris.
- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(MA.3-4)
(H3/C1)

In some work areas, EG&G Idaho, Inc. maintenance management is not ensuring housekeeping is maintained in accordance with the requirements of DOE 4330.4A and 29 CFR 1910.22.

MA.4 PLANNING, SCHEDULING AND WORK CONTROL

PERFORMANCE OBJECTIVE: The planning, scheduling, and control of work should ensure that identified maintenance actions are properly completed in a safe, timely, and effective manner.

- FINDINGS:**
- Site Work Release TN381 post-maintenance testing required megger checks be performed, but did not require the recording of megger readings.
 - CFA Maintenance Work Order 001873, which replaces boiler water circulating pumps, does not specify any post-maintenance testing acceptance criteria.
 - TAN boiler inspection Preventive Maintenance Procedure No. 474 includes a requirement to hydrostatic test the boiler to 100 psi; however, detailed instructions to accomplish the test were not included, nor was reference made to another document to accomplish the test.
 - CFA Maintenance Work Orders 001374, 001760, and 001776 all specify post-maintenance testing; however, no instructions are provided on how to accomplish the testing.
 - Many corrective and preventive maintenance work instructions do not include post-maintenance testing acceptance criteria.
 - Many corrective and preventive maintenance work instructions do not include formal verification of successful completion of post-maintenance testing.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. has not established a post-maintenance testing program that specifies acceptance criteria, testing requirements, and verification of satisfactory test performance, as required by DOE 4330.4A.
(MA.4-1)
(H3/C1)

- FINDINGS:**
- Backlog of corrective maintenance continues to increase. The backlog of unfunded maintenance repairs increased from \$10 million to \$13 million in FY 1990.
 - Contributing to the increase in backlog of corrective maintenance is the lack of visibility of backlog items to maintenance management. Many of these deficiencies have not yet been incorporated into the recently implemented computer-based work control/tracking systems.
 - Performance records indicate the Facilities and Maintenance Department Program Support Group has only been able to

provide approximately 60 percent of the requested support for the year. Shortages of carpenters, electricians, mechanics and yardmen are indicated.

- TAN maintenance management cited a need for pipefitters, electricians, and mechanics to support reducing overtime for individuals, stop the increase in corrective maintenance backlog, and to support clearing the existing maintenance backlog.
- TRA maintenance management stated that since January 1, 1991, electrical supervisors have been working at least two overtime shifts per week, and since April 1, 1991, instrument supervisors have also been working at least two overtime shifts per week.
- TRA had a backlog of approximately 40 preventive maintenance tasks that were not performed as scheduled, nine of which were overdue by as much as 6 months. Discussions with facility managers indicated that the resources were not available to perform the overdue tasks and that this backlog was scheduled to be cleared in approximately 2 months.
- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(MA.4-2)
(H3/C1)

Contrary to the requirements of DOE 4330.4A, maintenance backlog at EG&G Idaho, Inc., is not controlled and continues to increase.

MA.5 CORRECTIVE MAINTENANCE

PERFORMANCE OBJECTIVE: The material condition of components and equipment should be maintained to support safe and effective operation of all facilities on the site.

- FINDINGS:**
- EG&G Idaho does not have a method in place to indicate that deficiencies have been identified and entered into the work control system or to preclude putting a deficiency in the work control system more than once.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. management has not established a method to mark
(MA.5-1) deficiencies in the workplace to indicate they have been
(H3/C1) identified and entered into the work control system, as required
by DOE 4330.4A.

MA.6 PREVENTIVE MAINTENANCE

PERFORMANCE OBJECTIVE: Preventive maintenance should contribute to optimum performance and reliability of systems and equipment important to operations.

- FINDINGS:**
- Preventive maintenance items in most EG&G Idaho departments are assigned a single priority level. Discussions with EG&G Idaho managers indicated that, in general, management intervention is required near the end of the period to ensure preventive maintenance items are completed as scheduled. This often results in a large number of preventive maintenance items being accomplished near the end of the period to support completion as scheduled.
 - TRA had a backlog of approximately 40 preventive maintenance tasks that were not performed as scheduled, nine of which were overdue by as much as 6 months.
 - Preventive maintenance items at TRA are being scheduled and tracked in an automated work order system; however, a manual system is being maintained as a backup because the computer generated system was cited as being unreliable.
 - Approximately 40 percent of preventive maintenance items scheduled for completion during May 1991 were not completed by Waste Management, TAN Maintenance.
 - At PBF, the May 1991 preventive maintenance schedule had not been updated as of June 26, 1991, reportedly because work packages which accomplished the preventive maintenance had not been processed for closure. Oral reports had been received that all items had been completed.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: Management in some EG&G Idaho, Inc. departments has not established a policy that ensures preventive maintenance for equipment, which is past due, receives elevated scheduling priority, as required by DOE 4330.4A.
(MA.6-1)
(H3/C1)

MA.7 PREDICTIVE MAINTENANCE

PERFORMANCE OBJECTIVE: Maintenance history evaluation and systematic root cause analyses should be used to support maintenance activities and optimize equipment performance.

- FINDINGS:**
- Facilities and Maintenance Department and RWMC do not currently have procedures in place to evaluate equipment performance for predictive maintenance.
 - Facilities and Maintenance Department recently started an evaluation process to determine equipment maintenance history to support a predictive maintenance program.
 - RWMC has not initiated action to establish maintenance history records; as a result, action has not been taken to establish a predictive maintenance program.
 - TRA has a maintenance history program in place; however, a predictive maintenance program has not been established.
 - See Concern TS.4-1.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(MA.7-1)
(H3/C1)

EG&G Idaho, Inc. has not established a predictive maintenance program, as required by DOE 4330.4A.

MA.8 PROCEDURES AND DOCUMENTATION

PERFORMANCE OBJECTIVE: Maintenance procedures and related documents should provide appropriate directions and guidance for work, and should be used to ensure that maintenance is performed safely and effectively.

- FINDINGS:**
- In many EG&G Idaho departments, preventive maintenance procedures do not include detailed instructions to safely and properly control work. For example:
 - In some EG&G Idaho departments, decisions on the hazards involved with use of Safe Work Permits for preventive maintenance activities is left to the supervisor responsible for the maintenance.
 - Worker signatures are not required for completion of major work steps in many preventive maintenance procedures.
 - Hold points for hazardous work control checks are not included in many preventive maintenance procedures.
 - Clearly written test instructions are not included in many preventive maintenance procedures.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. preventive maintenance procedures do not include detailed instructions to accomplish work in a safe and controlled manner, as required by DOE 4330.4A.
(MA.8-1)
(H2/C1)

- FINDINGS:**
- Drawings available at TAN, TRA, and CFA are not formally controlled. Controlled drawings must be obtained from a document control center at the Willow Creek Building in Idaho Falls.
 - Interviews with staff and management at TAN indicate approximately 15 percent of TAN as-built drawings are current.
 - Interviews with staff and management at PBF indicate very few as-built drawings are current. A budget request to update the drawings was denied.
 - CFA Maintenance Work Order 001873 requires the installation of two each, three-position maintain contact selector switches and the attendant reconfiguration of control wiring. No as-built drawing or drawings reflecting the required modifications were included in the work package.
 - Interviews with staff and management at CFA indicate

approximately 5 percent of as-built drawings are current.

- See Concern OP.3-2.
- This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(MA.8-2)
(H2/C1)

EG&G Idaho, Inc. does not have current as-built drawings to support maintenance activities as required by DOE 4330.4A.

FINDINGS:

- A preventive maintenance checklist for inspection and load test of a 5-ton manual trolley hoist (670-H-4) was incorrectly modified by issuing a change to the associated Site Work Release (PTRA 10436) . This change to the checklist was not reviewed and approved as required by TRA Maintenance Operations Directive No. 12.3.10, and resulted in the manual trolley hoist not being fully inspected and tested to the requirements of the Department of Energy Hoisting and Rigging Manual, Issue #3, Revision 10-87.
- A preventive maintenance checklist for performing annual inspection of the ATR cooling tower fans and gear cases was extensively changed in the field. The changes to the checklist were not reviewed and approved, as required by TRA Maintenance Operations Standing Directive No. 12.3.10.
- Personnel performing a hydrostatic test of an isotope reduction transfer container at TRA deviated from the integrated work instructions of a verbatim compliance procedure (SWR RI086) without prior approval by use of a field change sheet. Specifically, two overpressure protection methods were not provided and the primary means of overpressure protection was not manual release, as required by the integrated work instructions.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(MA.8-3)
(H2/C1)

Revisions to maintenance documents are not properly controlled, as required by DOE 4330.4A.

4.5.1.5 Training/Certification

4.5.1.5.1 Overview

This appraisal addressed all of the Training and Certification performance objectives. The appraisal was conducted through a combination of interviews with instructors, students, and management; observation of the conduct of classroom training and an emergency preparedness exercise; and a review of training program policies, procedures, training materials, lesson plans, examinations, and training records.

There has been a leadership vacuum at EG&G Idaho with respect to resolution of company-wide training issues. Also, ID has provided little in the way of formal requirements or guidance in these areas. This situation is evidenced by: a lack of any company-wide standards or requirements for the conduct of training; a lack of any formal mechanisms for coordination or communication among training organizations; an unreliable company-wide training tracking system; and uneven quality in training materials, facilities, and implementation. Redundancies, inconsistencies, and gaps in training result from this approach. Significant problems identified during this appraisal with equipment operator certifications illustrate the potential difficulties with the present system. Some aspects of EG&G Idaho training are well done. These include instructors who are well qualified for their duties in both their technical and training functions, well-maintained individual training records, first line manager training, and reactor and nuclear facility operations training in general. EG&G Idaho has self-identified almost all of the weaknesses in training programs and has begun to address many of these needs. The most visible example of this effort is the development of a draft company-wide matrix, which identifies training requirements mandated by regulation, DOE Order, or company requirements for all categories of employees.

The EG&G Idaho Operations and Training Technology Applications (OTTA) Unit, serves as a significant resource to the entire DOE complex for implementing training and certification programs including compliance with the requirements of DOE 5480.18, DOE 5480.20, and DOE 4330.4A. Some EG&G Idaho training organizations have close informal ties with the OTTA Unit, while others had little or no interactions; there are no formally established relationships.

The only established INEL-wide forum for contractor training issues is the INEL Training Council. While this Council has a formal charter, it has no authority over any INEL training, and has had limited involvement by ID. Some EG&G Idaho training organizations enthusiastically support this Council, while others were unaware of its existence. Recently, ID has taken significant steps toward addressing INEL training needs for both DOE and contractor personnel. These steps include initiation of a ID training program and establishment of a Training and Development Branch. This Branch is currently focusing on issues with respect to training of ID employees, but will be responsible for oversight and coordination of INEL contractor training programs.

The Requirements Awareness Program (RAP), a portion of the EG&G Idaho Unit Manager Development Program, was identified as a Noteworthy Practice. Through participation in the RAP, each manager creates a customized listing of requirements for each of eight ES&H-related disciplines that apply to his/her specific organization.

By letter, N.S. Burrell, Director, Reactor Research and Technology Division, ID, to F.C. Fogarty, Manager, Power Reactor Programs, EG&G Idaho, Inc., dated June 11, 1991, ID considers all concerns in the training and certification area of previous appraisals to be closed. Therefore, no followup was conducted.

4.5.1.5.2 Findings and Concerns

TC.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: The training organization and administration should ensure effective implementation and control of training activities.

- FINDINGS:**
- There are no EG&G Idaho standards for the design, development, conduct, or evaluation of ES&H-related training programs.
 - EG&G Idaho has used the "Cognizant Professional" concept as an approach to providing internal consulting services and establishing and interpreting standards for safety disciplines. However, there is no similar concept used for establishing standards for the development, conduct, or evaluation of ES&H-related training programs. Each department is permitted to establish (or not establish) its own training standards.
 - Wide variations were observed by the S&H Subteam in the quality of training materials, in the conduct of training, and in the evaluation of training programs. An area that was weak for one organization, was a strength in another. For example, some organizations had well-designed testing methods, while other organizations either did not require testing or used methods that were inappropriate for the skills and knowledge being trained. Findings related to Concern TC.1-2 also support this concern.
 - There is no standing mechanism for coordinating training issues among EG&G Idaho organizations. Working groups have been periodically established to address specific training issues. There is an INEL Training Council, of which EG&G Idaho is a member. This Council is chartered to provide coordination among INEL contractor organizations concerning training issues. Participation by EG&G Idaho training professionals in the Council has not been uniform. Some training professionals interviewed were unaware of the existence of the Council, while others viewed it as a useful communication and coordination mechanism.
 - As many as 26 EG&G Idaho organizations are developing and offering training. For example, TRA has developed a radiation worker training program that is used as a substitute for the Safety Training organization's standard radiation worker training class. There is no formal mechanism to communicate the respective strengths of these programs to ensure that all employees receive the best available training.

- The OTTA Unit is a resource to the entire DOE complex for implementing training and certification programs including compliance with DOE 5480.18, DOE 5480.20, and DOE 4330.4A. EG&G Idaho training organizations describe their relationships with the OTTA Unit in various ways, from "close cooperation" to "no real interface."
- EG&G Idaho has recognized weaknesses in implementation of ES&H training requirements. Among the actions taken to address this weakness are (1) preparing draft Company Procedure 1.11, "Identification of Training Requirements," which will provide instructions for identifying training requirements based on activities and responsibilities of individual employees, and (2) initiating an effort to evaluate the concept of a centralized EG&G Idaho training organization. The effort was made at the request of the ES&Q Department Manager, and results were documented in Memorandum SWF-14-90, October 30, 1990. The work group concluded, "there appears to be no clear advantage for either position [for or against centralization of training]."
- The training matrix, in draft Company Procedure 1.11, "Identification of Training Requirements," lists 35 classes or topics to be provided by line management in the "all employees" category alone. The content of many of these classes would be essentially the same across all organizations; for example, medical, bomb threat procedures, occurrence reporting, and portable fire extinguisher training.
- Using the same draft training matrix, one organization identified 184 required classes or topics for their staff, while another identified 16. Estimates of the percentage of required classes not yet developed range from 57 percent to less than 10 percent.
- The findings for Concerns PT.2-1, EP.3-1, and CS.1-4 also support this concern.
- This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(TC.1-1)
(H2/C2)

The quality of the design, development, conduct, and evaluation of training programs among some EG&G Idaho, Inc. organization units does not meet generally accepted industry practices.

FINDINGS:

- There are no EG&G Idaho standards for the use of testing for ES&H-related training programs.

- Typically, the passing score on a written test is 80 percent or better. There is no effort to provide added weight to the most essential questions. If written tests are the only evaluation method used and mastery of a particular topic is crucial (as for alarm signals and emergency procedures for life-threatening conditions), a passing score on a comprehensive test could indicate exceptionally good understanding in some areas and serious ignorance in other areas.
- Some tests were described by instructors or staff as "give-aways," that is, so easy that everyone passes. For example, the OSHA 24-hour class and the OSHA 40-hour class use the same open book test. Also, not all of the objectives for these courses can be effectively evaluated through an open book examination. For example, Module 10 (Decontamination) includes an objective that "The student will be able to recognize types and sources of potential contamination." A look-up examination does not evaluate this objective.
- For Health Physics Technicians and some safety professionals, the company applies a certification process that includes an oral board evaluation. The questions are noted, but standards for acceptable answers are not identified. For the tests given to Health Physics Technicians, the ATR self-evaluation for accreditation identified this weakness.
- Several EG&G Idaho audits and appraisals during the past 2 years have identified deficiencies in examination development and administration.
- The findings for Concern QV.6-3 also support this concern.
- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(TC.1-2)
(H2/C2)

In some cases, the testing and certification process does not provide meaningful assessment of knowledge or performance.

FINDINGS:

- The EG&G Idaho Safety Manual, Section 8, January 1, 1991, requires that safety training be documented and kept on file by each unit manager and entered in the Human Resources Safety Training System (HRSTS). The HRSTS data base is available to all company personnel through the networked Human Resources Safety Training Inquiry System (HRSTIS). The HRSTIS is rated by users as "very good" to "completely unreliable."

- The HRSTS data base is updated with available information on a weekly basis. However, there is no specified frequency at which line organizations are required to input their records into this data base. Some organizations do not regularly input their records into the HRSTS (one organization had only provided one input to the HRSTS in the last 6 months). Many organizations have established their own training records systems. Some of these systems have characteristics that are inconsistent with HRSTS requirements (e.g., the number of digits in the course identification numbers). This has contributed to infrequent updates of the HRSTS and additional efforts in maintaining multiple, incompatible systems.
- There are no company-wide standards for the maintenance of training records. This has resulted in confusion and inconsistencies in interpreting information in the HRSTIS. For example, the same course offered by different organizations may have different names and different course numbers. These inconsistencies significantly reduce the utility of HRSTIS information for users, particularly where multiple organizational units are involved.
- EG&G Idaho has recognized the above weaknesses. The End User Computing Group, in a report dated April 22, 1991, documented a concept for building upon the HRSTS to provide a requirements-driven training tracking system.
- This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(TC.1-3)
(H2/C2)

The EG&G Idaho, Inc. company-wide training tracking system is not being maintained as an effective tool for managers and supervisors.

FINDINGS:

- The findings for Concern TC.1-1 indicate that the quality of some EG&G Idaho training programs does not meet accepted industry standards. Some of these classes are also used to train ID personnel.
- The findings for Concern TC.4-2 were not identified by ID. This indicates that oversight of contractor training programs has not identified flaws in the conduct and administration of these programs.

- Discussions with the Chief, Training and Development Branch, ID, indicated a recognition of the need for standards for the conduct of all INEL ES&H training, including that provided by EG&G Idaho. He expects that this area will first be addressed through evaluation of INEL contractor training courses that are used to meet the training needs of ID personnel, as all such training programs are to be reviewed to ensure that they meet the standards to be applied for accreditation of ID training programs. However, action has not yet been taken.
- This concern was partially addressed in the ID self-assessment.

CONCERN:
(TC.1-4)
(H3/C2)

The DOE Field Office, Idaho, has not established standards for the development, conduct, or evaluation of Idaho National Engineering Laboratory training, including that provided by EG&G Idaho, Inc.

TC.4 GENERAL EMPLOYEE/PERSONNEL PROTECTION TRAINING

PERFORMANCE OBJECTIVE: General employee and personnel protection training programs should ensure that site/facility personnel, subcontractors, and visitors have an understanding of their responsibilities and expected safe work practices, and have the knowledge and practical abilities necessary to effectively implement personnel protection practices associated with their work.

- FINDINGS:**
- During the practical examination portion of Safety Training Course TS-603, "Hoisting and Rigging-Professional," the S&H Subteam observed that neither students, the instructor, nor personnel passing through the area where the crane was being operated were wearing safety shoes or hard hats. The instructor indicated that EG&G Idaho did not require such personnel protective equipment for hoisting and rigging activities. However, Section 16 of the EG&G Idaho Safety Manual, May 15, 1991, requires that "Head protection (helmets) shall be worn when there is a possible danger of head injuries from impact, flying or falling objects" and "Where a recognized risk to the toes exists, toe and foot protection is required."
 - Except for a small portion of the high bay area where this training was being conducted, there were no signs indicating that head protection was required. This posting is inconsistent with the requirements of Section 16 of the Safety Manual, which requires that "Signs indicating that head protection is mandatory shall be posted in all areas where a potential for head injury from falling objects exists."
 - Other irregularities observed during classes included:
 - An instructor demonstrated a spill resistant gasoline container directly over an open flame.
 - An instructor adjusted an energized circuit and received a mild electrical shock.
 - When an evacuation alarm sounded unexpectedly during class, an instructor mistakenly directed the students in the take-cover procedure.
 - This was not addressed in the EG&G Idaho self-assessment.

CONCERN: During some training classes, safe work practices required by the EG&G Idaho, Inc. Safety Manual were not consistently emphasized (TC.4-1) or followed. (H2/C1)

FINDINGS:

- S&H Subteam members observed the conduct of rigging and crane operating practical examinations for students in Safety Training Course TS-603 "Hoisting and Rigging-Professional." Students were not required to perform pre-operational checks as part of their examinations (the instructor demonstrated these checks, but did not require students to perform the checks). Students were not required to perform crane operations to the standards identified in the rigging and crane operating practical exam form. Discussions with the instructor indicated that these standards were not enforced because this was the only time during the 40-hour course that students had an opportunity for hands-on crane operation, and that many students would not complete the course in 40 hours if these standards were enforced. The instructor emphasized that this training did not certify individuals to operate cranes, but rather line managers were responsible for this certification.
- Review of qualification/certification programs for personnel whose jobs require operation of cranes indicated that requirements for this certification were inconsistent among organizations. Some organizations had comprehensive performance evaluations required for certification (e.g., TAN Hot Shops), while others certified crane operators based only on completion of the required Safety Training Course (TS-603, or TS-601).
- Six instances were identified by the S&H Subteam in which mechanics who did maintenance on fork lifts were driving the fork lifts for testing after maintenance, even though their fork lift licenses had expired. When cognizant managers were notified of this situation, the practice was terminated.
- The reason given by Facilities and Maintenance Department managers for the failure to recertify the mechanics as fork lift drivers was attributed to a shortage of qualified instructors to carry out the retraining on the required frequency.
- Personnel have been certified by line managers as equipment operators and crane operators based on a false assumption that they have demonstrated competency in these areas during their safety training courses. This false assumption has resulted from the nature of the documentation provided by the Safety Training organization and a failure by some line managers to conduct their own competency evaluations in addition to those of Safety Training, as required by EG&G Idaho policies. The "Competency Certificate" provided by Safety Training is not intended, by the instructor completing the certificate, to

mean that an individual has demonstrated satisfactory competency. Rather, the small print on the back of the "Competency Certificate" indicates five different levels of competency, with only two of these levels indicating the skill to work independently. The details of this competency rating were either not communicated to managers, or not understood, because some managers "certified" personnel who were rated as needing additional training, or who had not been evaluated at all by Safety Training.

- When the issue of equipment operator (including fork lift operators, mobile or bridge crane operators, or hoisting and rigging operators) qualification was identified by the S&H Subteam, EG&G Idaho management continued and intensified the corrective actions initiated about 2 weeks earlier, when an internal audit had cited the same problem. The ES&Q Department required an immediate, complete review of equipment operator qualification, including all factors of operator competency. Conclusions of the review indicated some cases of noncurrent physical examinations, operators not fully trained, and lapsed qualifications. Other affected contractors were notified, management meetings were held, and the use of the training certificates and training cards was discontinued. Operators improperly qualified were suspended from equipment operations until the necessary requirements are met. A summary of the review indicated that for the professional equipment operators, 120 records were reviewed and 33 cases required action on training, physical exams, or administrative records; for incidental equipment operators, 261 records were reviewed and 154 cases required action on training, physical examinations, or administration. Management is preparing a corrective action plan.
- Findings for Concern WS.5-1 also support this concern.
- This concern was partially addressed by the EG&G Idaho self-assessment.

CONCERN:
(TC.4-2)
(H1/C1)
CAT. II

The equipment operator certification process does not ensure that certified personnel are proficient in all aspects of the relevant operation, or that recertification is properly conducted, as required by 29 CFR 1910.178, 179, 180 and 181.

TC.5 MAINTENANCE PERSONNEL

PERFORMANCE OBJECTIVE: The maintenance personnel training qualification programs should develop and improve the knowledge and skills necessary to perform assigned job functions.

- FINDINGS:**
- In preparation for implementation of the training requirements of DOE 4330.4A, the Facilities and Maintenance (F&M) Department completed, in 1990, job analyses of F&M Department crafts jobs and selected tasks for training. F&M Department also developed, in August 1990, a 5-year plan for implementation of performance-based training programs for these crafts jobs, which is a requirement of DOE 4330.4A. During the current calendar year, most F&M Department training resources have been devoted to developing and presenting training to meet identified ES&H requirements, such as hazard communications, lockout/tagout, and confined space entry. As a result, very little progress has been made on developing or implementing performance-based training for F&M Department crafts jobs. Thus, the schedule for development and implementation of performance-based training for F&M Department crafts jobs in this 5-year plan has not been met, and the schedule has not been revised since it was initially developed in August 1990.
 - Discussions with F&M Department training and management personnel indicated that additional staffing had been requested in FY 1992 to allow resources to be devoted to job-related crafts training.
 - This concern was fully addressed in the EG&G Idaho self-assessment.

CONCERN:
(TC.5-1)
(H2/C1)

The Facilities and Maintenance Department is not meeting its established schedule for implementation of the performance-based training required by DOE 4330.4A.

TC.7 TRAINING FACILITIES AND EQUIPMENT

PERFORMANCE OBJECTIVE: The training facilities, equipment, and materials should effectively support training activities.

- FINDINGS:**
- The TRA training area for maintenance and health physics provides a difficult environment for training. Located in a basement, the training area has limited classroom space, ventilation, lighting, equipment, and electrical outlets.
 - TRA management has recognized the value of an improved training facility, and has planned the construction of a maintenance training trailer complex.
 - The Safety Training Unit does not have dedicated facilities for the conduct of hoisting and rigging training. The effectiveness and safety of the hoisting and rigging training observed by the S&H Subteam was reduced by personnel passing through the training area to reach their workspace while students were operating the overhead crane.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN: Not all EG&G Idaho, Inc. training facilities effectively support training activities.
(TC.7-1)
(H2/C2)

4.5.1.6 Auxiliary Systems

4.5.1.6.1 Overview

This appraisal addressed all nine performance objectives for Auxiliary Systems. The performance objective on Storage and Handling of Fissile Material was only addressed from the point of view of water management in the storage pools for irradiated fuel. The criticality concerns are addressed in the section on Nuclear Criticality Safety.

The appraisal has been based on interviews with EG&G Idaho personnel responsible for the auxiliary systems associated with appropriate facilities. Inspections and tours of facilities; review of reports, manuals, and procedures; and discussions with personnel who perform tests on auxiliary systems also contributed to the appraisal. Facilities to be appraised were selected by review of organization charts, discussions with Escort personnel, and from information received from fellow appraisers.

Some of the facilities inspected and appraised include:

- WERF,
- Radioactive Mixed Waste Storage Facility,
- PBF,
- RWMC,
- ATR,
- Radiochemical Laboratories in the TRA,
- Environmental Chemistry Laboratory in the CFA,
- Waste Management Operations at the TAN,
- Water Reactor Research Test Facility,
- Science and Technology Department facilities in Bldgs. IF-601 and IF-602,
- Fleet Management facilities in the CFA,
- Standards and Calibration Laboratory in the CFA, and
- Medical facilities for treating personnel who are both contaminated and injured.

An EG&G Idaho Escort was present during all inspections and interviews.

An excellent waste minimization program has been formulated throughout the EG&G Idaho organizations. Functional organizations have documented programs specific to their organization functions and keep these current. Waste minimization coordinators have been designated for each unit. Discussions with several of these coordinators revealed that significant progress is being made.

Six concerns have been identified in five performance objective areas. Two of these address the lack of a clear identification of what constitutes auxiliary systems. An additional concern addresses the lack of a documented program on control of potentially contaminated liquids if a person who was both contaminated and injured were to be treated in the CFA Medical Facility. One concern addresses the control of water chemistry in the storage pool where the Three Mile Island fuel residue is stored. One concern addressed ventilation systems. In addition, a backup diesel generator was found being tested without use of a formal procedure.

Four of these concerns have not been identified in the EG&G Idaho self-assessment. The root causes for these concerns appear to be about evenly divided between a lack of clear definition of what constitutes an auxiliary system and the importance of them and a lack of having a pre-thought-out scenario of how each system fits into the safety posture of its associated facility.

Followup was performed on concerns identified under technical support in the previous TSAs conducted at the ATR. By letter, N.S. Burrell, Director, Reactor Research and Technology Division, ID, to F.C. Fogarty, Manager, Power Reactor Programs, EG&G Idaho, Inc., dated June 11, 1991, the Field Office considers all concerns in the auxiliary systems area of the previous appraisals to be closed.

4.5.1.6.2 Findings and Concerns

AX.1 SYSTEMS REQUIREMENTS

PERFORMANCE OBJECTIVE: Auxiliary systems should be considered under the same functional criteria for design, engineering, operations, maintenance, and modifications as the structural, confinement, and primary process system of the facility.

- FINDINGS:**
- Auxiliary systems are understood for the reactor facilities. However, personnel in many nonreactor facilities were not aware of which systems should be classified as auxiliary systems. Some of the groups, where personnel did not fully understand which systems are auxiliary systems, are associated with:
 - The TAN facilities,
 - Environmental Chemistry Laboratory in Bldg. CF-625,
 - Radiochemistry Laboratories in the TRA,
 - The RWMC facilities,
 - WERF, and
 - INEL Research Center Laboratories.
 - Personnel in the Performance Oversight and Assessments (PO&A) Group periodically perform appraisals using the performance objectives and criteria from DOE/EH-0135, "Performance Objectives and Criteria for Technical Safety Appraisals at Department of Energy Facilities and Sites," June 1990. Discussion with personnel of the PO&A Group revealed that they also have had difficulty in defining auxiliary systems.
 - This concern was partially addressed in the ID "MESH Team Review of the INEL," May 11, 1990.

CONCERN: The DOE has not provided guidelines for consistency in defining what constitutes auxiliary systems.
(AX.1-1)
(H3/C2)

- FINDINGS:**
- This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. has not provided definitions of what constitutes auxiliary systems.
(AX.1-2)
(H3/C2)

AX.2 EFFLUENT HOLDUP AND TREATMENT

PERFORMANCE OBJECTIVE: Effluent holdup and treatment should ensure that the amount of hazardous substances released to the environment as escaping emissions and/or as effluent gaseous or liquid releases are less than DOE and EPA standards and are ALARA.

- FINDINGS:**
- The CFA Medical Facility has an area dedicated to the treatment of persons who are both contaminated and injured. This treatment facility has never been used, and the doctor who is its clinical coordinator stated that treatment of such a patient could also be at the in-town hospital. The determination as to where the treatment would be performed would be based on the patient's medical condition.
 - This CFA Medical Facility has the ability to decontaminate a patient with the decontaminating liquids collected in an underground tank with a capacity of about 500 gallons. A diversion valve must be operated to direct potentially contaminated liquid to this collection tank. If the valve is not diverted, or if the valve leaks when in the diverted position while a person is being decontaminated, the contaminated liquid will go to the normal sewer.
 - The diversion valve and tank have never been tested to ensure that they do not leak. The tank does not have leak collection capability, liquid level instrumentation, or installed pumpout capability. There is no procedure that requires periodic determination of the level of liquid that may be in the tank (e.g., from leakage through the diversion valve). In addition, there is no procedure that specifies who will position the diversion valve properly and any other necessary operations that would have to be performed if decontamination of a patient were to be necessary.
 - There is no requirement to sample any liquid in the collection tank prior to its removal and disposal.
 - It has not been verified that if the diversion valve is in the diverted position that the liquid will not go to the sewer.
 - This concern was addressed in a Medical Department memorandum.
 - This concern has not been recognized in the EG&G Idaho self-assessment.

CONCERN:
(AX.2-1)
(H2/C2)

At the Central Facilities Area Medical Facility, methods for collection, sampling, removal, and disposal of water in the tank used to collect water from treatment of injured and contaminated personnel and from periodic verification of diversion valve integrity have not been specified.

AX.4 STORAGE AND HANDLING OF FISSILE MATERIAL

PERFORMANCE OBJECTIVE: Fissile material should be stored and handled in a manner that minimizes the chances of loss, contamination, release, or inadvertent criticality.

- FINDINGS:**
- Fissile material is stored underwater at TAN (Three Mile Island fuel fragments and other irradiated fuel material), PBF (fuel removed from reactor while reactor is in standby), and TRA (fuel from the ATR and the fuel of the three critical assemblies).
 - The pH of water in the fissile material storage pools is required to be maintained between values of 5.5 to 6.5 except for the pool where commercial reactor and Three Mile Island fuel is stored. However, in the "Operational Safety Requirements Document for the Hot Cells North Facilities" and "THS Operating and Maintenance Manual Standard Operating Procedure 3.1.1.8.2 TAN Fuel Storage Water Sampling Procedure," pH values between 4.2 and 10.5 are permitted.
 - There are aluminum components in the storage racks that maintain the proper criticality-protection spacing for the commercial reactor fuel. At high pH values (e.g., greater than about 8.0), aluminum corrosion proceeds at an accelerated rate. There is no evidence that the water pH has ever been at that high a level. However, if the pH did reach the higher levels permitted the aluminum would corrode away, then criticality might occur when these fuel containers are moved because the spacing barrier would no longer exist to ensure the needed protection.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(AX.4-1)
(H1/C2)

The pH level of water in the pool where Three Mile Island fuel fragments are stored is not controlled to prevent aluminum corrosion of the storage racks resulting in an added potential for criticality.

- FINDINGS:**
- The pool where Three Mile Island fuel containers are stored is of concrete construction. There is no installed system to detect leakage of water from this pool. If a severe leak were to occur, facilities do not exist to maintain the water at the proper level.
 - This is not addressed in the facility SAR.
 - This has not been fully recognized in the EG&G Idaho self-assessment.

CONCERN: See Concern OP.4-1.

AX.5 VENTILATION SYSTEMS

PERFORMANCE OBJECTIVE: Ventilation systems should reliably direct all airborne effluents from contaminated zones or potentially contaminated zones through cleanup systems to ensure that the effluent reaching the environment is below the maximum permissible concentration and is ALARA.

- FINDINGS:**
- Bldg. CF-625 is a facility consisting of a number of individual modular laboratories. These modular units have been placed together to form the building.
 - Two ventilation systems have been provided: one is manifolded to those individual laboratories that will not have radioactive operations, while the other is manifolded to those laboratories that will process radioactive samples. Neither backup fans nor backup power supplies are provided for these ventilation systems.
 - Provisions have been made for installation of a high efficiency particulate air (HEPA) filter in the exhaust from the ventilation system for the laboratories that will process radioactive samples. There was no indication that a tested HEPA filter was installed. Neither exhaust stack has a monitor to indicate the releases of activity from the building.
 - The building ventilation system has not been properly balanced to ensure that the potential for air to flow from a contaminated area to a clean area does not exist, as required by DOE 6430.1A.
 - This concern has been addressed in the EG&G Idaho self-assessment.

CONCERN:
(AX.5-1)
(H2/C1)

Contrary to the requirements of DOE 6430.1A, the configuration of the ventilation system in Building CF-625 is such that there is potential for release of radioactivity to clean areas or to the environment.

AX.6 VITAL SUPPLY SYSTEMS

PERFORMANCE OBJECTIVE: The electric, water, and emergency power systems should reliably provide vital services, as required by all facilities on the site.

- FINDINGS:**
- The diesel generator in Bldg. TAN-607 that supplies backup electrical power is being tested without a test procedure. A data sheet is used to record some data. Review of a number of data sheets revealed the following:
 - There are no acceptable ranges specified for required readings,
 - There are no instructions on the data sheet,
 - Data for voltages were sometimes recorded as kA rather than volts, indicating that the wrong meter may have been read, and
 - Entries for Electrical power levels (not specified what level) were recorded as "3/4 full" and as "2" from top" on two consecutive data sheets.
 - DOE 5480.19 requires that diesel generator tests be performed using a procedure.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: A procedure has not been provided for testing the backup diesel generator in Building TAN-607, as required by DOE 5480.19.
(AX.6-1)
(H3/C1)

4.5.1.7 Emergency Preparedness

4.5.1.7.1 Overview

All seven performance objectives in the Emergency Preparedness technical area were reviewed during this appraisal. The criteria from the performance objectives and the requirements of DOE 5500.3A were used as a guide in conducting the evaluation. The appraisal concentrated on the fundamental emergency preparedness aspects of DOE 5500.3A, i.e., scoping of radiological and nonradiological hazards; definition of Emergency Planning Zones (EPZs), Emergency Action Levels (EALs) for various emergency classes, and predetermined actions appropriate for each class; and an evaluation of EG&G Idaho and ID emergency response capabilities. Observation of a major emergency exercise, conducted for this appraisal on July 20, 1991, provided an excellent opportunity to assess the latter. Visits to, and discussions with, the Idaho Falls Fire Department were used to assess the substance of ID emergency assistance agreements with offsite agencies.

Hazards external to EG&G Idaho, due to activities conducted by other contractors on the INEL site, were not evaluated. The current EG&G Idaho emergency plans do not contain the necessary information on which to base such an assessment. DOE 5500.3A requires such information be shared by all INEL contractors who reside in each others' EPZs. Contractors have until November 1991 to provide an implementing schedule pursuant to the Order.

Recent emphasis on emergency preparedness is evident at both EG&G Idaho and ID. A master planning requirements document (EG&G Idaho, Inc. Emergency Preparedness Manual) has been prepared in anticipation of the revised DOE 5500.3A. Staff and resources have been increased in the past year. A new INEL Emergency Operations Center was made operational in April 1991; additional improvements to this facility are scheduled for the near future.

The ID and EG&G Idaho staff who oversee the development of capabilities in response to the revised Order are experienced, knowledgeable, and dedicated.

The Subteam has reviewed the EG&G Idaho self-appraisal and finds that it has adequately addressed emergency preparedness issues, even though the Subteam has some concerns not previously identified. Emergency preparedness was not addressed in the TSA conducted at the ATR in 1987.

4.5.1.7.2 Findings and Concerns

EP.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Emergency preparedness organization and administration should ensure effective planning for, and implementation and control of, site/facility emergency response.

- FINDINGS:**
- During the emergency exercise conducted for this TSA on June 20, 1991, it was often unclear who was in charge of emergency operations, the INEL Emergency Operations Center (EOC) or various area Emergency Command Centers (ECCs). During the exercise, definitive and formal command and control statements that had been agreed to by the concerned parties were not apparent.
 - The Field Emergency Radiological Monitoring Teams at RESL are DOE employees. It was planned that they operate under the control of the INEL EOC during an emergency. During the exercise, RESL staff evacuated the CFA and were not available for emergency response, although their assistance was sought by the INEL EOC.
 - During the exercise, the TAN was unaware of the alpha emitter hazard potential in the plume from the RWMC for well over an hour after they became aware of the incident.
 - None of the area emergency plans contain information regarding the EPZs of other areas and contractors at INEL, which is contrary to the requirements in DOE 5500.3A.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: Interfaces between various parts of the EG&G Idaho, Inc. emergency response organizations are not clearly defined, as required by DOE 5500.3A.
(EP.1-1)
(H2/C1)

EP.2 EMERGENCY PLAN AND IMPLEMENTING PROCEDURES

PERFORMANCE OBJECTIVE: The emergency plan, the emergency plan implementing procedures, and their supporting documentation should provide for effective response to operational emergencies.

- FINDINGS:**
- Not all area emergency plans contain hazards summary descriptions for their own and neighboring facilities and activities, as required by DOE 5500.3A. Missing elements include EPZs for radiological and chemical hazards and recommended preplanned, immediate protective actions in the event of a general emergency.
 - The emergency procedures for the ATR do not contain EALs. EALs are preplanned observables for which various levels of emergencies would be declared and immediate, preplanned actions would commence.
 - The new, draft, symptom-oriented Emergency Operating Procedures for the ATR do not include statements indicating when specific Emergency Plan Implementing Procedures should be entered and when a specific emergency class should be declared.
 - The accident consequence descriptions in the SARs, which are referenced in the Emergency Plans, are based on many unrealistic assumptions, whereas, more realistic but still conservative assumptions should be used for emergency planning, according to DOE 5500.3A.
 - The accident consequence descriptions in the SARs do not include realistic dose and dose rate estimates for the ATR operators for postulated accidents that would fall into the emergency classes defined in DOE 5500.3A.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN: Not all emergency plans contain the essential emergency preparedness elements required by DOE 5500.3A.
(EP.2-1)
(H2/C1)

EP.3 EMERGENCY RESPONSE TRAINING

PERFORMANCE OBJECTIVE: Emergency response training should develop and maintain the knowledge and skills for emergency personnel to respond to and control an emergency effectively.

- FINDINGS:**
- During an emergency exercise on June 3, 1991, Emergency Radiological Atmospheric Monitoring Teams entered a simulated hazardous plume of hydrogen fluoride without respiratory equipment.
 - The TAN Emergency Operating Procedure EOP 2, "Major Plant Fire," states: "A major plant fire in the TAN area that involves more than one facility could, and may, involve a radiological hazard. If this occurs, the Radiological Accidents will be the controlling procedure." No caveats are given to scope the relative hazards of radiation, flames, toxic combustion products, or hazardous chemicals that could be involved.
 - During the emergency exercise conducted for this TSA on June 20, 1991, emergency response personnel were observed donning respiratory equipment directly downwind and close to a simulated major fire.
 - See Concern FP.6-3
 - This concern was partially addressed in the EG&G Idaho self assessment.

CONCERN: Hazardous material emergency response training, required by
(EP.3-1) 29 CFR 1910.120, has not been effective with respect to the
(H2/C1) relative threats of radiological and nonradiological hazards.

EP.4 EMERGENCY PREPAREDNESS DRILLS AND EXERCISES

PERFORMANCE OBJECTIVE: Emergency preparedness programs should include provisions for simulated emergency drills and exercises to develop and maintain the knowledge and skills for emergency personnel to effectively respond to and control an emergency.

- FINDINGS:**
- Several hundred action items (deficiencies identified in drills and exercises, which are to be evaluated, ranked in importance, and corrected) were identified by EG&G Idaho during the critiques of the June 3 and 20, 1991, emergency exercises. Many of these deficiencies were observed in previous exercises conducted by the contractor.
 - According to EG&G Idaho emergency preparedness personnel, large scale exercises of the scope of the June 3 and 20, 1991, exercises have not been conducted at the INEL for at least the previous 3-1/2 years.
 - Tabletop exercises of complicated interfaces involving all areas and contractors on the INEL site have not been periodically conducted, as required by DOE 5500.3A.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(EP.4-1)
(H2/C1)

Emergency exercises are not being conducted at a frequency sufficient to maintain a proficiency in Idaho National Engineering Laboratory-wide emergency response, which is contrary to the requirements of DOE 5500.3A.

- FINDINGS:**
- During the exercise conducted for this TSA on June 20, 1991, simulation of a major fire in a mixed hazardous waste area caused by an airplane crash was not sufficient to reflect a conflagration. Therefore, the first responders at the scene behaved initially as if they were responding to a small fire. DOE 5500.3A requires that attempts be made to provide realistic simulations for drills or exercises.
 - This concern was partially addressed in the EG&G self-assessment.

CONCERN:
(EP.4-2)
(H3/C1)

In emergency drills and exercises realistic physical simulations are not performed, as required by DOE 5500.3A.

- FINDINGS:**
- The use of checklists is a standard practice to help assure that important emergency functions are not overlooked during an emergency. During the exercise conducted for this TSA on June 20, 1991, it was noted that checklists were not being used by some emergency response personnel in the EOC.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(EP.4-3)
(H2/C2)

Emergency operations checklists are not always used during emergency exercises.

- FINDINGS:**
- Although some precalculated doses were available in the INEL EOC during the exercise conducted for this TSA on June 20, 1991, the source term for the precalculated doses was specified in unfamiliar units, which caused some confusion and delay. Also, use of a precalculated dose requires a source term for the event; for the exercise scenario this source term was highly uncertain. In spite of the large uncertainty, a single dose number was provided to the management team rather than a range of dose projections reflecting the large uncertainties.
 - The dose projections were made assuming a ground level release to the atmosphere. However, a highly elevated release should have been expected because of the fire at the source. Thus, the projected doses were considerably overestimated considering the presumed atmospheric stability class (constant Pasquill F).
 - Projected doses that were provided to the INEL EOC during the June 20, 1991, emergency exercise did not include the pertinent body organ and route of exposure (e.g., lung dose via inhalation).
 - The projected doses were for the "site boundary" that was 40 miles away from the accident scene.
 - The EG&G Idaho emergency plans do not include Protective Action Guides for comparison to projected doses.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(EP.4-4)
(H2/C2)

Dose projections during emergency exercises are not timely.

EP.5 EMERGENCY FACILITIES, EQUIPMENT, AND RESOURCES

PERFORMANCE OBJECTIVE: Emergency facilities, equipment, and resources should adequately support site/facility emergency operations.

- FINDINGS:**
- During the exercise conducted for this TSA on June 20, 1991, some mobile atmospheric emergency monitoring vans were not equipped to monitor for hazardous chemicals.
 - During the exercise conducted for this TSA on June 20, 1991, the Security Building at the main entrance to the CFA was used as the backup ECC for the CFA; this building is not equipped to effectively serve as an ECC.
 - Several facilities on the INEL site do not have public address systems to effectively broadcast emergency messages to people in the areas; the CFA is a notable example.
 - During the emergency exercise conducted for this TSA on June 20, 1991, evacuation of the TRA ECC personnel was delayed because a trained bus driver was not available.
 - The EG&G Idaho Fleet manager does not have control over the selection of Evacuation Bus Drivers at each INEL site. Selections are made by individual site managers.
 - EG&G Idaho does not have procedures or selection requirements (i.e., standards) for Evacuation Bus Drivers.
 - Training requirements for Evacuation Bus Drivers are not consistent throughout the INEL sites.
 - Untrained personnel are being assigned to drive Evacuation Buses by some site managers.
 - Minimum qualifications for bus drivers are not being required for Evacuation Bus Drivers. For example, Evacuation Bus Drivers are not required to have current chauffeur's licenses, and Evacuation Bus Drivers are not required to pass a written test.
 - There are no written procedures or guidelines for Evacuation Bus Drivers.
 - During the exercise conducted for this TSA on June 20, 1991, a simulated accident victim was monitored for contamination using a standard beta-gamma detector, whereas, the contamination problem, if any, was due to alpha emitters.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN: Emergency facilities, equipment, and resources necessary to support planned emergency response functions do not meet the requirements of DOE 5500.3A.
(EP.5-1)
(H2/C1)

- FINDINGS:**
- The EG&G Idaho local ECC for the TRA does not meet the habitability (hardening) requirements of DOE 5500.3A. An EG&G SHORT FORM DATA SHEET for FY 1994 indicates that EG&G Idaho has programmed, but has not yet funded, construction of a new hardened INEL ECC (planned for completion by October 30, 1996). DOE 5500.3A requires that an EOC be habitable following an emergency or that an alternate EOC be habitable at that time. Because of its remote location, hardening of the INEL EOC in Idaho Falls is not required.
 - Furthermore, DOE 5500.3A requires "Additional emergency facilities must be designated commensurate with the scope and characteristics of response activities (e.g., process control)." However, the Order does not define this term.
 - Within the nuclear power industry, the term "process control", in an emergency response context, refers to the control of reactivity, heat sinks, and containment spray activation. However, during this review Headquarters, DOE, could not define or further clarify the meaning or intent of the phrase "process controls" for a Safety and Health Subteam member in reference to DOE facilities.
 - The ATR control rooms are not hardened.
 - Although EG&G, Idaho, as well as all contractors, have until November 1991 to submit implementation plans to comply with DOE 5500.3A, the lack of a definition of "process control" in the Order may impact on the contractor's ability to implement this requirement.
 - This issue has been referred to the Management Subteam for identification as a Finding.

CONCERN: See Section 5.5, Management Findings.

EP.6 EMERGENCY ASSESSMENT AND NOTIFICATION

PERFORMANCE OBJECTIVE: Emergency assessment and notification procedures should enable the emergency response organization to correctly classify emergencies, assess the consequences, notify emergency response personnel, and recommend appropriate actions.

- FINDINGS:**
- EALs required by DOE 5500.3A are generally absent from emergency plans.
 - Emergency Operating Procedures at the ATR do not include clear, unequivocal statements directing the operators to declare a specific emergency class at appropriate places in the procedures. The draft symptom-oriented Emergency Operating Procedures do not contain EALs. Instead, the procedures contain only general admonitions to the operators that they should be aware of the possible need to declare an emergency. These general admonitions are not EALs. Thus, it can not be determined when, or under what circumstances, the operators would declare an emergency and enter a specific Emergency Plan Implementing Procedure (EPIP). It is left entirely to the operating staff to make this fundamental emergency response decision without specific procedural guidance.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN: Emergency Operating Procedures for the Advanced Test Reactor do not include Emergency Action Levels.
(EP.6-1)
(H1/C2)

- FINDINGS:**
- During the emergency exercise conducted for this TSA on June 20, 1991, a significant delay in protective action decisionmaking occurred for the TRA and CFA, due, in part, to attempts to perform dose projections in real time.
 - During the post-exercise critique, an INEL EOC manager pointed out that sufficient information for prudent, action decisionmaking was provided in the first 5 minutes of the drill; i.e., a presumed plane crash occurred on the mixed hazardous waste at the RWMC, an uncontained and uncontrolled release of mixed hazardous waste was occurring, the wind direction was toward the TRA and CFA, and the wind speed was 4 miles per hour.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN: **Accident consequence assessment and protective action**
(EP.6-2) **recommendations are not based on available and sufficient**
(H2/C2) **information.**

FINDINGS:

- For some emergencies at the ATR, shutdown of the ventilation systems is planned. Therefore, atmospheric releases would be from unmonitored pathways. EG&G Idaho does not have procedures to estimate releases to the atmosphere in this event.
- For commercial nuclear power plant emergency planning, source terms from unmonitored pathways are precalculated using Level 2 Probabilistic Risk Assessment results (see RTM-90, U.S. NRC).
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: **Methods for estimating releases and doses from unmonitored**
(EP.6-3) **pathways are not included in the Test Reactor Area EG&G Idaho,**
(H3/C2) **Inc. emergency plans.**

EP.7 PERSONNEL PROTECTION

PERFORMANCE OBJECTIVE: Personnel protection procedures should control and minimize personnel exposure to any hazardous materials during abnormalities, ensure that exposures are accurately determined and recorded, and ensure proper medical support.

- FINDINGS:**
- During the critique of the June 20, 1991, emergency exercise, the statement was made that normal occupational Derived Air Concentrations (DACs) were being included in the Emergency Procedures as guidance for emergency response personnel.
 - DACs are based, in part, on the assumption of a chronic, constant exposure rate for a period of 2,000 working hours over a working lifetime. They also pertain to occupational, nonemergency annual dose rates, which are much lower than would be tolerable for emergency responders.
 - The basic objectives of emergency response, lifesaving being foremost, described in DOE 5480.11, Section 9.p.(2)(a), do not appear to be understood or appreciated by some emergency planners.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN: See Concern EP.3-1.

- FINDINGS:**
- During the critique of the June 20, 1991, emergency exercise, doubts were expressed regarding the feasibility of timely evacuations if the wind speed had been more normal for the INEL site, i.e., high wind speeds.
 - This issue appeared to be associated with a perceived emergency response objective of avoiding exposures altogether during an emergency. This is not an emergency response objective.
 - The discussion did not include the potential benefits of shelter-in-place (close windows and doors; turn forced ventilation off, including furnaces). Such protective actions could be highly effective for a puff release.
 - Some EG&G Idaho emergency plans do not provide information regarding the potential benefits of shelter-in-place as a protective measure, especially for the inhalation pathway.

- The emergency plans do not contain protective action options for high-and low-wind speeds and long versus short duration releases to the atmosphere.
- Environmental Protection Agency (EPA) protective action guidance states that shelter is a viable option when timely evacuation is not feasible.
- The shelter option was exercised in some areas during the June 3, 1991, emergency exercise, apparently on an ad hoc basis.
- This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(EP.7-1)
(H2/C2)

The potential benefits of shelter-in-place for high-wind speed, puff releases of hazardous materials to the atmosphere is not explicitly considered in the emergency plans.

4.5.1.8 Technical Support

4.5.1.8.1 Overview

Six of the eight performance objectives in the Technical Support area were addressed in this appraisal. The Packaging and Transportation and Criticality Safety areas were assessed as separate disciplines in Sections 4.5.1.9 and 4.5.1.10 of this report. The appraisal was conducted by means of interviews with technical support unit managers, engineers, work leaders, and technicians and by review of policy documents, procedures, manuals, SAR/OSR documents, records, and data packages. The facilities visited were TRA, the three Waste Management Department sites (Waste Reduction Operations Complex, Waste Management TAN Operations, and RWMC), the Standards and Calibration Laboratory at CFA, the INEL Research Center, and the Engineering Department at CFA and in Idaho Falls.

The appraisal found concerns in the areas of SAR content, coverage, and compliance and in performance of trending for safety and operational enhancements. The areas of technical support organization, control of facility modification, monitoring for environmental impact, and reactor engineering were judged as being performed safely and properly.

The SAR deficiencies were in the areas of compliance with DOE Orders, accuracy of the SAR status data base and lack of SAR coverage for two facilities requiring SARs. The SARs and their associated OSRs are deficient in a number of areas, but the deficiencies are not universal to all EG&G Idaho facilities and activities appraised. The nature of the compliance deficiencies related to lack of documentation sufficient to support assumptions underlying the accident bases; insufficient descriptions of response actions; lack of developed, important-to-safety equipment lists; lack of assurance that older facilities are in compliance with current design code requirements; and missing elements of accident analyses, such as offsite dose to the public and criticality events.

A data base is maintained in the ES&Q Department for tracking the status of SAR development and updating. This data base is operated rather informally in gathering data and its accuracy and currency of information are not assured. Updates for changes in SAR schedules have not been entered and other information was found to be incorrect. The data base in its present form is not a useful management tool.

No SARs are in place for operations at the Bldg. TAN-666, Liquid Waste Facility, and at the CFA Chemistry Laboratory. Risks of operations are being accepted by management without SARs or other documentation. The Bldg. TAN-666 facility contains waste, but no transfers of wastes, in or out, are being made. An SAR for the CFA Chemistry Laboratory is in development, and a preview of the document indicates that the associated hazards and risks are equivalent to those accepted by the public for similar facilities.

Little formal trending of safety equipment and/or process performance for performance enhancement is being conducted at EG&G Idaho in the Power Reactor Programs and Waste Management Operations Departments. However, programs for

performance monitoring, tracking, and trending are in the planning stages or in very early operational stages.

There were a number of positive observations from this appraisal. The technical support organizations seem well organized and administered. Staffing is up to currently approved levels; only one vacancy was noted. Staff understand the organization and management reporting structures.

The Document Revision Request (DRR) process works well to control document development, revision, review, and approval. Each site has its own procedure for implementing and controlling the DRR process. The same is true for drawing change control, facility modification control, and other administrative control processes. Files were reviewed at various sites and DRRs for randomly selected documents were found to be backed up by review and approval signatures and historical records of changes. In general, documented reviews for updating procedures are being accomplished within their assigned calendar frequency. Procedure and directive indexes indicate many newly identified documents are to be issued and many of these are being developed. OSR references are being added to ATR and Waste Management procedures; the Waste Management procedures references also include the OSR sections number.

The Facility Change Form (FCF) process also appears to be working well to control facility modifications. Randomly selected completed, and in process, modification packages were reviewed and found to be complete with required reviews and disposition of comments. The FCF, as well as the DRR process, requires a review of the impact of the changes on the SAR safety envelop. Significant effort is underway to assure that master facility, and especially key drawings, represent the as-built status. Processes for software configuration control at ATR appear to be quite good.

SARs are available at a number of places in operating facilities including the Operations Manager's Office and in the control areas. A draft guidance document has been developed to assist staff in the development of SARs and OSRs.

The principal offsite releases are from gaseous effluents. These are filtered and monitored before release. The filters from the Special Particulate Iodine Noble Gas monitors are collected weekly, or more often, as required and routinely analyzed for alpha, beta, and gamma activity. These records were reviewed in the facilities during the appraisal.

Followup was performed on a concern identified under Technical Support in the previous TSAs conducted at the ATR. By letter, N.S. Burrell, Director, Reactor Research and Technology Division, ID, to F.C. Fogarty, Manager, Power Reactor Programs, EG&G Idaho, Inc., dated June 11, 1991, ID considers this concern to be closed. With respect to Concern TS.4-1, Detailed Operation Procedure 7.7.4 was revised appropriately and actions accomplished were sufficient to consider the concern closed.

4.5.1.8.2 Findings and Concerns

TS.2 PROCEDURES AND DOCUMENTS

PERFORMANCE OBJECTIVE: Technical support procedures and documents should provide appropriate direction, allow for adequate record generation and maintenance for important activities and should be properly and effectively used to support safe operation of all facilities on the site.

- FINDINGS:**
- There are no specific lists of safety-related or important-to-safety equipment. Equipment descriptions are generic rather than specific in SARs and OSRs. ATR is now developing these, and WERF has included them in their recently reworked OSR.
 - The ATR SAR is currently in the form of a design basis report (DBR). The ATR Technical Specification appropriately reference the bases in the DBR but the action statements are not well developed and the accident bases need expansion and documentation.
 - At TAN, all SARs are judged deficient with respect to current DOE Orders. At WERF, OSRs are not specific on surveillance requirements. At RWMC, SARs are deficient in criticality and dose assessment accident analysis, and compliance with DOE 6430.1A design criteria is not assured.
 - Major revisions of SARs for principal operating facilities are in progress.
 - For Bldg. TAN-607, two SARs for the complex are being combined into one SAR for the Hot Shops/Hot Cells.
 - For ATR, the ATR SAR is to be significantly revised in a 5-year program including a Probabilistic Risk Assessment and aging studies.
 - WERF is currently upgrading OSRs and procedures owing to a recent administrative OSR violation.
 - The Stored Waste Examination Pilot Plant and the RWMC SARs are being combined into one SAR that will also cover new operations being installed. Limited Probabilistic Risk Assessment is being used in the revision.
 - See Concern CS.1-3.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: Safety Analysis Reports and Operational Safety Requirements for major operating facilities do not meet DOE 5480.5, DOE 5480.6, and DOE 5481.1B requirements in respect to documentation of assumptions in accident bases, action response plans, assurance of design code compliance, and completeness of accident analyses.
(TS.2-1)
(H2/C1)

- FINDINGS:**
- An SAR status data base is maintained by the Performance Oversight and Assessment Group in the ES&Q Department. It is used for annual SAR status reporting to DOE.
 - There is no formal, consistent method for updating this data base. Update information is reported by some departments on an approximately quarterly basis or in a random manner by others. Information is also gleaned from miscellaneous sources by PO&A and is entered by the data base custodian.
 - The status of separate OSR documents is not tracked in this system.
 - Printouts of this data base are available on request but management does not appear to be using it to keep current on SAR development and update review schedules.
 - S&H Subteam review of the printout of June 27, 1991, indicated some information was out of date, changes in schedule dates were not entered and recent completion dates were also not entered.
 - There are various estimates as to the number of existing EG&G Idaho facility or process SARs; estimates range from 60 to 68. It is difficult to determine the number of active SARs from review of information in the data base.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: The Safety Analysis Report status data base does not provide current and correct information to allow management to assess status of Safety Analysis Report developments and updates.
(TS.2-2)
(H3/C2)

- FINDINGS:**
- There is no SAR for the CFA Chemistry Laboratory, which is an operating facility. A subcontractor is developing an SAR and also assessing the hazard classification. Initiation of this effort was delayed by the requirement to develop a complete chemical inventory for the Laboratory. This is now included in a new data base that is being updated. The SAR is scheduled for submission to DOE in August 1991. EG&G Idaho review of preliminary information in the subcontractor's document indicates the risk of operation is no greater than that routinely accepted by the public for a commercial laboratory operation.

- The CFA Chemistry Laboratory operations were shutdown on July 11, 1991, during this appraisal; shutdown will continue until the SAR is in place.
- The Bldg. TAN-666, Liquid Waste Facility, has a draft SAR which has not been approved. This is an operating facility since it contains waste, but transfers in or out are not being made at the present time. This facility will be covered in the new combined Bldg. TAN-607 Hot Shops/Hot Cells SAR.
- Acceptance by management of the risk of operating these facilities was not formally documented.
- This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(TS.2-3)
(H2/C1)

The Central Facilities Area Chemistry Laboratory and Bldg. TAN-666, Liquid Waste Facility, are operating without existing Safety Analysis Reports, as required by DOE 5480.5 and 5481.1B, and without documented management acceptance of the risks.

TS.4 EQUIPMENT PERFORMANCE TESTING AND MONITORING

PERFORMANCE OBJECTIVE: Effective equipment performance testing and monitoring should be performed by technical support groups to ensure that equipment and system performance is within established safety parameters and limits.

- FINDINGS:**
- EG&G Idaho has little objective evidence to indicate existence of formal trending programs for performance of safety-related equipment (where applicable) or for system or process performance enhancement.
 - No performance monitoring or trending has been conducted for waste management operations at Waste Management TAN Operations.
 - Significant mechanical and electrical performance monitoring through surveillances is conducted at ATR, but only minimum manual trending is performed, for cooling tower performance, pump vibration, and several other items.
 - Power Reactors Program issued a Standard Practice 10.1.2.19, "Trending Program," in May 1991, but it is not fully implemented.
 - At the Waste Reduction Operations Complex, although some trends are noted, there is no organized performance monitoring or trending program.
 - In the Waste Management Department, deficiencies are being entered in a tracking system, but no trending has yet been performed.
 - Although trending is not performed, the Waste Management Department has started an effort to achieve compliance with DOE 4330.4A for trending of preventive maintenance of department equipment.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(TS.4-1)
(H3/C2)

There are no formalized trending systems for monitoring performance of safety equipment and for enhancing performance of operations.

4.5.1.9 Packaging and Transportation

4.5.1.9.1 Overview

All 12 of the performance objectives in the Packaging and Transportation technical area were addressed in the appraisal. Information was obtained by (1) reviewing policies and procedures, QA plans, receipts and shipment of hazardous materials, Performance Oversight and Assessment audits, the EG&G Idaho Hazardous Material Transportation Manual, Rev. 3, June 1991, and "Standard Practice for Traffic Management," "Traffic Management FY-91 Management Plan," ID oversight inspection and appraisal reports, EG&G Idaho self-assessments, audits and appraisals; (2) interviewing packaging and transportation personnel in the Administration, Facilities and Maintenance, Waste Management Operations, ES&Q, and Power Reactor Programs Departments; and (3) visiting and observing packaging and transportation activities at the CFA, TRA, TAN, PBF, RWMC and Willow Creek Building.

The packaging and transportation operations are being performed safely. Some very good work is being accomplished, and it is a credit to the experienced personnel. However, this appraisal has found some concerns that could lead to potential safety problems.

A summary of the deficiencies are: (1) the overall management system does not provide control over packaging and transportation activities at EG&G Idaho; (2) there is no independent safety oversight for packaging and transportation activities; (3) there are deficiencies in the formal training and qualification program; however, effective implementation of a new comprehensive training and qualification program dated July 1, 1991, should eliminate this concern; (4) QA verification of new packages at vendor facilities is not being accomplished; and (5) detailed emergency response procedures for offsite shipments have not been prepared.

Self-assessments conducted by EG&G Idaho are being performed well. Audits and appraisals performed by the Performance Oversight and Assessment Group are also being done well and on a schedule; however, they have not identified some of the concerns. The response to internal audits and DOE inspections and appraisals have been positive and timely.

Onsite transportation is being conducted with the latest guidance from the Department of Transportation.

EG&G Idaho's fragmented packaging and transportation responsibilities mirror the division of responsibilities for packaging and transportation at ID.

The ID office of ES&H oversight routinely inspects and appraises INEL contractors. These are all very well conducted and on a schedule.

In conclusion, the Hazardous Material Transport Manual should be updated with guidance to be issued by DOE and edited as soon as practical. Since EG&G Idaho is the shipper of record for the majority of shipments, this manual could then be used as an INEL sitewide manual.

4.5.1.9.2 Findings and Concerns

PT.1 ADMINISTRATION AND ORGANIZATION

PERFORMANCE OBJECTIVE: Management should develop and implement a system of policies and directives that will provide for effective implementation of DOE Orders, particularly DOE 5480.3, 1540.1, 1540.2, Federal and State regulations, and accepted industrial practices in operations involving packaging and transportation of hazardous materials.

- FINDINGS:**
- There is no central organization for packaging and transportation activities. Packaging and transportation activities are carried out in many organizations.
 - There is no control system to ensure that all persons involved in packaging and transportation activities have ready access to current procedures and regulations.
 - There are 145 authorized shippers reporting to 60 different supervisors on the Hazard Material Shipper List.
 - There are 108 individuals reporting to 21 different supervisors on the Hazard Material Carrier List.
 - There is no Transportation Safety Committee for packaging and transportation.
 - There is no EG&G Idaho procedures manual for all of the packaging and transportation activities. Procedures are fragmented in the many organizations involved in packaging and transportation.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(PT.1-1)
(H2/C1) The overall organization and management system does not provide control over packaging and transportation activities at EG&G Idaho, Inc., as required by DOE 5480.3

- FINDINGS:**
- Contrary to Secretary of Energy Notice No. 6, there is no independent safety oversight of packaging and transportation activities.
 - There is no independent safety review of the hazardous materials packaging specified by the authorized shipper.
 - There is no cognizant professional for packaging and transportation.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: There is no independent safety oversight of packaging and
(PT.1-2) ~transportation activities, as required by DOE 5480.1B and
(H3/C1) DOE 5482.1B.

PT.2 TRAINING

PERFORMANCE OBJECTIVE: Personnel should be trained, qualified, and certified in handling hazardous materials, as required by DOE 5480.3 and 49 CFR.

- FINDINGS:**
- There is no formal certification or recertification program for some packaging and transportation employees.
 - On-the-job training requirements are not identified or documented.
 - There is no job task analysis to determine training or qualification requirements for packaging and transportation employees.
 - There is no lessons-learned program for packaging and transportation activities.
 - There were no procedures that require packaging and transportation employees be qualified for specific tasks.
 - See Concern TC.1-1.
 - This concern was addressed in the EG&G Idaho self-assessments.

CONCERN: The formal training and qualification program for packaging and transportation employees does not meet all requirements of DOE 5480.3 and 49 CFR 100-199, 391, 392, 393 and 396.
(PT.2-1)
(H2/C1)

PT.3 QUALITY ASSURANCE

PERFORMANCE OBJECTIVE: A system of checks and balances should exist that ensures the quality assurance requirements of the applicable DOE Orders, especially DOE 5700.6B, and ANSI NQA-1-1989 are met.

- FINDINGS:**
- There are no EG&G Idaho QA verifications at vendor facilities for new packagings supplied by them.
 - There is no QA verification that new packagings, fabricated by EG&G Idaho, are according to 49 CFR 173.24 or other applicable specifications.
 - There is no overall EG&G Idaho QA plan for packaging and transportation.
 - There is no QA review of the hazardous materials packaging specified by the authorized shipper.
 - QA plans do not exist for some of the packaging and transportation activities.
 - See Concern QV.3-1.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: Quality assurance verification of new packages and some quality assurance plans for packaging and transportation do not meet requirements of DOE 5700.6B and 49 CFR 173.24
(PT.3-1)
(H2/C1)

PT.5 ACCIDENTS AND INCIDENTS

PERFORMANCE OBJECTIVE: Accidents and incidents involving packaging and transportation of hazardous materials should be reported in a timely manner to DOE.

- FINDINGS:**
- An emergency response plan for hazardous materials is included in the Hazardous Materials Transportation Manual. (Chapter 14). Onsite emergency response plans are in effect at each of the EG&G Idaho sites. However, detailed procedures for emergency response to offsite materials accidents or incidents have not been developed for use at the Warning Communication Center, as required by 49 CFR 172.600.
 - See Concern EP.3-1.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: Detailed procedures for emergency communications and accident response for offsite transportation of hazardous materials have not been prepared, as required by 49 CFR 172.600.
(PT.5-1)
(H1/C1)

4.5.1.10 Nuclear Criticality Safety

4.5.1.10.1 Overview

This appraisal addressed all five performance objectives of the Nuclear Criticality Safety technical area, as well the criticality safety criteria of the Technical Support technical area. The appraisal was accomplished by means of interviews with persons concerned with nuclear criticality safety issues at EG&G Idaho, by review of numerous documents, and inspection tours of areas affected by nuclear criticality safety. The areas toured were the TAN, the PBF, and the TRA.

In the area of organization and administration it was found that the necessary elements are in place and documented, and necessary functions are being performed. The contractor independent review system is fulfilled for the Power Reactor Programs Department at TRA and PBF by the Safety and Operations Review Committee (SORC), for the Waste Management Department by the Independent Safety Review Committee (ISRC), and for the Science and Technology Department by the Combined Independent Safety Review Group (CISRG). The Nuclear/Reactor Safety Subcommittee of the SORC is active, meeting about every 2 weeks, although not always to consider criticality safety issues. The annual facility safety review is done in the form of a full-fledged TSA addressing nuclear criticality safety issues as well as other functional areas. The conduct of triennial appraisals, at least as far back as 1985, was confirmed. Only now is an effective triennial appraisal action item tracking system being instituted. Full-time Criticality Engineers are too few in number to cover all the elements of the criticality safety program. Also, a common observation from interviewees related to the deficiencies of the SARs for the fissile material control areas. Seven concerns are expressed in this area.

In the area of use of nuclear criticality safety control parameters it was found that every operation with fissile materials is subjected to a criticality safety evaluation (CSE) by personnel of the Reactor and Radiation Physics Unit (RRPU), and a comparable evaluation by an entirely independent group (presently Westinghouse Idaho Nuclear Company, Inc.). These CSEs are then reviewed by SORC, or ISRC, or by CISRG, and criticality guidance is then formulated based on the results of the analysis. No concerns are expressed in this area.

In the area of nuclear criticality safety evaluations it was confirmed that all proposed operations receive suitable CSEs as already noted. Two concerns were identified in this area. One of these relates to a DOE Field Office implementation Order intended to provide guidance for use of water in fighting fires that might involve fissile material. This is an issue of great importance, but the guidance was seen to be obscure. A positive observation in this regard, was that the documentation of CSEs conducted in the RRPU is unusually comprehensive and of high quality throughout.

With respect to operating procedures and criticality safety limits, one of the two concerns identified relates to the mass limit and inventory postings. The intent of the Orders and standards, that relate to this issue, is that such

postings be clear and unambiguous as reasonably achievable. The great diversity of the postings and the latitude in the formats hinders all these goals. The second concern relates to the fact that the personnel responsible for performing the CSEs are not involved in the review of the guidance that results from them. This raises the concern that the results of the CSEs may be misinterpreted in their translation into operational documents.

Five concerns have been identified in the criticality alarm system (CAS) and emergency procedures areas. No criticality alarm evacuation drills have been held, and this is seen as a serious shortcoming. The need to hold an annual drill is widely perceived as a necessity and is recognized in both Orders and standards. The CAS instruments are of a type that after some years of use are showing an increasing rate of failure. This raises serious questions about their use as "reliable single detector channels" (ANSI/ANS-8.3-1986). Another of the concerns relates to evacuation signs, which vary widely as to size, color, format, etc. across the EG&G Idaho areas of the site. Some of these signs were effective, while others were confusing, or misleading, or both. This is an especially troublesome problem at TAN because of the size and complexity of Bldg. TAN-607.

Followup was performed on the concern identified under Technical Support in the previous TSAs conducted at the ATR (Concern TS.8-1, DOE/EH-0112, "Technical Safety Appraisal of the Advanced Test Reactor EG&G, Idaho," DEcember 1989). An action plan was prepared, but it has not yet been implemented.

4.5.1.10.2 Findings and Concerns

CS.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: All operations with fissionable material should be conducted to provide effective nuclear criticality control during all activities.

- FINDINGS:**
- The Performance Oversight and Assessment Group has only one Criticality Engineer to appraise criticality safety at all TRA, PBF, and TAN fissile material control areas (FMCAs), as well as at RWMC. Sufficient peer review is not provided. This departure from ANSI/ANSI-8.1-1983, Section 4.1.1 was identified as a concern in "MESH Team Review of the INEL," May 11, 1990.
 - TRA, PBF, and TAN all have FMCAs and operations with fissile materials. Only TRA has a Criticality Engineer, although this same engineer has recently been assigned part-time to PBF. Day-to-day surveillance for possible departures from procedures is not provided. This departure from ANSI/ANS-8.1-1983, Section 4.1.1 was identified as a concern in "MESH Team Review of the INEL," May 11, 1990.
 - Contrary to ANSI/ANS-8.1-1983, Section 4.1.1, and DOE 5480.5, Section 10, no requirements have been documented as to who may serve as a Criticality Engineer.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(CS.1-1)
(H2/C1) Documented requirements for qualifications of criticality personnel at EG&G Idaho, Inc. are not sufficient to satisfy requirements of ANSI/ANS-8.1-1983, Section 4.1.1 and DOE 5480.5, Section 10.

- FINDINGS:**
- The Science and Technology (S&T) Department conducts operations involving fissile materials. There is, however, no requirement for the presence of a Criticality Engineer on the Combined Independent Safety Review Group (the Line Management Independent Review System for S&T). This was identified as a finding in "A Report on the 1991 Annual Appraisal of the Science and Technology (S&T)," April 1991.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(CS.1-2)
(H2/C1) The Science and Technology Department independent review system does not have a criticality safety capability, as required to satisfy DOE 5480.5, Section 9.d.

- FINDINGS:**
- The HR-4 FMCA at TRA is operating without an approved SAR,

contrary to the requirements of DOE 5480.5, Section 8.a, and DOE 5481.1B.

- The RWMC safety analysis has not been upgraded to support its exemption from designation as an FMCA.
- There is at least one finding in every EG&G Idaho internal appraisal identifying a deficiency relating to criticality safety in FMCA SARs.
- See Concern TS.2-1.
- This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(CS.1-3)
(H2/C1)

The Safety Analysis Reports for EG&G Idaho, Inc. fissile material control areas do not fully consider criticality safety issues, as required by DOE 5480.5, Section 8.a., and DOE 5481.1B.

FINDINGS:

- The requalification examination for fissile material handlers (FMHs) at TAN covers all required subjects including criticality safety. The passing grade has been set at 80 percent, but this could enable an FMH to miss all questions relating to criticality safety, and still achieve requalification. This fails to satisfy DOE 5480.20, Chapter I, Section 7.b., although note that implementation of this Order is only required in effect as of 1. to begin November 8, 1991
- The PBF Training Program Manual was submitted for approval to ID more than 2 years ago, but has not yet been approved, as is required by DOE 5480.20 Chapter I Sections 7.c. and 7.d., and DOE 5480.6, Section 8.e.(1)(a)2.
- Power Reactor Programs (PRP) Department operators and supervisors are required to attend periodic criticality safety training classes but are not subjected to any testing requirements such as required by DOE 5480.6, Section 8.e.
- The biennial requalification examinations for the operations personnel at TRA and PBF only contain one question relating to criticality safety in each of three categories of questions. Thus, an applicant might miss all questions relating to criticality safety but still achieve requalification. Note however, applicants who successfully pass the written examination are still required to pass an oral examination that also includes questions relating to criticality safety.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(CS.1-4)
(H2/C1)

The EG&G Idaho, Inc. Criticality Safety training program fails to satisfy some requirements of DOE 5480.20, Chapter I, Section 8, and DOE 5480.6, Section 8.e.

FINDINGS:

- ID has specified in its ES&H Oversight Manual, February 11, 1991, Section ES&H0-40, (para.5, p.2), the frequency of functional appraisals that cover the entire criticality program to be every 2 years. This appraisal frequency has not been maintained, although it should be noted that the manual did not exist during the period of time when the frequency record was established.
- ID does not track on an interim basis the action items that result from its functional appraisals. Thus, some open action items are identified at the time of the subsequent appraisals.
- This concern was addressed in the ID self-assessment.

CONCERN:
(CS.1-5)
(H2/C1)

The Department of Energy Field Office, Idaho, is not maintaining the frequency of its criticality safety functional appraisals as set forth in its ES&H Oversight Manual, February 11, 1991, Section ES&H0-40 (para.5, p.2).

FINDINGS:

- The PRP Department uses the Safety and Operations Review Committee (SORC) (the Line Management Independent Safety Review System for PRP) to provide their independent review capability for TRA and PBF. Of the six permanent members of the SORC Nuclear/Reactor Safety Subcommittee, three are members of the PRP Department, in which both TRA and PBF reside. Despite the fact that these three persons have no operational responsibilities, the independence of the review process, as called for by DOE 5480.5, Section 9.h, is not clearly established.
- The ES&Q Department action item tracking data base is called "Computer Assisted Reporting and Tracking" (CART). There are open findings (mandatory requirement for correction) from internal appraisals prior to 1990 that have not been entered into CART. Note, however, it only became a documented requirement in 1990 to enter such findings into CART.
- There is no system to provide a determination as to whether or not all procedures are followed. This is contrary to DOE 5480.5, Section 9.h.(10), and ANSI/ANS-8.1-1983, Section 4.1.6.
- The Performance Oversight and Assessment Group Criticality Safety Appraisal Officer does not receive a copy of the Triennial Appraisal Report. Further, action items

resulting from the Triennial Appraisal are not always closed out.

- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: The EG&G Idaho, Inc. independent criticality safety review and appraisal program does not satisfy all requirements of (CS.1-6) DOE 5480.5, Section 9, and ANSI/ANS-8.1-1983, Section 4.1.6. (H2/C1)

- FINDINGS:**
- PRP Department documentation requires that operational procedures be reviewed and renewed at least once every 3 years, but there is no corporate policy governing renewal frequency.
 - The PRP Department review and renewal frequency of at least once every 3 years does not satisfy the requirement of ANSI/ANS-8.1-1983, Section 4.1.6, which calls for review of criticality procedures at least annually.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: Power Reactor Programs Department criticality procedures are not required to be reviewed and renewed annually, as required by (CS.1-7) ANSI/ANS-8.1-1983, Section 4.1.6. (H2/C1)

- FINDINGS:**
- EG&G Idaho does not have a capability to ensure that all procedures dealing with a given aspect of criticality safety can be traced or retrieved on a timely basis. Thus, revision of related documents, auditability of procedures, and completeness of advice to operators or any other concerned persons are questionable.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: See Concern OP.3-3.

CS.3 NUCLEAR CRITICALITY SAFETY EVALUATIONS

PERFORMANCE OBJECTIVE: Nuclear criticality safety evaluations of the design and operation of process equipment should ensure that subcriticality is maintained under normal and credible abnormal operating conditions.

- FINDINGS:**
- ID 5480.5A, Chapter I, Section 4.b.(2), is too ambiguous to provide useful guidance governing use of water in fighting fires involving fissile material. Interviews with EG&G Idaho and ID personnel revealed inconsistent interpretation of this requirement.
 - This concern was not addressed in the EG&G Idaho self-assessment.
 - This concern was not addressed in the ID self-assessment.

CONCERN: ID 5480.5A, Chapter I, Section 4.b.(2) does not provide clear guidance for use of water in fighting fires involving fissile material.
(CS.3-1)
(H1/C1)

- FINDINGS:**
- Primary documentation of criticality safety evaluations is not stored in fireproof repositories. This type of documentation does not lend itself to dual facility storage.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: Primary documentation of criticality safety evaluations is not stored in compliance with requirements of ASME NQA-1-1989, Supplement 17S-1.
(CS.3-2)
(H3/C1)

CS.4 OPERATING PROCEDURES AND CRITICALITY SAFETY LIMITS

PERFORMANCE OBJECTIVE: The approved written operating procedures should address criticality safety limits in providing effective guidance for all aspects of facility activities.

- FINDINGS:**
- Mass limit postings at TAN display these deficiencies:
 - Some are hand lettered in erasable ink.
 - Some state a mass limit with the provision "or per CSE". This can result in ambiguity as to the correct mass limit.
 - The postings are presented in numerous formats making comprehension more difficult.
 - The format of the mass inventory posting at the TRA Hot Cell Facility is misleading:
 - The total is at the top.
 - The sum of the constituent masses does not equal the total mass.
 - Mass limit postings throughout EG&G Idaho are of many designs, which has the effect of understanding them more difficult than would otherwise be the case.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: Mass limit postings at EG&G Idaho, Inc. do not satisfy applicable requirements of DOE 5480.5, Section 13.b.(4).
(CS.4-1)
(H3/C1)

- FINDINGS:**
- Personnel of the Reactor and Radiation Physics Unit perform criticality safety evaluations of proposed operations but are neither required nor offered the opportunity to review the resulting procedural guidance.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: Persons performing the primary criticality safety evaluations at EG&G Idaho, Inc. do not review the resulting operational procedures, as called for by DOE 5480.5, Sections 9.d. and 9.e.
(CS.4-2)
(H2/C1)

CS.5 CRITICALITY ALARM SYSTEM AND EMERGENCY PROCEDURES

PERFORMANCE OBJECTIVE: All reasonable steps should be taken to mitigate the consequences of a nuclear criticality accident.

- FINDINGS:**
- ID has authorized an exemption to EG&G Idaho permitting ATR fuel loading operations to be carried out without provision of a CAS. However, EG&G Idaho has not incorporated the exemption into the ATR SAR.
 - PBF is in standby condition and has an exemption from ID permitting fuel loading operations to be carried out without provision of a CAS. However, EG&G Idaho has not incorporated the exemption into the PBF SAR.
 - See Concern TS.2-1.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(CS.5-1)
(H2/C1)

EG&G Idaho, Inc. has not incorporated in the Safety Analysis Reports the DOE exemption to omit the criticality alarm systems for fuel loading operations at the Advanced Test Reactor and the Power Burst Facility, as required by DOE 5480.5, Section 8.a.

- FINDINGS:**
- The TRA CASs are single channel instruments, and therefore, according to ANSI/ANS-8.3-1986, must be highly reliable. However, four malfunctions were experienced during the single month of May 1991. This makes unsupportable the assertion of high reliability.
 - The CAS at Bldg. TRA-660 is not seismically qualified. It has been recommended that this CAS be decommissioned, but ID approval is required for this action. The de-commissioning application has not been submitted.
 - The CASs at the TRA Nuclear Materials Inspection and Storage are claimed by the manufacturer to be seismically qualified, but no documentation or data to support that assertion has been forthcoming.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(CS.5-2)
(H1/C1)

The criticality alarm systems at the Test Reactor Area fail to satisfy ANSI/ANS-8.3-1986, Sections 4.5.1 and 5.3, and DOE 5480.5 Section 11.c.(3)(h).

- FINDINGS:**
- Annual criticality alarm system evacuation drills have not been held.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(CS.5-3)
(H2/C1)

Criticality evacuation drills are not held annually contrary to requirements of ANSI/ANS-8.3-1986, Section 7.3, and DOE 5480.5, Section 11.c.(3)(g).

- FINDINGS:**
- No guidance has been produced for immediate recovery from a criticality safety limit violation to enhance protection of personnel.
 - Although there are plans for dealing with a criticality accident at TRA and PBF, there is none at TAN.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(CS.5-4)
(H2/C1)

EG&G Idaho, Inc. criticality emergency planning fails to satisfy applicable requirements of DOE 5480.5, Section 8.k.

- FINDINGS:**
- Criticality evacuation signs in TAN are unclear and ambiguous.
 - TRA still displays some of the old, red evacuation signs, which are ambiguous and poorly located. These are supposed to have been replaced by the black and white signs.
 - DOE 5480.5, Section 13.b.(5) requires provision of emergency signs, however the black and white evacuation signs at TRA have these deficiencies:
 - They are not distinctive and are, therefore, hard to locate.
 - They each include a map of the adjacent floor area, but the orientation of these maps is random. (This was corrected shortly after the observation.)
 - The legend displays dotted arrows, but the arrows on the maps of the evacuation routes are solid.
 - EG&G Idaho followed NFPA 101, ANSI Z35.1, ANSI 53.1, and 29 CFR 1910 and 1926 but these standards are inapplicable for criticality evacuation signs except for ANSI Z35.1 which only provides guidance for size of lettering.

- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(CS.5-5)
(H1/C2)

The EG&G Idaho, Inc. criticality evacuation signs fail to satisfy good practices with respect to the design of such signs.

4.5.1.11 Security/Safety Interface

4.5.1.11.1 Overview

All four Security/Safety Interface performance objectives were addressed in this appraisal. However, some criteria under these performance objectives were not addressed because of the division of responsibilities among the various S&H Subteams. The firearms safety requirements of DOE 5480.16 were not evaluated because they were addressed through the Firearms Safety Appraisal conducted as a part of the Tiger Team Assessment. Only Security Inspector safety training that was unique to EG&G Idaho facilities was addressed, as TSA Team No.3 focused specifically on PTI, and general safety training applicable to all PTI Security Inspectors. This appraisal was conducted through interviews of Security Inspectors and EG&G Idaho Safeguards and Security Department managers, observation of an emergency exercise that involved Security Inspectors, and review of documentation and records related to security activities.

Security Inspectors were observed to control the site adequately during the emergency exercise conducted during this assessment. Unhindered access to the scene of the emergency (the RWMC) was provided. However, Security Inspectors demonstrated inadequate knowledge of alternate RWMC evacuation routes and alternate routes for emergency response vehicle access to the RWMC, which would have resulted in unnecessary contamination of equipment and exposure of personnel to toxic and radioactive materials in the event of an actual emergency.

EG&G Idaho procedures require that new security facilities or facility modifications made for security reasons receive the same reviews and approvals as any other new facility or modification. A sample of recent security facility design packages was reviewed by the S&H Subteam and found to have been provided with appropriate ES&H review by EG&G Idaho.

Security Inspectors have not been provided training on facility specific hazards for the EG&G Idaho facilities to which they are assigned. Also, Security Inspectors assigned to Resource Conservation and Recovery Act Treatment, Storage, and Disposal sites have not been provided the hazardous materials training required by EG&G Idaho for unescorted access to these sites.

By letter, N.S. Burrell, Director, Reactor Research and Technology Division, ID, to F.C. Fogarty, Manager, Power Reactor Programs, EG&G Idaho, Inc., dated June 11, 1991, ID considers all concerns in the security/safety interface area of previous appraisals to be closed. Therefore, no followup was conducted.

4.5.1.11.2 Findings and Concerns

SS.4 SAFETY OF SECURITY ACTIVITIES

PERFORMANCE OBJECTIVE: Safety aspects of security activities involving use of weapons and other protective force equipment in the vicinity of safety systems and/or hazardous processes and materials should be identified and understood by all involved parties.

- FINDINGS:**
- While EG&G Idaho has established requirements for training on facility-specific hazards for EG&G Idaho employees to meet the requirements of 29 CFR 1910.1200, these training requirements have not yet been enforced for PTI Security Inspectors assigned to EG&G Idaho facilities.
 - In 1990, the above deficiency was identified by the EG&G Idaho Nuclear Safety Review Group. In response to this deficiency the Safeguards and Security Department requested, in a November 19, 1990, memorandum (JWJ-227-90), that each EG&G Idaho facility provide the names of an individual who would train PTI trainers "on Facility Specific Orientation (Haz Com), including training on Restricted Radio Transmission Areas." It is intended by EG&G Idaho that PTI trainers will then train PTI Security Inspectors on these hazards. Once training is completed, only those PTI Security Inspectors certified as trained for a facility will be permitted to work within that area. The above training was planned to be completed by June 1, 1991; however, some of the training materials are still under development.
 - There are several limitations with the above approach. One is that the author of the memorandum indicated that his interpretation of the term "Haz Com" was training on all hazards in the subject facility, whereas, "Haz Com" (hazard communication) is used within the subject OSHA standard (29 CFR 1910.1200) to apply only to hazardous chemicals. Thus, there is uncertainty about the interpretation of the facility-specific hazards to be addressed by this training. Another limitation is that this approach does not result in a level of awareness equivalent to that provided for EG&G Idaho employees concerning new hazards introduced into EG&G Idaho facilities.
 - This concern was fully addressed by the EG&G Idaho self-assessment.

CONCERN: Training on EG&G Idaho, Inc. facility-specific hazards, as (SS.4-1) required by 29 CFR 1920.1200, has not been enforced for (H2/C1) Protection Technology of Idaho, Inc. Security Inspectors who are assigned to these facilities.

FINDINGS:

- EG&G Idaho has established training requirements for workers at Resource Conservation and Recovery Act (RCRA) Treatment, Storage, and Disposal (TSD) sites based on the requirements of 29 CFR 1910.120(p)(7) and 40 CFR 265(a) for 24 hours of initial training and 8 hours of annual refresher training. This requirement has been imposed for all personnel who have unescorted access to TSD facilities. However, this requirement has not been enforced for Security Inspectors assigned to RCRA TSD sites, such as the RWMC.
- This concern was addressed by the PTI self-assessment.

**CONCERN:
(SS.4-2)
(H2/C1))**

Security Inspectors assigned to Treatment, Storage, and Disposal sites have not been provided the hazardous materials training required by EG&G Idaho, Inc., 29 CFR 1910.120, and 40 CFR 265 for unescorted access to these sites.

4.5.1.12 Experimental Activities

4.5.1.12.1 Overview

The experimental activities performance objectives and criteria as contained in DOE/EH-0135, "Performance Objectives and Criteria for Technical Safety Appraisals at Department of Energy Facilities and Sites," June 1990, were used in performing this appraisal. The previous TSAs performed in 1988 and 1989 was reviewed and many of the positive findings noted in the referenced in the TSAs continue to apply and are not reiterated herein.

The appraisal process included interviews with the Chairman of the Safety and Operations Review Committee (SORC), the cognizant operations personnel at the ATR, and three Experimental Group Leaders. The appraisal process included the review of experimental standing directives, experimental data, and relevant documentation. The tabletop review and mockup run at the ATR Canal for the NPR/MHTGR ATR-1 Experiment, Cask Transfer were attended to observe the application of the experimental directives, interface relationships, and procedures.

The experimental activities principal staff, with some exceptions noted herein, have a well conceived dynamic program. The review aspects of the experimental safety envelope follow a chronological pathway mandated by well-understood standing directives. The working relationship between the experimental group and operations appears effective. While the structure of the experimental activities into three experimental groups provides enhanced focusing in the three areas of interest, enhanced communication between experimental groups is needed where responsibility is shared for a particular experiment. Closer attention is needed to the formal review of cask transfer activities. The SORC provides the independent review process for nuclear safety and needs to reconsider its health physics member in light of its independent function.

Particularly noteworthy is the Experimental Loop Activity, which reflects a sound and well-structured program. The program is characterized by excellent supporting documentation. The Experimental Loop (in-pile) activities reflects a well-structured and sound program. It includes supporting documentation and a tiered experimental job package review program that culminates in a SORC review and approval process. The Experimental Loop program also includes trend analysis (bar graph) presentations for all aspects of the experimental program including salient safety items. This is a model group and should serve as a standard.

A followup was performed on concerns identified as Experimental Activities in the previous TSAs conducted at the ATR. By letter, N.S. Burrell, Director, Reactor Research and Technology Division, ID to F.C. Fogarty, Manager, Power Reactor Programs, EG&G Idaho, Inc., dated June 11, 1991, ID considers all concerns in the experimental activities area of the previous appraisal to be closed. This has been validated and actions accomplished are sufficient to consider the concerns closed.

4.5.1.12.2 Findings and Concerns

EA.1 INTERFACE WITH EXPERIMENTERS

PERFORMANCE OBJECTIVE: Persons planning or conducting experiments in or with the facility should have their relationship to the operating group clearly defined.

- FINDINGS:**
- Since the previous DOE TSA, the ATR standing directive for experiments has been revised and implemented effective January 15, 1991. However, this revision did not address the details of safety responsibility where two experimental groups share the responsibility for a given experiment.
 - Changes to the standing directive include the change to the experimental organization that was divided into three basic groups to provide enhanced focusing, i.e.:
 - Experimental Loops (in-pile experiments),
 - Experimental Isotope Production and Radiation Services, and
 - Experiments for New Production Reactor.
 - The standing directives clearly define the responsibility of the experimental groups as separate entities. Administrative work control and documentation aspects are clearly covered in the directives. The work control section details requirements for the Experiment Safety Analysis including its preparation and approval. Test verification and safety analysis are also thoroughly covered.
 - The relationship to the operations groups is clearly defined. However, the interworking relationship between experimental groups is less effective. This was evidenced at a tabletop review and mockup of NPR/MHTGR ATR-1, Experiment Cask Transfer, of a tritium (zirconium/stainless holder) source with a calculated dose rate approximating 3.3×10^5 R/hr at 1 inch. Two experimental groups were jointly responsible for the transfer (i.e., Experimental Isotope Production and Experiments for New Production Reactor). The tabletop and mockup revealed substantive potential radiological problems that were not formally transmitted to the Isotope Production Group. This was verified by the complete lack of formal documentation. A

formal review of the radiological aspects of the safety envelope by the Experimental Isotope Group post-mockup did not include identified radiological considerations. However signature approval was given to proceed with the transfer.

- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(EA.1-1)
(H2/C2)

The standing directives for experiments do not define shared safety responsibilities where two or more experimental groups are responsible for a given experiment.

EA.2 EXPERIMENT CATEGORIES

PERFORMANCE OBJECTIVE: All proposed experiments should be approved by an independent Safety Review Committee before they are performed.

- FINDINGS:**
- The Program Risks Advisory Committee that had been in existence has been replaced by the SORC.
 - SORC is chaired by a Power Reactor Program (PRP) Department member. A quorum of three committee members is required to approve an experiment. SORC has three subcommittees:
 - Nuclear/Reactor Safety,
 - Reactor Operations, and
 - Procedure Review.
 - A Document Review Committee was established on May 15, 1991, to provide a single point of contact for the review and approval of document review requests. There are no records on file to indicate the review of radiological assessment documentation associated with the NPR/MHTGR ATR-1 Experiment.
 - A tabletop review and mockup of the transfer of the ATR experiment was completed and meetings held to discuss problem areas. The SORC has not reviewed the radiological aspects of the safety envelope for the transfer.
 - SORC has recently included in its procedures the thermal and radiological analysis of transfers of experiments to the Canal, Hot Cell, and offsite, as requested formally on June 5, 1991, by the Facility Manager. Previously, this was not a function of SORC. This procedure is a result of a recent indication of a capsule overheating during a transfer activity from the ATR Canal to the TRA Hot Cell. This procedure was not followed in the recent ATR-1 Experiment.
 - Internal correspondence dated June 18, 1991, to the Chairman of SORC refers to the ATR-1 Experiment as prototypical and, therefore, does not necessitate an SORC review. This is in conflict with the Facility Manager's directive dated June 5, 1991.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(EA.2-1)
(H2/C2)

The radiological aspects of the NPR/MHTGR ATR-1 Experiment have not been reviewed by the Safety Operations Review Committee or the Document Review Committee.

- The PRP Department's Radiological Controls Unit Manager is the health physics member on the Reactor Operations and the Procedure Review Subcommittees, although he is involved in the radiological concerns and procedures for experimental activities at the operational level. The current PRP Department member assists in the development of radiological procedures for experiment source transfers and poses a conflict of interest.
- See Concern FR.1-2 and FR.1-3.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(EA.2-2)
(H2/C2)

The Safety Operations Review Committee lacks an independent review member obtained outside of the Power Reactor Program Department for health physics.

EA.3 EXPERIMENT PROPOSALS

PERFORMANCE OBJECTIVE: Sufficient information on a proposed experiment should be submitted to permit a safety evaluation to be made.

- FINDINGS:**
- A well-defined chronology is followed to unfold the appropriate information for a safety evaluation. A material certification of the source material is performed as well as a physics, thermohydraulics, and stress test. Drawings are reviewed and certified. Based on tests, a Facility Change Form (FCF) is then completed that includes information on all tests to date. An Experimental Safety Analysis (ESA) is then performed that includes the FCF package and all test specifications. The Core Safety Assurance Package provides one of the important components of the safety package.
 - The ESA including the Core Safety Assurance Package is the complete safety envelope that goes to the Safety Operations Review Committee for review and approval. The NPR/MHTGR ATR-1 Experiment package that was forward to SORC for review did not include the radiological safety considerations for the actual transfer of the source material for review.
 - Safety considerations have been extensively reviewed and well-documented for those experiments up to the transfers of experiments to the Canal. Radiological information on transfers from the ATR Canal have not been a part of the safety evaluation. These transfers, although potentially posing significant exposure problems, have not been formally reviewed.
 - One of the two experimental groups involved in the ATR-1 Experiment Transfer did not formally receive radiological assessment information from the tabletop review and mockup of the transfer.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: Radiological information, including dose calculations relevant to cask transfers of source material, is not formally documented and transmitted to cognizant experimental groups or the Safety Operations Review Committee for safety evaluation.
(EA.3-1)
(H2/C2)

4.5.1.13 Site/Facility Safety Review

4.5.1.13.1 Overview

All six performance objectives for the Site and Facility Review technical area were addressed during this appraisal. The appraisal was conducted by means of reviewing documentation relating to the organization and implementation of the independent review and appraisal system, as defined by EG&G Idaho and by interviewing line management, safety committee chairpersons, and persons in the ES&Q Department who are responsible for audit and appraisal activities.

Among the many documents reviewed were policy, appraisal program and reports resulting therefrom, all the safety committee charters, safety review committee minutes, safety program implementation documents at facilities, and other documents relating to the ES&H program. Facilities visited and toured were facilities at the TRA, waste management facilities, and laboratory facilities.

Although the Nuclear Safety Review Group cannot be considered part of the independent technical safety review system, EG&G Idaho is commended for creating an extraordinarily effective system to deal with safety issues at the top management level. This system involves a meeting of all top management once per quarter to consider safety items only. The records of these meetings show that actions are taken through changes in policy and procedures and, on some occasions, funding. This group is effective and a viable indicator of top management interest in an effective program.

The EG&G Idaho safety review and appraisal system has been documented. Safety committee technical reviews are defined to be the responsibility of Department Managers. The system requires Department Managers to establish safety review committees or safety review groups reporting directly to them. Some Department Managers have established additional review committees/groups under the Group/Facility Managers. The departments that have group level committees show more independence and objectivity than the single committee system reporting to the department level. This system is implemented, but many deficiencies exist in the implementation at the Department Managers and review committee levels.

Weaknesses resulted from management requirements not being specific enough to ensure that the Line Management Independent Review System meets the requirements of DOE Orders. Charters are loosely written. This resulted in committees operating out of compliance with DOE Orders. EG&G Idaho, Inc. should take note of these weaknesses because this could be resulting in line management misinterpreting company requirements.

How line organizations use the committees is considered a very serious problem. In some cases, the departments are using the chairperson as technical support on almost a daily basis. This type of operation is more prevalent in the Power Reactor Programs Department than at other operations. This problem is multiplied by the fact that some departments have established full-time chairpersons, and some full-time committee members, that are immediately available for consultation either by phone or in person. In some

cases, safety reviews are conducted informally without going through the established channels. This informal way of operating, with committee records sometimes written after implementation of committee recommendations have been made, is not a good practice.

The appraisal system that provides annual reviews are in organizations independent of line functions. Department Managers interpret DOE Orders; therefore, independence cannot be guaranteed. Operations of the appraisal committees should be independent of undue line influence. This could be assured by management issue of the company procedure "Internal Independent Appraisals and Audits" with specific requirements that the appraising organization review against industry requirements as well as DOE requirements. Also, recommendations should be resolved at a level higher than that of the appraised organization. Many of the deficiencies in this appraisal report normally would be found by a truly independent review group. The coverage given to the areas appraised by the triennial appraisals teams have been comprehensive and would be beneficial to management if the recommendations were acted upon. For the last two appraisals, a time lapse of 2 1/2 years occurred after the appraisals before consideration was given to the recommendations.

The one item left open from the 1987 TSA, "The review committees do not act assertively, they have not varied their appraisal approaches, and have not periodically added consultants to the review committees," should not be considered completed until Concerns FR.3-1 and FR.3-2 in this report are satisfied.

In conclusion, EG&G Idaho has documented their internal safety review and appraisal system, but several weaknesses exist in the implementation. The burden of making this system effective and in compliance with DOE requirements rests with the Department Managers who will always have a conflict with safety versus program requirements. Sometimes the shortest path to continued operations is to use the full-time safety committees as technical support staff. Solution to this problem, along with clear documented charters on how the committees must work to ensure compliance with DOE requirements, should provide an effective EG&G Idaho safety review system. The annual appraisals can also be more effective if management issues more stringent and clear requirements with respect to independence and formal operation. In addition, resolution of differences of line and the appraising organization must be escalated to the next level of management so that the line influence does not control the decision. The limitations placed on the safety review and appraisal system, and in some cases misuse of the safety committees, are the main hindrance to a workable system.

4.5.1.13.1 Findings and Concerns

FR.1 SAFETY REVIEW COMMITTEE

PERFORMANCE OBJECTIVE: A Safety Review Committee should be available to review safety questions and the safety impacts of experiments. This committee is part of the "Contractor Independent Review and Appraisal System" specified in DOE 5480.5, or DOE 5480.6, and/or DOE 5482.1B, Section 9.d.

- FINDINGS:**
- Independent appraisals are being conducted for EG&G Idaho functional areas; however, significant safety responsibilities related to activities inside the INEL site boundary, but outside of contractor operated areas, are not being performed. Examples of such activities are:
 - Emergency preparedness,
 - Shipment of hazardous materials through areas inside the INEL site boundary and outside of contractor operated areas, and
 - The electrical power supply loop shared by prime contractors.
 - See Concern PT.1-1
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(FR.1-1)
(H2/C1)
Independent reviews and appraisals, required by DOE 5482.1B, of Idaho National Engineering Laboratory activities in areas outside individual contractor operated facilities have not been performed. (Also see Concern PT.1-1.)

- FINDINGS:**
- EG&G Idaho specifies that the following committees and organizations form their Contractor Independent Safety Review and Appraisal System: Nuclear Safety Review Group, Environmental Management Oversight Committee, Performance, Oversight and Assessment (PO&A) Group, Ad Hoc Committees, and Line Management Independent Review System. However, a management document has not been issued that describes implementation requirements.
 - DOE 5480.5, DOE 5480.6, and DOE 5482.1B require that the independent safety review system have the following characteristics: independence; technical competence; and a committee charter that clearly defines requirements for structure, meetings, quorum, recordkeeping, and auditability. Deficiencies identified in the EG&G Idaho safety review system included:

- Committee records were incomplete and not technically auditable.
 - The chairperson and committee members, in some cases, provide direct technical support to line functions.
 - Chairpersons, in some cases, were not aware of the DOE Orders requirements for group meetings.
 - Quorums are allowed to change at the will of the chairperson.
 - Letters of appointments are frequently not written by the department managers and group managers.
 - Technical experience and/or expertise is not always a controlling factor for selection of safety review committee members.
 - One man safety reviews are sometimes performed rather than committee/group reviews.
- Some of these findings were identified in PO&A appraisals.
 - This concern was not addressed by EG&G Idaho self-assessment.

CONCERN:
(FR.1-2)
(H2/C2)

Top level management within EG&G Idaho, Inc. has not issued requirements for committee structure and committee operating procedures such that compliance with the requirement of DOE 5480.5, DOE 5480.6, and DOE 5482.1B can be achieved.

FR.3 OPERATION OF SAFETY REVIEW COMMITTEE

PERFORMANCE OBJECTIVE: Review of the site/facility activities by the Safety Review Committee should ensure achievement of a high degree of safety.

- FINDINGS:**
- In many cases, safety committee members routinely contribute technically to operations that they review.
 - Safety committee members, in some cases, participate in the document preparation for processes they will ultimately review.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(FR.3-1)
(H2/C1)

The EG&G Idaho, Inc. line management method of operation is allowing safety review committees to function as technical support staffs, thereby, not complying with the full intent of DOE 5480.5, DOE 5480.6, and 5482.1B.

- FINDINGS:**
- The Nuclear Safety Review Group (NSRG) charter states that the NSRG is the "oversight" committee that provides oversight over the Line Management Independent Review System. Some department managers interpret EG&G Idaho management guidance such that the NSRG has some responsibility for performing independent technical safety reviews. Other department managers consider that independent technical safety reviews are to be performed by the department level committees.
 - See Concern FR.1-2.
 - For 2 years, i.e., since the reorganization of the EG&G Idaho Contractor Independent Safety Review and Appraisal System, independent safety reviews of the ATR has been deficient because the Department Manager has worked under the assumption that the NSRG had some responsibility for independent technical safety reviews.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(FR.3-2)
(H2/C2)

The understanding among department managers is unclear with respect to whether the Nuclear Safety Review Group or the Line Management Independent Review System is responsible for the safety reviews that satisfy the requirements of DOE 5480.5, DOE 5480.6, and DOE 5482.1B.

FR.4 ANNUAL FACILITY SAFETY REVIEW

PERFORMANCE OBJECTIVE: An annual operating review of the facility should be performed by a committee appointed by top contractor management, as specified in DOE 5480.5 and DOE 5480.6

- FINDINGS:**
- The annual facility appraisal report issued by the PO&A Group had the following deficiencies:
 - In many technical appraisal areas, there were no findings for any of the assessed performance elements. However, numerous findings were identified in these areas during the course of this S&H Subteam appraisal.
 - In the health physics technical area, a nonprofessional performed the appraisal/audit.
 - The appraisal uses a checklist approach and the appraisals are more like audits than appraisals. Records of appraisals support this conclusion.
 - EG&G Idaho has not issued the management procedures for the PO&A organization, which describes the responsibilities, authority, and mechanics of carrying out appraisals. PO&A has issued its own document, but additional clarity is needed.
 - This concern was not addressed in the EG&G self-appraisal.

CONCERN: Annual appraisals, required by DOE 5480.5, DOE 5480.6, and
(FR.4-1) DOE 5482.1B, are conducted as audits rather than appraisals .
(H2/C1)

FR.5 TRIENNIAL APPRAISAL OF SITE/FACILITY SAFETY REVIEW SYSTEM

PERFORMANCE OBJECTIVE: A triennial appraisal of the safety review system should be performed by contractor management.

- FINDINGS:**
- The required frequency of triennial appraisals is being met; however, appraisals have not covered all activities required in DOE 5482.1B.
 - The triennial appraisal team was not directed to perform a triennial appraisal to satisfy the requirements of DOE 5482.1B, Section 9.d.(2), because EG&G Idaho had not interpreted this DOE Order to include contractors.
 - Management did not instruct the triennial appraisal team to review the safety review program covering its INEL site responsibilities.
 - This concern was not addressed by the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. is not in total compliance with DOE 5480.5, (FR.5-1) DOE 5480.6, and DOE 5482.1B, which requires triennial reviews of (H2/C1) all DOE activities.

- FINDINGS:**
- The contractor has not used the recommendations of past triennial appraisals in a timely manner to help improve its Contractor Independent Safety Review and Appraisal System.
 - The recommendations resulting from the 1985 appraisal were not acted on until the fall of 1987.
 - Actions were not taken on the recommendations made in the 1988 appraisal report until early 1991.
 - A number of the findings identified in this TSA, regarding the independent safety review system, were identified in the triennial appraisal reports, but never acted on.
 - Both the 1988 and 1991 triennial appraisal teams recommended that EG&G Idaho management decide whether or not the triennial appraisals were being performed solely for the purpose of satisfying the DOE requirement.
 - The 1991 EG&G Idaho triennial appraisal addressed this concern.
 - This concern was not addressed in the EG&G self-assessment.

CONCERN: EG&G Idaho, Inc. has not provided timely and complete (FR.5-2) implementation of the recommendations made by the 1985 and 1988 (H2/C2) triennial appraisal teams.

FR.6 OPERATING EXPERIENCE REVIEW

PERFORMANCE OBJECTIVE: Operating experiences should be evaluated, and appropriate actions should be undertaken, to improve safety and reliability.

- FINDINGS:**
- A comprehensive centralized system does not exist for collecting and distributing operating experiences from industry, local operations, and DOE-wide operations.
 - Operating experiences are being collected from all DOE contractors by EG&G Idaho. These data are accessible by computer to all DOE contractors. Other than through computer access, the EG&G Idaho organization providing this service to DOE has no responsibility for distribution of information within EG&G Idaho or to other contractors.
 - DOE does not have a centralized system for collecting, storing, and disseminating industry operating experience.
 - The Power Reactor Programs Department has a system for collecting, evaluating; and distributing operating experiences within EG&G Idaho, but the distribution of information from this system is limited primarily to the PRP Department.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(FR.6-1)
(H2/C2)

EG&G Idaho, Inc. has not established a centralized, comprehensive program that would provide for collection of operating experiences, evaluating them, and making them available to its operating groups.

4.5.1.14 Radiological Protection

4.5.1.14.1 Overview

The 13 Radiological Protection performance objectives and criteria as contained in DOE/EH-0135 "Performance Objectives and Criteria for Technical Safety Appraisals at Department of Energy Facilities and Sites," June 1990, were used in performing the appraisal of the EG&G Idaho Radiation Protection Program. The appraisal process included interviews with the Acting Plant Manager; the Environment, Safety, and Quality Manager and staff; Department Heads, managers and staff of health physics support services; the Cognizant Professional for Radiation Protection; facility managers; facility and organization radiological controls managers, staff, and technicians; and Radiological Safety Research and Support staff. The appraisal process also included the review of pertinent EG&G Idaho procedure manuals; survey records; ALARA program documentation; occupational exposure records; logs; and audit, surveillance, and performance assessment reports. The facilities reviewed included the Power Reactor Program facilities, TAN, Waste Management Facilities, CFA, Health Physics Instrument Laboratory, and the Operational Dosimetry Unit facilities.

EG&G Idaho radiological staff is insufficient to implement an effective radiological safety program. Additionally, key technical staff are being used in a passive (as needed) role in the program rather than in a dynamic role with clearly defined responsibilities for the radiological safety program. EG&G Idaho has commendably reinforced line safety management by integrating radiological staff into the operating organization. Accountability for ES&H compliance has been placed in the line organization. However, the effective discharge of this responsibility has been marginal in most facilities as evidenced by the identification of 31 concerns, of which 19 were concerns related to noncompliance with DOE Orders, 5 were concerns related to noncompliance with documented EG&G Idaho procedures or requirements, and 7 were concerns related to accepted industry practice. These concerns are based on a total of 110 findings.

The radiological safety oversight program is ineffective, lacks technical quality, and is constrained in the scope of its review. There is a clearly observed avoidance of the application of good practice in the oversight program. The lack of technical quality is evidenced by the numerous technical findings contained herein, but not addressed in the EG&G Idaho oversight reports. Management has failed to identify the ineffectiveness of the structure and performance of the independent radiological protection oversight program.

The site health physics service activities are not integrated. This is impacting on the overall quality and performance of the programs. The Health Physics Instrument Laboratory and Operational Dosimetry Unit service programs are stereotyped and routine, and lacks the necessary developmental activities to upgrade the performance of dosimetry and instrumentation to be more responsive to special problems and operational needs.

The EG&G Idaho ALARA program is consistent with the requirements of DOE 5480.11. Documented plans and programs are available within the individual facilities/organizations. The ALARA goal program is aggressive in that goals are established for both collective exposure and for each individual radiation worker. If during the year actual experience indicates that the ALARA goal was set too high, it is reduced. All of ALARA goals were met for 1990.

The scope and frequency of the necessary routine surveys are documented. Surveys were conducted on a formal schedule in the facilities audited in this appraisal. The survey records were generally comprehensive. Particularly notable were survey forms at the ATR, which included three dimensional computer generated maps of the areas to be surveyed and a computer program that had been developed at the Waste Management Facilities to trend the weekly air monitoring data.

The EG&G Idaho Radiological Controls Manual is consistent with the requirements of DOE 5480.11 and provides a sound basis for the EG&G Idaho Radiation Protection Program. Additionally, some health physics procedures are provided to line organizations to assist in the implementation of requirements. These procedures could be expanded to provide for a consistent radiation protection program company-wide.

The EG&G Idaho Critical Self-Assessment for Radiation Protection was not usable in the form provided to the team. The material provided was poorly organized and not specific to radiation protection. There was no index or similar guide that allowed ready reference to specific areas of interest (e.g., contamination control, external dosimetry, air monitoring, etc.). The effort on the part of EG&G Idaho to summarize the material and to provide an overall assessment of their program was ineffective.

The Cognizant Professional and the Radiological Safety and Research Support (RSRS) Unit took the initiative several months ago to develop a Health Physics Program for Excellence (HPPE) to be used as a basis for a critical self-assessment of the EG&G Idaho Radiation Protection Program. The HPPE is comprehensive in scope and incorporates not only items specified by DOE requirements, but also elements of a program designed to excel. Using information provided by the facility Radiological Control Unit Managers, each of the program elements in the HPPE were rated either "satisfactory" or "unsatisfactory." However, as the report had not yet been validated by field observations, it was not included as part of the EG&G Idaho Critical Self-Assessment. The HPPE is an excellent initiative on the part of the Cognizant Professional and the RSRS. When fully implemented, it will provide the basis for a comprehensive self-assessment of the Radiation Protection Program.

Followup was performed on concerns identified under radiation protection in the previous TSAs of the ATR. By letter, N.S. Burrell, Director, Reactor Research and Technology Division, ID, to F.C. Forgarty, Manager, Power Reactor Program EG&G Idaho, Inc., dated June 11, 1991, ID considers all concerns in the radiation protection area of previous appraisals to be closed except Concern RP.8-1, which is a concern regarding the calibration of air monitors.

4.5.1.14.2 Findings and Concerns

RP.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Site/facility organization and administration should ensure effective implementation and control of radiological protection activities on the site/facility.

- FINDINGS:**
- To increase the emphasis on line responsibility for safety, in 1988 EG&G Idaho disbanded the existing central safety organization (Health and Safety Division) and reassigned the safety staff (e.g., Radiological Engineers and Health Physics Technicians) to the operating organizations. The ES&Q Department was formed and designated to provide overall safety program requirements, independent oversight, and the interpretation of rules and regulations. Later, a Radiation Protection Cognizant Professional was designated to provide a single point of contact within EG&G Idaho for radiation protection issues reporting through the ES&Q Department Manager. (See Concern RP.1-2).
 - The reorganization considerably upgraded line organization management of safety and places accountability for ES&H compliance in the line organizations.
 - The radiological control program at the facility or operating organization level is unique. Each operating organization (e.g., Power Reactor Programs, Facilities and Maintenance, Waste Management) has a separate radiological safety entity within EG&G Idaho. There is no formal ties to a centralized radiological organization to assure technical continuity in procedure and practice on a routine basis.
 - The radiological control program at the department level is driven by the EG&G Idaho Radiological Controls Manual, which is consistent with, and implements the requirements of, DOE Orders related to radiation protection. The Radiological Controls Manual is implemented by line organizations through the Company Procedure Manual and the line organization Standard Practice Manuals. Although these procedures were generally consistent with the Radiological Controls Manual, discontinuity in actual radiological practice in the workplace and noncompliance with DOE Orders was observed across the operations in such areas as posting, use of protective clothing, contamination control, source control, zone control, and response to constant air monitors. (See Concerns RP.3-1, RP.3-2, RP.3-3, RP.9-1, and RP.10-1).
 - There are eight Health Physicists and one semiprofessional Health Physicist who form the RSRS Unit reporting to the

Engineering Department. Six of the eight Health Physicists are certified by the American Board of Health Physics. Although this unit has moved aggressively to address problems as they have been identified, the functional role of the RSRS unit is simply to respond on an as-requested basis, and is primarily responsible to support organizations that do not have a staff of radiation safety professionals.

- Although the staff of the RSRS unit individually and collectively comprise an excellent radiological safety technical resource within EG&G Idaho, they have no direct responsibilities in the EG&G Idaho independent radiological safety oversight program, nor do their requirements and responsibilities, as stated, permit them to provide formal direction to the overall EG&G Health Physics Programs.
- The responsibility for the health physics service functions, which include external dosimetry, internal dosimetry, instrument calibration, and radiological safety research and support, is diffused across several EG&G Idaho organizational entities. These should be inseparable entities as the functions require cohesive direction and rely heavily on routine, effective communication, technical relationships, and exchange of experience information. The elements of effective communication, technical interaction, and innovation is not apparent between these important service groups.
- Technical staff resources in the health physics service functions are not sufficient to provide for the necessary upgrades in the programs (see Concerns RP.5-4 and RP.8-4). Noncompliance with DOE Orders was identified in the external dosimetry, internal dosimetry, instrument calibration, and occupational exposure record programs. (See Concerns RP.5-1, RP.5-4, RP.7-1, RP.7-2, RP.7-3, RP.8-1, RP.12-1, RP.12-2, RP.12-3, and RP.12-4).
- This concern was not identified in the EG&G Idaho self-assessment.

CONCERN:
(RP.1-1)
(H2/C1)

Line management is not effectively discharging its responsibility for compliance with DOE 5480.11 requirements or using available company resources to achieve a comprehensive radiological protection program.

FINDINGS:

- The designated Radiation Safety Cognizant Professional is a Unit Leader in the Engineering Department, but reports functionally through a dotted line matrix to the ES&Q Department for the Cognizant Professional activity. Although the responsibilities for the Cognizant Professional are outlined in the EG&G Idaho Resource Manual

the authority to fulfill this responsibility is not clear. The Cognizant Professional provides the interface between ID and EG&G Idaho as well as other regulatory groups and is responsible for ensuring that all requirements are addressed throughout EG&G Idaho. Additionally, he functions as a consultant within EG&G Idaho, acts where needed, and identifies the need for and develops procedures.

- The Radiation Safety Cognizant Professional function is intended to be performed by a single professional and is funded by the ES&Q Department at a level of 25 percent of a full-time equivalent for these activities. The Cognizant Professional has limited staff assistance. Thus, the Cognizant Professional initiatives are time and funding dependent and he functions primarily on an as-needed basis.
- Although the Cognizant Professional is the identified, knowledgeable professional for EG&G Idaho for radiation protection, there is no requirement to inform the Cognizant Professional of unusual exposure conditions or to seek his review and approval for those activities that potentially could result in significant exposures to workers. Examples of activities over a 3-week period that demonstrate this deficiency are:
 - In a recent reportable abnormal occurrence (July 1, 1990, at 2:00 p.m.) a hot particle with a dose rate of 3.5 rad/hour (approximately 157.6 micro curies) was found on a radiation worker. The Deputy General Manager contacted the Radiation Safety Cognizant Professional at 6:00 p.m. to determine the status of actions taken only to learn that he knew nothing of the occurrence.
 - In a recent ATR-1 experiment tabletop review and subsequent mock transfer, neither the Cognizant Professional nor a member of the ES&Q Department were formally invited to participate. The experiment involved the transfer of a tritium experiment generated source and zirconium/stainless steel holder, with calculated dose rates at the surface approximating 3.3×10^5 rad per hour. The experiment was a unique experiment and represented a departure from normal ATR transfers, posing handling and potentially significant exposure problems.
- There is a lack of formal procedures specifying conditions under which the cognizant professional would review and approve certain operations having potential for significant exposures. There is also limited staff resources formally committed to this important function.

- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.1-2)
(H2/C3)

The concept and use of the Cognizant Professional is ineffective in that the Radiation Safety cognizant professional does not have authority and recognition commensurate with his responsibilities, as perceived by management.

RP.2 INTERNAL AUDITS AND INVESTIGATIONS

PERFORMANCE OBJECTIVE: The internal audit program for both routine operations and unusual radiological occurrences should provide adequate performance assessments.

- FINDINGS:**
- In the Performance Oversight and Assessment Group (PO&A) of the ES&Q Department, the conduct and administration of the radiological safety oversight function is the responsibility of three experienced former Health Physics Technicians who are not technically trained in radiological safety. They perform the audits and surveillance and assist in the annual performance assessments.
 - There are no professional Health Physicists in the PO&A group to review the technical aspects of the program. In addition to deficiencies observed in the routine applied program, numerous technical deficiencies were also observed indicating the need for professional Health Physicists on the oversight staff.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.2-1)
(H2/C1)

There are no professional Health Physicists directly assigned to the Environment, Safety and Quality Department oversight function performing audits and surveillance, and the scope, depth and quality of the oversight functions is seriously impaired and not in compliance with DOE 5480.11, Section 9.r. and DOE 5482.1B, Section 9.d.(2)(f).

- FINDINGS:**
- The oversight function has been restricted by ES&Q Department management to limit the scope of their review to adherence to Radiological Control Manual procedures, DOE Orders, and site-specific standard practice procedures. Accepted industry practice elements are not a focus of the audit and appraisal program. Accepted industry practice may be cited as part of the informal ES&Q Department surveillance activities, but line management is not required to respond to identified deficiencies.
 - The radiological protection oversight comprises:
 - The Annual Appraisal performed separately at each site using the 12 radiation protection elements, performance objectives, and corresponding criteria of the TSA. The Annual Appraisals are documented.
 - The Performance Oversight Audit, which is performed more frequently at each site (two per year). The

audit is a series of check sheets based totally on the adherence to procedures.

- The surveillance, which is an informal, unscheduled walkthrough, that is not documented unless there is a finding or issue that cannot be resolved informally.
- The main thrust of the EG&G Idaho Independent Oversight Program is the Annual Appraisals and audits. Both the Annual Appraisals and audits are seriously flawed and ineffective. They lack sufficient scope, depth of review, and quality. The following is a summary analysis of the Annual Appraisal of four major sites within the EG&G Idaho Operations (ATR, RWMC, SWEPP, TAN) and the Audit of three major sites (RWMC, TRA Hot Cell, and ATR) conducted during 1990. (NOTE: appraisals of other sites were performed during 1990. Those listed below were selected for analysis based on risk and potential for exposure).

DATE	SITE	NO. OF FINDINGS	PAGE REF.
<u>Annual Appraisal</u>			
Oct. 1990	TAN	3	51-55
Nov. 1990	RWMC/SWEPP	0	60-63
Dec. 1990	ATR	4	47-49
<u>Audits</u>			
Jan. 29, 1990	TRA-Hot Cell	1 (on posting)	FORM
Feb. 10, 1990	ATR	1 (on survey map)	FORM
Mar. 13, 1990	RWMC	0	FORM

- In the analysis of the findings indicated above (Annual Appraisal), the three findings listed for TAN relate to (1) storage of a cask in Bldg. TAN-668, (2) lost dosimeters, and (3) contamination confinement in the exhaust system. The RWMC and SWEPP Annual Appraisals had no findings. The 4 findings listed for ATR are concerned with only 1 of 12 health physics categories and 2 of 79 TSA criteria. There were no findings in all four sites for the category Air Monitoring. Yet an internal report from the RSRS Unit indicates that Air Monitoring is inadequate at all sites.
- This TSA has unfolded substantial deficiencies in all categories listed in the TSA criteria except for the ALARA program. One hundred and ten findings and 31 concerns are represented in this technical area of this report for the same sites, of which 19 concerns are specific to noncompliance of DOE Orders.
- Equally flawed is the audit program. The items to audit are random, computer selected items specific to procedures.

The audit form is simply a "yes/no" form and provides no indication of the scope of review for each item covered.

- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.2-2)
(H2/C1)

The EG&G Idaho, Inc. independent oversight program is seriously flawed, ineffective, and not in compliance with DOE 5482.1B.

- The Radiological Safety Branch, ID has not performed a functional appraisal of the EG&G Idaho radiation protection program since November, 1988. A limited surveillance activity has been conducted, but the scope of the surveillance activity did not adequately address all elements of the EG&G Idaho radiological safety program. Additionally, the surveillance did not cover all of the facilities in the EG&G Idaho program.
- Since DOE 5480.11 was issued in December 1988, the Radiological Safety Branch, ID, has not performed an appraisal to determine compliance by EG&G Idaho with all aspects of DOE 5480.11.
- Staffing constraints over the past year have limited the attention given to the EG&G Idaho appraisal function to approximately a 0.3 man year effort for all of INEL. A reorganization in the last 3 months has created a separate branch for this function.
- This concern was not addressed in the ID Idaho self-assessment.

CONCERN:
(RP.2-3)
(H2/C1)

The DOE Field Office, Idaho Radiological Safety Oversight Program is not conducted in sufficient frequency to ensure the effectiveness of the EG&G Idaho, Inc. radiological protection program, and is not in noncompliance with DOE 5482.1B.

RP.3 PROCEDURES AND POSTING

PERFORMANCE OBJECTIVE: Radiation protection procedures for the control and use of radioactive materials and radiation generating devices should provide for safe operations of clearly identified areas of potential consequences.

- FINDINGS:**
- The governing document for the EG&G Idaho Radiation Protection Program is the EG&G Idaho Radiological Controls Manual, developed and maintained by the ES&Q Department. The Radiological Controls Manual is consistent with the requirements contained in DOE 5480.11. Each organization or facility prepares site-specific manuals based on the Radiological Controls Manual.
 - There is no requirement that the site-specific procedures be reviewed by technical experts independent of the organization. Although "after the fact," the ES&Q Department does audit the site-specific manuals periodically to assure that they are consistent with the Radiological Controls Manual.
 - Facility and Maintenance Department, Compliance Support Group Standard Operating Procedures - 002, 003, 004, 005, 006, 007, 008, and 009 were prepared and approved by the same individual.
 - While site-specific procedures were generally consistent with the Radiological Controls Manual, in the actual implementation of these procedures in the facilities appraised numerous examples of inconsistencies with the Radiological Controls Manual were found (see Concerns RP.3-1, RP.3-2, RP.3-3, RP. 7-1, RP.9-1, RP.10-1, and RP.12-3).
 - Requirements contained in the Radiological Controls Manual for the Internal Dosimetry Program and the Occupational Exposure Records Program were not observed to be fully implemented within the EG&G Idaho Radiation Protection Program.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: The EG&G Idaho, Inc. Radiological Controls Manual procedures, (RP.3-1) which implement the requirements of DOE 5480.11, are not (H2/C1) consistently applied within EG&G Idaho, Inc. organizations.

- FINDINGS:**
- The posting requirements for Radiation Areas, Airborne Radioactive Areas, and Contamination Areas defined in Radiological Controls Manual are consistent with the requirements of DOE 5480.11.

- The Radiological Controls Manual does not define a standard sign to be used for posting radiological areas at EG&G Idaho.
- Postings were not consistent throughout the facilities in EG&G Idaho. Different signs were used to designate Controlled Areas, Radiation Areas, and Contamination Zones I, II, and III. Handwritten and computer-generated signs in black and white were also observed rather than the required yellow and black or yellow and magenta signs.
- In some cases, posting practices were not consistent with the requirements of DOE 5480.11. As an example, hood areas in the ATR Hot Cell and the Material Testing Reactor were posted only for contamination and not for direct radiation, although unknown source material shielded by lead bricks in hoods showed measured radiation fields greater than 5 milirem per hour external to the lead bricks.
- A radiation field of 0.5 rem per hour, which was neither roped nor posted, was measured by the S&H Subteam member as coming from a waste storage container behind the ATR Hot Cell No. 3. The area was immediately posted, and an Occurrence Report prepared per DOE 5000.3A.
- The respirator receiving area at the laundry was not posted, although bags of respirators from Contamination Zones are opened and smear tested there. A hood in the Laundry containing respirators with fixed contamination was not posted.
- Supplemental posting, or a work permit which defines the entry requirements for working in a Radiation Area or Contamination Zone, was not always evident, as required by the Radiological Controls Manual Procedure 4.0, paragraph 3.2.4. For example, protective clothing requirements were not posted in Bldg. CF-625 or the Laundry. Further, a triangular sign designating the Contamination Zone as I, II, or III was used in some facilities with the requirements for entry written on the back of the sign requiring, in some cases, that an individual reach across a Contamination Zone to reverse the sign and read it.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.3-2)
(H1/C1)

Posting of radiological areas was not consistent throughout EG&G Idaho, Inc. and in some cases was not in compliance with DOE 5480.11, Section 9.k.

FINDINGS:

- An central inventory of all sources at EG&G Idaho is maintained by the Registered Radioactive Source Coordinator in the Radiological Safety and Research Support Unit. Requirements for the handling, storage, inventory, and leak testing of radioactive sources are contained in the Radiological Controls Manual, Procedure 5.0.
- The central inventory contained a unique identifier number assigned by the Registered Radioactive Source Custodian. The manufacture's serial number for the source was also identified for some, but not all, sources.
- The location of two 15 millicurie Nickel sources identified on the central inventory could not be verified in Bldg. CF-625. These sources were stated by the building Health Physics Technician to be internal to a gas chromatograph that had been moved from the location identified in the inventory. The inventory listed a unique identifier number for the sources, but not their serial number. The sources had a serial number etched on them, but the unique identifier number in the inventory was not labeled on either the source or the radioactive material label on the gas chromatograph.
- The reassignment of radioactive sources to a new location and custodian was not always recorded in the TAN Health Physics Log Book (e.g., 500 millicurie Americium-Beryllium source).
- Neither Procurement or Receiving is required to notify the Registered Radioactive Source Custodian when radiation sources are ordered or received that could assist in assuring that sources are added to the central inventory.
- This concern was not addressed in the EG&G Idaho self-assessment.

**CONCERN:
(RP.3-3)
(H2/C1)**

The location of radioactive sources are not maintained current on inventories, as required by the EG&G Idaho, Inc. Radiological Controls Manual.

FINDINGS:

- A central inventory of radiation generating devices is not maintained for audit purposes.
- There are no requirements that the facility design and associated safety devices (e.g., warning lights, interlocks) be reviewed by technical experts independent of the operating organization prior to purchase and installation of a radiation generating device. After devices are installed, the ES&Q Department periodically audits the device to assure the requirements of the Radiological Controls Manual are met.

- An x-ray machine was purchased for the Health Physics Instrument Laboratory. After it was installed, but prior to operation, the shielding in the designated location was found to be inadequate and the machine was locked and tagged out-of-service. There was no documented design review for the machine installation. The only available documentation was a purchase requisition signed by the cognizant manager.
- There are no requirements for an independent review of the intended use, or storage of, sources prior to their procurement regardless of the strength of the source.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.3-4)
(H1/C1)

The installation of radiation generating devices is not independently reviewed by qualified staff outside the operating organization to ensure compliance with the mandatory standards of DOE 5480.4.

RP.5 EXTERNAL RADIATION DOSIMETRY

PERFORMANCE OBJECTIVE: The Routine and Accident Personnel Radiation Dosimetry Programs should ensure that personnel and radiation exposures are accurately determined and recorded.

- FINDINGS:**
- An inventory of Nuclear Accident Dosimeters (NADs) is maintained by EG&G Idaho including information on the location of the systems. All potential nuclear accident locations are appropriately covered by NAD systems pursuant to the location requirements contained in DOE 5480.11, Section 9.q. However, the NAD systems currently in use do not comply with the performance requirements contained in DOE 5480.11, Section 9.q. The last test of the fixed NAD system was performed in 1980 in the Oak Ridge National Laboratory Intercomparison Test Program using the well-characterized neutron leakage spectra as the Dosimetry Applied Research (DOSAR) Facility. The overall gamma/neutron response was within plus or minus 40 percent, which did not satisfy the plus or minus 25 percent requirement specified in DOE 5480.11, Section 9.q.(2)(a).
 - The DOSAR facility is not currently operating and the DOE is evaluating alternate facilities to perform the DOE-wide NAD test function. However, commercial NAD units are readily available that have passed the performance test, and which would comply with DOE 5480.11.
 - EG&G Idaho calculational methods (algorithms) that permit extrapolation of dose from data need to be unfolded and reassessed in light of the DOSAR performance test results.
 - The personnel nuclear accident dosimeter containing foils also requires testing pursuant to DOE 5480.11, Section 9.q(3). The weight of the sulphur was not measured during the 1985 DOSAR performance test, and the sulphur of the dosimeter configuration has changed with respect to location and geometry within the dosimeter.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.5-1)
(H2/C1)

The Nuclear Accident Dosimetry Program is not in compliance with the performance requirements for fixed and personnel nuclear accident dosimeters specified in DOE 5480.11, Section 9.q.(2) and (3).

- FINDINGS:**
- The counting facility for the NAD system foils is located at the ATR. An incident at the ATR may render the counting facilities useless. No formal fallback plan has been established.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.5-2)
(H2/C2)

Plans for the location of alternate counting facilities for the nuclear accident dosimeter foils have not been developed.

- FINDINGS:**
- Documented floor plans indicating NAD locations, which are needed in the event they must be retrieved following an incident, have not been developed.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.5-3)
(H2/C2)

Documented floor plans indicating the location of nuclear accident dosimeter systems and methods for retrieving them have not been developed.

- FINDINGS:**
- The centralization of the personnel dosimetry function is nonexistent. An integrated dosimetry program, which includes both a routine and a development function that is essential to maintain a quality program, is not apparent. The absence of field application and characterization studies to respond to the site dosimetry needs represents a serious deficiency in the program.
 - The routine processing of the personnel dosimeters used at EG&G Idaho, as well as the other contractors within INEL, was transferred in 1988 from the RESL to the Science and Technology Operational Dosimetry Unit (ODU). Unfortunately, when the program was transferred to EG&G Idaho, the transfer was incomplete. Only the routine program was transferred to EG&G Idaho, while the dosimetry development and field application studies were retained by RESL.
 - There is only one technical individual in the ODU. His time is totally absorbed by responding to the review of anomalies in routine processing results. As a consequence, the time available for technical support and development functions necessary to maintain a quality dosimetry program is at the paucity level.
 - Because of the lack of sufficient technical staff and total emphasis on the routine dosimetry program, the response to request from other INEL contractors for assistance in

special dosimetry problems has to be referred to another offsite contractor.

- The ODU does not have any calibration sources and must rely totally on RESL calibration sources. Reader calibrations required for daily functioning of the dosimetry processing is given priority by RESL. Irradiations necessary for element correction factors and quality control are given semi-priority by RESL. These irradiations impact on the dosimetry program's assessment, investigation, and development abilities. Self-auditing and testing irradiations are performed on an "as can" or low priority basis. Thus, program improvements that depend on these irradiations are limited, delayed, or nonexistent.
- Personnel dosimetry and related procedures, as well as the characterization of site radiation conditions to assure the adequate coverage in the range of exposures and energies and type of radiation anticipated, has not been reviewed at an acceptable frequency. The last review was conducted in 1984.
- Changes in algorithms necessary to correct dosimetry assessment for the intrusion of different radiation conditions are not being included in the badge assessment.
- The manager of ODU did not apply for Department of Energy Laboratory Accreditation Program (DOELAP) accreditation in "Category VA, Beta Particles - General" of DOE/EH-0027, "Department of Energy Standard for the Performance Testing of Personnel Dosimetry Systems." Paragraph 3.2 of the standard requires that personnel dosimeters be tested in this category if the dosimetry program "covers environments with general beta emitters." This type of environment exists in radiological workplaces in EG&G Idaho, as well as those of other INEL contractors serviced by the ODU.
- Paragraph 4.3.3.2 of DOE/EH-0026, "Handbook for the Department of Energy Accreditation Program for Personnel Dosimetry Systems," states that the "technical director of the personnel dosimetry program should be a professional experienced in applied radiation dosimetry." Additionally, the handbook states that this person should "be knowledgeable in the design and operation of the dosimetry system(s) currently utilized" and have the "technical competency to establish any required dosimetry programs." A Technical Director for the ODU program has not been formally designated. The Manager, ODU, who does not have formal training or experience in applied radiation dosimetry, appears to be fulfilling the role of Technical Director.

- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.5-4)
(H2/C1)

The Personnel Dosimetry Program is not in compliance with DOE 5480.15 and DOE 5480.11, Section 9.g.(3).

FINDINGS:

- RESL is the Performance Evaluation Laboratory for DOELAP for Personnel Dosimetry; and is responsible for the accreditation of the ODU Personnel Dosimetry Program.
- Development activities for the implementation of the neutron track etch dosimeter, which is planned for future implementation at INEL, is being performed by RESL. When implemented, the dosimeter will have to be accredited by RESL. Additionally, RESL performs many of the technical support services necessary to sustain the routine program (e.g., measurement of neutron spectra) that they currently must accredit. These activities appear to be a conflict of interest with the DOELAP function.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.5-5)
(H2/C2)

The technical support functions provided by the DOE Idaho Radiological and Environmental Sciences Laboratory to the Routine Dosimetry Processing Program are in conflict with the role of the Radiological and Environmental Sciences Laboratory as the Performance Evaluation Laboratory for the DOE Laboratory Accreditation Program for Personnel Dosimetry.

RP.7 INTERNAL RADIATION DOSIMETRY

PERFORMANCE OBJECTIVE: The Internal Radiation Dosimetry Program should ensure that personnel radiation exposures are accurately determined and recorded.

- FINDINGS:**
- The EG&G Idaho Radiation Controls Manual procedure 3.0, paragraph 3.7, requires that cognizant management develop and document an internal dosimetry and control plan describing the practices and procedures which constitute the internal dose program. This plan is to be consistent with the requirements of DOE 5480.11 and follow the guidance outlined in EG&G-ESQ-8808, "Informal Report on Internal Dosimetry."
 - The informal report referenced above describes the types of workplace and individual worker monitoring programs that should be in place within an organization. Additionally, required action levels and documentation are described, and guidelines are provided for dose assessment and technical bases documents.
 - The "Informal Report on Internal Dosimetry" appears non-prescriptive in that (1) it is an informal report, (2) the information is described as guidance, and (3) many of the program elements are described as "should" rather than "shall."
 - On April 11, 1990, the Director, Operational Safety Division, ID, transmitted a copy of the Office of the Assistant Secretary for ES&H Draft Performance Standard for Internal Dosimetry to the Manager, ES&Q Department to assist in "the implementation and oversight of the internal dosimetry provisions of DOE Order 5480.11" and "so that DOE contractors can begin an appropriate validation of their internal dosimetry programs." The "Draft Performance Standard for Internal Dosimetry" requires the development of a technical bases document for the internal dosimetry program.
 - The ES&Q Department periodically audits the internal dosimetry programs within individual organizations to assure compliance with the Radiological Controls Manual. However, the staff within the ES&Q Department that performs these audits does not have experience or technical training in internal dosimetry.
 - The technical bases for internal dosimetry programs, including the type and frequency of required bioassay programs, are not documented. There is some work in progress, but it is incomplete.

- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.7-1)
(H2/C1)

The technical bases for the EG&G Idaho, Inc. Internal Dosimetry Programs are not well documented, and compliance with DOE 5480.11 Section 9.g.(2) can not be demonstrated.

FINDINGS:

- The process of dose assessment from in vitro bioassay samples is cumbersome. Bioassay samples are sent by the facility to the RESL, which in turn sends the sample to Westinghouse Idaho Nuclear Company (WINCO) for analysis. WINCO performs the analysis and sends the results back to RESL. The analytical results are sent to the cognizant individual who performs an investigation and dose assessment for all positive samples. The dose assessment is sent to the RSRS Unit for validation. Following their validation, the RSRS Unit sends the dose assessment to RESL for additional verification. RESL sends the verified dose assessment to the ODU where the dose is added to an individual's external dose.
- The process of dose assessment from in vivo monitoring results is similar to the above except that the whole-body and lung counting is performed by RESL.
- One extreme example of delay was found in the assessment of a positive fecal sample submitted by a radiation worker at the RWMC in February 1988. Validation of the dose assessment by RESL (the final step in the dose assessment process) was received by RWMC in June 1991.
- The following information was requested from EG&G Idaho for calendar year 1989 and 1990 positive bioassay samples: (1) the date the bioassay sample was submitted, (2) the date the sample was analyzed, (3) the date the facility received the analysis, (4) the date that RESL validated the dose assessment. This information was not readily available and had to be retrieved from several different organizations rather than a single source, such as the ODU where official records of dose assessment are retained. Not all of the information could be provided.
- Audits are not performed by either the ES&Q Department, the RSRS Unit, or ODU to verify that dose assessments have been performed for all positive bioassay samples.
- In 1990, internal dose assessments were not included in the annual report to DOE, as required in DOE 5484.1 (see Concern RP.12-3) or the annual report to radiation workers, as required in DOE 5480.11 (see Concern RP.12-4).

- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.7-2)
(H2/C1)

Internal dose assessments are not consistently performed within a time period necessary to demonstrate compliance with DOE 5480.11, Section 9.b. or to identify internal exposures requiring investigation.

- The RWMC was selected to sample implementation of in vivo and in vitro bioassay programs and the quality of the records. The following was observed:
 - Files were maintained for each individual worker of bioassay results and any dose assessments that had been performed. A log sheet was kept in each folder indicating the required schedule for the bioassay and whether or not the bioassay had been completed as scheduled. These log sheets were not maintained current.
 - Logs were not maintained that would provide such information as to who is required to be included in the facility bioassay program, the purpose of the bioassay (e.g., baseline, routine, special, or termination) the schedule for the bioassay, the date the bioassay was completed, the date that the analytical results of the bioassay were received, bioassay analytical results, and the date a dose assessment was completed (if needed).
 - Required in vivo and in vitro bioassay monitoring was not completed as scheduled. In some cases the bioassay was as much as 2 years overdue. In vitro bioassay scheduling was tied to lung and whole-body counting schedules that were difficult to obtain from RESL due to the demand for RESL lung counting services.
 - Logs were not maintained of the turnaround time for the analysis of bioassay samples.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.7-3)
(H2/C1)

Bioassay program documentation needed to demonstrate compliance with DOE 5480.11, Section 9.g.(2), is incomplete.

RP.8 FIXED AND PORTABLE INSTRUMENTATION

PERFORMANCE OBJECTIVE: Personnel dosimetry and radiological protection instrumentation used to obtain measurements of radioactivity should be calibrated, used, and maintained so that the results are accurately determined.

- FINDINGS:**
- ANSI N323, "Radiation Protection Instrumentation Test and Calibration," is defined as a mandatory standard in DOE 5480.4. This standard recommends that instruments be periodically tested for: (1) range, sensitivity, linearity, detection limit, and response to overload conditions; (2) accuracy and reproducibility; (3) energy dependence; and (4) temperature and pressure dependence. The Health Physics Instrument Laboratory (HPIL) can not perform temperature and pressure dependence tests due to the lack of an environmental chamber. A chamber has been acquired and scheduled for installation.
 - The HPIL does not have equipment to perform tests for static charge, magnetic fields, vibration, or shock/sound vibration. While not explicitly required in ANSI N323, these types of tests are important to the reliability of instrument response.
 - The rooms occupied by HPIL are inadequate for it's function. There are hoods and pipes in the HPIL labeled with "potential contamination" in rooms where calibrations are performed. Warning lights are not hard wired at the entrance to the neutron scatter free room rather they are manually operated. Additionally, the building in which the HPIL facilities are located is over 50 years old and has numerous OSHA violations. Performing additional test functions pursuant to ANSI N323 and ANSI N42.17 would exacerbate the problem since additional space would be required for the equipment.
 - EG&G Idaho has requested replacement calibration facilities. However, ID is reviewing alternate plans including the feasibility of using an offsite contractor for calibration services. Because of the diversity of the operations at INEL, complex radiological conditions requiring, in some cases, special instrumentation and calibration protocols, and the nonroutine nature of the site program, an enhanced onsite calibration facility is essential to the Radiological Safety Program.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: The existing radiation protection instrument calibration facility
(RP.8-1) does not meet the requirements of DOE 5480.11, Section 9.g(3),
(H2/C1) ANSI N323, and accepted industry practice.

- FINDINGS:**
- There are no defined criteria for acceptance testing of fixed radiation protection instruments.
 - The EG&G Idaho Radiological Controls Manual requires that an ad hoc committee be established to review purchase requisitions. However, instruments have been purchased without review by this committee. Formal charters and memberships have not been established for the ad hoc committee.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: Acceptance criteria have not been defined for all types of
(RP.8-2) radiation protection instrumentation and committee review of
(H2/C1) instrument purchases has not been performed pursuant to the requirements of the EG&G Idaho, Inc. Radiological Controls Manual.

- FINDINGS:**
- The HPIL radiation protection instrumentation inventory and control program is manual and only contains information on the identification number and type of instrument.
 - "As found" and other pertinent data that could be used to determine type of instrument performance is not trended.
 - A problem with the Ludlum 61 was identified in the field that could have been determined from records if data were routinely analyzed.
 - A computer has been purchased and is being readied to perform analysis of instrument performance data, but the system is not operational.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: Trend analysis of radiation protection instrument performance is
(RP.8-3) not performed.
(H2/C2)

FINDINGS:

- An Instrument Development Program to enhance the response and quality of radiation protection instruments does not exist at EG&G Idaho.
- The HPIL staff capability is limited to one professional and several technicians. As a consequence, operations are not routinely evaluated to determine the suitability of instruments and their response in field applications.
- Available HPIL facilities, equipment, and personnel will not support a vigorous instrument applied development program (see Concern RP.8-1).
- This concern was not addressed in the EG&G Idaho self-assessment.

**CONCERN:
(RP.8-4)
(H2/C2)**

There is no program to identify problems and improve the response of radiation protection instrumentation to meet the needs of specific applications.

RP.9 AIR MONITORING

PERFORMANCE OBJECTIVE: Air monitoring systems, through selection, location, calibration, and maintenance, should ensure reliable estimates of air activity for radiological control purposes.

- FINDINGS:**
- The current location of the constant air monitors (CAMs) at TAN, ATR, and other facilities are not based on an evaluation of air flow patterns.
 - Air flow studies have been recently performed at some facilities, but the data have not yet been used to locate monitors.
 - CAMs at TAN and ATR did not have calibration stickers which is an accepted industry practice. CAMs in other EG&G Idaho facilities did have calibration stickers.
 - Several deficiencies were noted in the air monitoring program at TAN:
 - Some of the CAMs detecting beta-gamma have a preset alarm of approximately 8 Derived Air Concentration (DAC)-hours. However, the minimum detection level of the equipment is 1 DAC-hour which should be used as the alarm set point (with adjustments for radon) to alert personnel as soon as possible and avoid unnecessary exposure. Although DOE 5480.11 specifies a minimum of 8 DAC-hours, this specification is based on alpha emitters and not beta-gamma. There appears to be confusion on the part of field personnel concerning the alarm set point.
 - The CAM was out of service in the TAN Warm Shop. A requirement for supplementary monitoring was lacking.
 - Neither the TAN standard procedures nor the Company Procedure 10.6 establish action procedures for the two level alarm system of the CAM.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN: The air monitoring program at the Power Reactor Programs
(RP.9-1) Department, Test Area North Hot Shop, and other facilities do not
(H2/C1) satisfy the requirements of DOE 5480.11.

RP.10 RADIATION MONITORING/CONTAMINATION CONTROL

PERFORMANCE OBJECTIVE: The Radiation Monitoring and Contamination Control Program should ensure worker protection from radiation exposures.

- FINDINGS:**
- A Contamination Control Program in place at ATR was not consistent, in some respects, with DOE 5480.11 or the EG&G Idaho Radiological Controls Manual, for example:
 - The concept and application of a three zone system was confusing, inconsistently applied, and not consistent with the Radiological Controls Manual, procedure 4.0.
 - Egress monitors were not located next to Contamination Zones. Shielded monitors or friskers were located approximately 30 to 50 feet away in clean areas. In the event a monitor can not be located by the contaminated area, DOE 5480.11 requires that positive control be maintained from the zone to the egress monitor.
 - Roping or zoning (establishing boundaries) was incorrectly applied, in some cases.
 - Posting used to establish zone control was inconsistently applied.
 - Lack of adherence to DOE 5480.11 and the Radiological Control Manual requirements was observed at the Hot Cell and Material Testing Reactor area. For example, deficiencies included the following:
 - Lack of calibration tagging of critical monitoring systems.
 - Improper labeling of hood areas containing direct radiation sources.
 - Improper posting requirements in certain areas.
 - Lack of correlation between instrument response and contamination limits expressed in dose per minute for the Personnel Contamination Monitor (PCM)-1B.
 - Lack of a source check log book.
 - Contamination control deficiencies observed at TAN included the following:
 - There were no decontamination facilities, including sink and showers, at the exit door to the Hot Shop.

Contaminated personnel must pass through clean areas to access appropriate cleaning facilities.

- There were no CAMs in the labyrinth of the hot cell where Anti-C Clothing was removed or on the buffer area side of the exit door.
- Specific procedures were not available and implemented detailing actions to be taken by workers found to be contaminated.
- Two rooms in PBF (sublevel) were posted as High Radiation Areas (500 millirem per hour) and High Contamination Area (approximately 10^6 d/m/100 cm²). The last survey was performed May 7, 1985, and the rooms have been secured from that date. TSA performance criteria state that such areas shall be decontaminated as soon as possible to minimize contamination spread.
- Routine surveillance records are generally comprehensive and complete. However, in some cases, the information recorded for contamination surveys was incomplete. For example, in the case of high level contamination at the PBF, the action log signed by the PBF supervisor does not contain the entry of the action taken to institute controls. Similar lack of information was noted in the ATR logs. In the Excess Facility, surveys of buses were recorded in the Health Physics Log without an indication of the results.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.10-1)
(H2/C1)

Contamination control practices are not in compliance with the requirements of DOE 5480.11, the EG&G Idaho, Inc. Radiological Controls Manual, or accepted industry practice.

FINDINGS:

- There is no understanding by the Power Reactor Programs Department or WERF Health Physics Technicians of the response characteristic of the PCM-1B in terms of response relative to contamination limits. The PCM-1B is a critical part of the egress monitoring system, which detects and controls contamination from being tracked out of the building.
- A 2.3 millicurie Cassium-137 source is not always being used without fixing the geometry of the source check to simulate body distance to the detectors.
- This concern was not identified in the EG&G Idaho self-assessment.

CONCERN: There is a lack of Health Physics Technician training on the use of the Personnel Contamination Monitor 1-B.
(RP.10-2)
(H2/C2)

FINDINGS:

- Workers were not always aware of the purpose of the PCM-1B and the appropriate procedures to follow if the instrument alarms.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: There is a lack of worker training on the use of the Personnel Contamination Monitor 1-B.
(RP.10-3)
(H2/C2)

FINDINGS:

- Certain company clothing is used at the Subsurface Disposal Area and monitored using the PCM-1B and frisker before a worker is permitted to wear the clothing offsite.
- Monitoring control for alpha clothing contamination at RWMC is state-of-art. However, monitoring for alpha contamination cannot be assured because the PCM-1B monitors only the arms and shoes for alpha contamination and the use of portable alpha monitor is too dependent on human factors, i.e., moving the probe 4 cm²/second to obtain optimum counts for alpha.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: Clothing worn in the Subsurface Disposal Area at the Radioactive Waste Management Complex, where there is a potential for contamination, is allowed to be worn outside the area requiring its use.
(RP.10-4)
(H2/C2)

FINDINGS:

- Appendix A of the OSRs for the Central Laundry and Respirator Facility (CLRF) has as an operating limit an acceptance criteria for laundry that states that clothing with detectable alpha contamination will not be accepted.
- The CLRF relies on the contractor sending the laundry to certify that the laundry is not alpha contaminated.
- A letter dated April 29, 1991, from the Manager, Operation Health Physics, WINCO, to the Manager, Support Services EG&G Idaho states that "The contaminated clothing and respirators sent to the CLRF have a potential of being contaminated with alpha as well as beta-gamma radiation." The letter indicates that although tyvek disposable coveralls were worn over cloth coveralls in contaminated areas, a survey of two pairs of rejected coveralls from

CLRF shows excessive alpha and beta-gamma contamination remaining after two washings. The attached survey sheets indicated alpha contamination ranging from 200 to 1,000 counts per minute. WINCO has since discontinued sending hot laundry to the CLRF.

- Argonne National Laboratory-West (ANL-W) sends laundry to the CLRF from areas where there is a potential for alpha contaminated laundry. ANL-W does not monitor clothing for alpha contamination prior to shipment to CLRF.
- When laundry is received at the CLRF, the exterior of the bag is surveyed to verify that it does not exceed the dose rate acceptance criteria, but monitoring for alpha contamination is not performed. The automated laundry monitors used after the clothing is washed detects only beta-gamma radiation.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.10-5)
(H2/C1)

The Central Laundry and Respirator Facility can not demonstrate that it has stayed within its alpha contamination operating limit for the acceptance of laundry at the facility.

RP.12 RECORDS

PERFORMANCE OBJECTIVE: Records related to occupational radiation exposure should be maintained in a manner that permits easy retrievability, allows trend analysis, and aids in the protection of an individual and control of radiation exposure.

- FINDINGS:**
- Maintenance of the INEL occupational exposure records was transferred from the RESL in 1988.
 - The requirements for occupational exposure records in the EG&G Idaho Radiological Controls Manual are consistent with the requirements of DOE 5480.11 and DOE 1324.2A.
 - The quality of the historical occupational exposure records ranges from handwritten in pencil on plain paper to records legibly recorded on standard forms in ink or using computer generated data.
 - Although the records of individual occupational exposures histories are not readily retrievable, the histories can be obtained from the ODU (i.e., manual retrieval from record storage sites). Information prior to 1986 must be retrieved from a combination of microfiche, notebooks, and individuals files. Information from 1986 forward is readily retrievable from computer record systems. Documented procedures for retrieval of occupational exposure histories are maintained.
 - The results of in vivo and in vitro bioassay are maintained. However, the results of the bioassay are not included in an individual's file unless a dose assessment was made from a positive result. The individual's file does not indicate that negative bioassay results are available.
 - Random samples of the available occupational exposure records were reviewed. In the case of the bioassay data, file number SMC C2700-C2799 computers records were found for the period of March 7-13, 1990, which indicated that the samples received for analysis during that period were counted on January 1, 1980, and the computer printout was prepared on March 27, 1990. These records had been verified by two separate individuals. The first was a signature indicating they had been "electronically approved" and the second was an initial on the report that they had been "checked and verified" on February 27, 1991.
 - Records of dose estimates from special studies and unusual exposures are not maintained in an individuals's occupational exposure history pursuant to ANSI N13.6,

paragraphs 4.7.3 and 4.9, as required in DOE 5480.11, Section 9.m.(2)(d).

- Occupational exposure records are not maintained, in all cases, in fire retardant storage as required by ASME NQA-1-1989. For example, the original (and in some cases the only) copy of internal dose assessments were maintained in a regular file cabinet in the office of the individual responsible for their maintenance. The single copy of the original historical records of extremity dosimetry are maintained in a three-ring notebook on the desk of the individual who prepares responses to requests for occupational exposures histories. ODU management is aware of this issue and is studying ways to resolve the problem.
- The ODU relies totally on EG&G Idaho facility management or management of the other INEL contractors to provide the appropriate records for the occupational exposure histories. Audit mechanisms are not in place to verify that such items as previous occupational exposure histories, exposures of employees who travel to other sites, and internal dose assessments are included in the files.
- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.12-1)
(H2/C1)

Maintenance and retention of occupational exposure records is not in compliance with ASME NQA-1-1989 and DOE 5480.11, Section 9.m.

FINDINGS:

- Records of programs to determine individual exposures pursuant to DOE 5480.11, Section 9.m.(2)(d) and records of monitoring methods pursuant to DOE 5480.11, Section 9.m.(4) are incomplete for the internal dosimetry program. (See Concerns RP.7-1 and RP.7-3.)
- Pursuant to the requirements of DOE 5480.11, Section 9.m.(4), not all of the historical records necessary to support internal dose assessments are maintained.
- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(RP.12-2)
(H2/C1)

Records of the Internal Dosimetry Program are not in compliance with DOE 5480.11.

FINDINGS:

- DOE 5484.1, Section 4.a. requires than an annual report of radiation exposures be submitted by March 31 for the preceding calendar year for monitored DOE contractor

employees and visitors to DOE contractor facilities. This report requires that the effective dose equivalent, which is the sum of external and external effective dose equivalents, and the effective dose equivalent from internal exposures be reported.

- Internal dose assessments were not submitted to ODU by February 15, 1991, for Calendar Year 1990, as required by the Radiological Controls Manual. As the data was not submitted by February 15, ODU management decided to submit the reports required by DOE 5484.1 without the required information for internal exposures.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: Occupational exposure reports are not in compliance with
(RP.12-3) DOE 5484.1 for Calendar Year 1990.
(H2/C1)

- FINDINGS:**
- DOE 5480.11, Section 9.n., requires that a summary of annual, cumulative, and committed effective dose equivalents be provided to each radiation worker on an annual basis.
 - In Calendar Year 1990, the internal exposure was not added to the external exposure to obtain the effective dose equivalent as required in DOE 5480.11, Sections 9.b. and 9.f.(1) (see Concern RP.12-1).
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: Reports of occupational exposure to radiation workers are not in
(RP.12-4) compliance with DOE 5480.11, Section 9.n. for Calendar Year 1990.
(H2/C1)

4.5.1.15 Personnel Protection

4.5.1.15.1 Overview

In performing this appraisal, each of the five performance objectives in the Personnel Protection technical area were addressed. Concerns have been identified in three of the five performance objectives. The appraisal was performed by means of interviews with the professional health and safety staff, interviews with facility supervisors and managers, review of program documentation, and walkthroughs of representative EG&G Idaho operated facilities both at the INEL site and within Idaho Falls. Findings and concerns expressed in the Worker Safety Section were also considered in preparing this portion of the report.

In some areas, the health and safety performance of EG&G Idaho was determined to be good. However, substantial improvement is needed in other areas. Laser safety at EG&G Idaho was determined to be seriously deficient both in terms of compliance with mandatory standards and with respect to personnel safety. A Category II concern is included in the report that addresses this situation. Concerns are presented in other areas including laboratory safety, carcinogen control, personal protective equipment, pressure safety, and organization and administration.

Functions where performance was considered good included the company Professional Certification Program, the Industrial Truck (forklift) Preventative Maintenance Program, elimination of hazardous chemicals from the workplace, ladders (both fixed and portable), and testing of respirators. EG&G Idaho has developed a Health and Safety Requirements Training Program for supervisors and managers, which could serve as a model for other DOE contractors. EG&G Idaho has also chosen to include floor lifts, hydraulic jacks, and similar equipment in their Periodic Testing Program similar to that for their hoisting and rigging equipment. The Nonsupervisory Employee Inspection Program in the INEL Supercomputing Center was identified as a Noteworthy Practice.

EG&G Idaho has also established an effective industrial hygiene chemical monitoring program. This program utilizes a job hazard analysis system, which consists of a baseline exposure determination, a quantitative estimate of chemical usage, a determination of potential exposure levels, and a scoring system to rank operations in terms of sampling priorities. All of the EG&G Idaho facilities visited where chemicals were used had completed these job hazard analyses although they had not been kept current in one area.

Organizationally, EG&G Idaho is divided into 13 individual departments that function separately in terms of compliance with health and safety requirements. Each department is required to develop and implement a Health and Safety Program consistent with EG&G Idaho guidelines. As a means of accomplishing this, most departments have hired or intend to hire their own professional health and safety staff. These departments may develop their own safety manual as a part of their program and frequently choose to do so. The requirement to have a departmental manual is optional and not uniformly implemented within EG&G Idaho.

This structure introduces both advantages and disadvantages into the Health and Safety Program. The advantages are that it provides for more health and safety professionals, it gets these personnel closer to where the work is performed, and facilitates communication between the line organizations and health and safety professionals. The disadvantages are that the program is more difficult to audit, additional levels of documentation are required, and communication between the health and safety professional staff is reduced. There is also an opportunity for safety decisions made by the professional health and safety staff to be overruled by department management. EG&G Idaho management apparently believes that the advantages outweigh the disadvantages.

The EG&G Idaho self-assessment process was very disassociated in that there was not a single self-assessment document. The self-assessment was comprised of fragmented audits, surveillances, and appraisals performed by and for various parts of the Health and Safety Program. Consequently, EG&G Idaho had difficulty in demonstrating that a self-assessment had been performed.

In reviewing the status of health and safety concerns from previous TSAs, it was determined that there were no open concerns relating to this portion of the appraisal.

4.5.1.15.2 Findings and Concerns

PP.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Site and facility organization and administration should ensure effective implementation of the Personnel Protection Program.

- FINDINGS:**
- Organizationally, field safety and industrial hygiene personnel report to line organization departments.
 - With one exception, field safety and industrial hygiene personnel reporting to line departments do not report to the Department Manager. Frequently, they report only to the unit level; there is not an established protocol defining the level of the field safety professional.
 - Laser Safety Officers report to line supervisors within individual departments and not to the Department Manager.
 - See Concerns FR.4-3 and MA.1-1.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(PP.1-1)
(H3/C2)

Formalized management guidance defining the administrative responsibilities and authorities of safety professionals in line organizations has not been prepared.

PP.2 PROCEDURES AND DOCUMENTATION

PERFORMANCE OBJECTIVE: Procedures and documentation should provide appropriate direction, record generation, and support for the Personnel Protection Program.

- FINDINGS:**
- The Laboratory Safety Program and Chemical Hygiene Plans reviewed did not address all requirements of 29 CFR 1910.1450. Examples of deficiencies identified included:
 - Absence of requirements on how select carcinogens are to be controlled.
 - Absence of guidelines for the establishment of "Designated Areas."
 - Requirements for medical consultation or surveillance were not addressed.
 - There were no guidelines for identification and handling for chemicals considered to be acutely toxic.
 - There were no provisions documented in the Chemical Hygiene Plans reviewed for informing employees of the permissible exposure limits for chemicals handled.
 - Departmental chemical hygiene plans do not receive an independent technical review.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: The EG&G Idaho, Inc. program addressing Occupational Exposure to Hazardous Chemicals in Laboratories does not meet the requirements of 29 CFR 1910.1450.
(PP.2-1)
(H2/C1)

- FINDINGS:**
- Chemicals containing formaldehyde, lead chromate, and methylene chloride were observed that were not labeled as carcinogens.
 - Supervisors in one facility visited were unaware that certain materials present contained lead chromate and methylene chloride or that they were considered by the DOE to be regulated carcinogens.
 - EG&G Idaho has not established either permanent or temporary regulated areas for handling of DOE regulated carcinogens, even though some completed job hazard analyses indicate that there was a potential for significant exposure to personnel.

- DOE regulated carcinogens were used in some EG&G Idaho occupied areas where job hazard analyses had not been performed to determine whether the potential for significant exposures existed.
- Records were not being kept of personnel working with DOE regulated carcinogens.
- Departmental and unit level procedures observed did not address how designated carcinogen control procedures were to be implemented.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(PP.2-2)
(H2/C1)

Procedures and practices for the use of carcinogens in other than laboratory areas do not fulfill the requirements of DOE 5480.10 or the EG&G Idaho, Inc. Carcinogen Control Program.

FINDINGS:

- The nominal hazard zone was inappropriately determined for some Class 4 laser installations visited.
- Although control switches were provided, there were no clearly marked "panic buttons" in EG&G Idaho laser areas, as required by ANSI Z136.1-1986, which could be used to shutdown laser systems in the event of an accident or emergency.
- Entryways into Class 4 laser areas (those considered by ANSI Z136.1-1986 to be the most hazardous) were not controlled with interlocks.
- Laser warning lights were not present in some Class 4 laser areas.
- The Laser Safety Officers (LSOs) at the INEL Research Center (IRC) were scientists working in laser laboratories and there was no documented procedure for how alternates function. A similar situation was noted for the May Street North facility.
- Annual reviews of laser installations were not performed by the LSOs, as required by ANSI Z136.1-1986. Reviews were performed by the departmental Industrial Hygienist.
- In the May Street North facility, a laser welder was being used in a manner that presented a serious hazard to the operator's hands.
- Operating procedures for the lasers observed during the appraisal were not specific to individual laser

applications and there was no documentation that setups were approved by the LSOs.

- LSOs at the IRC did not know who was assigned as the Laser Safety Cognizant and Professional.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(PP.2-3)
(H1/C1)
CAT. II

The Laser Safety Program developed and implemented by EG&G Idaho, Inc. does not satisfy the requirements of ANSI Z136.1-1986 or ensure that basic principles of personnel protection will be observed.

FINDINGS:

- High pressure gas lines were observed in the Environmental Chemistry Laboratory, which had been connected in a manner which could have caused a serious injury in the event a single valve (not locked or tagged) had been operated.
- EG&G Idaho does not have a Pressure Safety Committee.
- Over 50 gas cylinders were observed that had out-of-date hydrostatic pressure stamps. Some cylinders were in service, while others had been recently collected during an out-of-date cylinder sweep.
- Copper and steel wire was observed in common service as hose clamps.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(PP.2-4)
(H2/C2)

The EG&G Idaho, Inc. pressure safety program has not been effective in controlling pressure safety related hazards.

FINDINGS:

- There are as many as five levels of health and safety documentation containing safety requirements applicable to a specific activity.
- Most departments within EG&G Idaho have their own safety and industrial hygiene manual requirements in addition to those published by the ES&Q Department.
- There is no continuity in documentation applicable to safety and industrial hygiene functions. For some requirements there are five levels of documentation, but for others, there may be only one.

- There are no means for individual employees or researchers to know that level of documentation is the lowest available or if lower level documents reflect all the requirements of the upper level documents.
- Authorities and responsibilities for health and safety are not clearly defined in Health and Safety Program documents.
- Some industrial hygiene disciplinary requirements (Laser Safety, Sanitation, and Biological Hazards) are addressed in the EG&G Idaho Safety Manual, as well as in the EG&G Idaho Industrial Hygiene Manual.
- Safety and Industrial Hygiene Program documentation at the departmental level and below does not receive a technical review.
- Implementing documentation for control of industrial hygiene and safety hazards was not uniform among the departments. Some departments had departmental safety and industrial hygiene manuals and others did not. EG&G Idaho considers the preparation of departmental Health and Safety Program documents to be optional.
- This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN:
(PP.2-5)
(H3/C2)

Health and Safety Program requirements are ineffectively organized, inconsistently translated into lower tier documents, and no means exist to ensure that employees can know they are using a current and complete compilation of health and safety requirements.

FINDINGS:

- EG&G Idaho uses the services of American Recycling on a subcontract basis to provide recycling services, including preplaced recycling bins throughout Idaho Falls for the collection of paper, plastics, and aluminum.
- Recycling bins located outside the Willow Creek Facility presented hazards to EG&G Idaho personnel, including:
 - Corners that were not rounded,
 - Burrs and sharp edges, and
 - There were no provisions such as springs, counterweights, or other means to facilitate safely holding the cover open while recyclable materials are placed in the bins.

- Although this situation has existed for a number of months, it had not been identified by, or indicated to the departmental Safety Engineer.
- See Concern OA.1-3.
- This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(PP.2-6)
(H1/C1)

EG&G Idaho, Inc. has not established health and safety requirements for service subcontractors, as required by DOE 5483.1A.

PP.4 SURVEILLANCE OF HEALTH AND SAFETY CONCERNS

PERFORMANCE OBJECTIVE: Appropriate surveillance of activities should be conducted to measure safety and health performance and ensure the continued effectiveness of controls.

- FINDINGS:**
- Inspection practices for cranes and hoists were inconsistent between facilities. Each department set their own guidelines for its frequency of inspections, including not performing frequent inspections at all in one location.
 - For facilities visited during the appraisal, monthly inspections of ropes and chains were incomplete and improperly performed.
 - Signed and dated certifications of monthly rope and chain inspections were not being prepared in accordance with the requirements of 29 CFR 1910.179.
 - See Concerns TC.4-2, OP.2-2, and MA.3-2.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: "Frequent" inspection of hoisting and rigging equipment was not being performed in accordance with 29 CFR 1910.179.
(PP.4-1)
(H2/C1)

- FINDINGS:**
- Laboratory and shop areas were observed within different EG&G Idaho departments where signage required safety eyewear but not side shields. Activities observed where side shield protection was not used included machining, grinding, and sawing activities in laboratory and shop areas.

CONCERN: See Concern WS.3-1.

4.5.1.16 Worker Safety and Health (OSHA) Compliance

4.5.1.16.1 Overview

All performance objectives for the Worker Safety and Health (OSHA) Compliance technical area were evaluated except for WS.1 and WS.2, which are personnel protection issues. A comprehensive safety and health appraisal covering general industry was conducted to determine compliance with existing OSHA regulations, as adopted by DOE Orders. Noncompliances and hazards were documented and discussed with management at the end of each day. Repeated noncompliance with the same standard in an operational area was only noted once on the inspection report form (Appendix F).

The areas selected for inspection were those areas with the greatest concentration of employee occupancy or highest potential for employee injury or illness. Facilities satisfying one or more of these criteria are the maintenance shops, laboratories, and reactor areas. These facilities included a large fraction of the nonoffice workplaces and many of the more hazardous workplaces. A less comprehensive sample of office spaces and other low-hazard areas was also inspected.

During the S&H Subteam assessment, the Team primarily looked for serious noncompliance issues; therefore, the report contains a higher percentage of serious versus other-than-serious noncompliance issues. (NOTE: Serious and other-than-serious are OSHA classifications that are formally defined in the OSHA Field Operations Manual.) Also, there were two willful citations. (Willful classification is also defined in the OSHA Field Operations Manual.)

A total of 240 noncompliance issues were identified. Of these, 2 were considered willful, 225 were considered serious, and 13 were classified as other-than-serious. Table 4.5.1 WS-1 provides a summary of the buildings inspected, the number of noncompliance issues noted, and the OSHA violation classification of each. Appendix F is a tabulation, by operational area, of all noncompliance with OSHA regulations and standards. Collectively, the findings indicate deficiencies in the following areas: (See Figure 4.5.1-1.)

- Machine Guarding & Hand Tools (CAT.II);
- Fall Protection;
- Electrical;
- Hazard communication, such as MSDSs, labeling of containers, and use of hazard warnings;
- Machine guarding;
- Chemical Hygiene Plan;

TABLE 4.5.1 WS-1
BUILDING NONCOMPLIANCE SUMMARY

<u>BUILDING</u>	<u>CLASSIFICATION</u>		
	Serious	Other-Than-Serious	Willful
TEST REACTOR AREA (TRA)			
TRA-604	4	0	0
TRA-607	5	0	0
TRA-614	1	0	0
TRA-619	1	0	0
TRA-621	1	0	0
TRA-625	9	1	0
TRA-632	1	0	0
TRA-653	26	1	0
TRA-662	6	1	0
TRA-668	4	0	0
TRA-670	6	3	0
TRA-671	1	0	0
TEST AREA NORTH (TAN)			
TAN-603	16	0	0
TAN-604	23	0	0
TAN-636	7	0	0
TAN-647	1	0	0
TAN-653	7	0	0
TAN-667	10	0	0

TABLE 4.5.1 WS-1 - Continued
BUILDING NONCOMPLIANCE SUMMARY

<u>BUILDING</u>	<u>CLASSIFICATION</u>		
	Serious	Other-Than-Serious	Willful
POWER BURST FACILITY			
PBF-620	1	0	0
WASTE ENGINEERING DEVELOPMENT FACILITY (WERF)			
PBF-635	0	1	0
CENTRAL FACILITIES AREA			
CF-601	2	0	0
CF-603	2	1	0
CF-605	1	0	0
CF-617	1	0	0
CF-621	4	1	0
CF-622	11	0	0
CF-623	7	0	0
CF-625A	6	0	0
CF-627	3	0	0
CF-633	7	1	0
CF-656	2	0	0
CF-662	4	0	0
CF-664	2	0	0
CF-665	9	0	0
CF-686	4	0	0
CF-758	3	0	0

Table 4.5.1 WS-1 - Continued
BUILDING NONCOMPLIANCE SUMMARY

<u>BUILDING</u>	<u>CLASSIFICATION</u>		
	Serious	Other-Than-Serious	Willful
RADIOACTIVE WASTE MANAGEMENT COMPLEX			
WMF-602	2	0	0
WMF-603	0	1	0
WMF-617	1	0	0
IDAHO FALLS			
IF-603	0	2	0
MAY STREET (NORTH)	9	0	0
MAY STREET (SOUTH)	7	0	2
VEHICLE REPAIR COMPOUND	2	0	0
SMC-BLDG. 676	1	0	0
SITEWIDE	1	0	0

INEL/EG&G WORKER SAFETY VIOLATIONS OSHA 29 CFR 1910 & 1926 STANDARDS

OTHERS: LESS THAN 2.0% OF TOTAL VIOLATIONS

- Bloodborne Disease and Infection Control Program implementation and completeness; and
- Personal protective equipment;

EG&G Idaho has several programs, although they may not be unique within the DOE family, that should be highlighted as effective programs and a step toward excellence. One program deals with egress in the case of emergencies. Instead of posting an evacuation plan on a wall they have stenciled the routes that should be followed on the aisleways. This will permit an orderly egress from anywhere in the facility. The second program deals with the inspection of all hand tools. Hand tools are inspected every 6 months and this inspection activity is tracked by color coding the equipment. If the tool has a different color tape or sticker than is designated for that 6-month period, it is removed from service. The Vehicle Maintenance Shop personnel, even though they have a few deficiencies in their Hazard Communication Program, have done a very good job of labeling secondary containers of chemicals. When a chemical is received, the material safety data sheet is immediately placed in a notebook and several labels are printed for that chemical and placed with the data sheet at that time. When employees need that chemical, they go to the notebook, review the information, and take a label for the secondary container. In that manner, there are no chemicals at the worksite that are not properly identified. EG&G Idaho is also developing a data base that permits access by personnel in the different areas when they have questions on chemicals. The data base indicates whether or not a job or chemicals has been sampled for exposure and what the exposure history might be for a chemical or job.

4.5.1.16.2 Findings and Concerns

WS.3 COMPLIANCE WITH OCCUPATIONAL HEALTH STANDARDS FOR GENERAL INDUSTRY

PERFORMANCE OBJECTIVE: Site/facility operations should comply with DOE-prescribed standards for the application and control of occupational health hazards.

NOTE: Noncompliances with this performance objective will be documented utilizing the OSHA Form 1B format. A compilation of these completed forms will be provided as an Appendix to the Tiger Team Assessment Report, and to the TSA.

- FINDINGS:**
- Respirators were improperly stored.
 - Hard hats and safety shoes were not worn in areas where required (see Findings for Concern TC.4-1).
 - Proper protective eyewear was not being used while working with chemicals.
 - Employees were not provided with personal flotation devices at the ATR canal.
 - Proper gloves were not available for the variety of chemicals that were used.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart I, Personal Protective Equipment.
(WS.3-1)
(H2/C1)

WS.4 COMPLIANCE WITH OCCUPATIONAL SAFETY STANDARDS FOR GENERAL INDUSTRY

PERFORMANCE OBJECTIVE: Workplaces should be free of uncontrolled physical hazards and be in compliance with DOE-prescribed occupational safety standards.

NOTE: Noncompliances with this performance objective will be documented utilizing the OSHA Form 1B format. A compilation of these completed forms will be provided as an Appendix to the Tiger Team Assessment Report, and to the TSA.

- FINDINGS:**
- The number of emergency lights and exit signs were inadequate in some of the buildings inspected.
 - Emergency lights were poorly maintained.
 - See Concern FP.2-1 and MA.3-1.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart E, Means of Egress.
(WS.4-1)
(H2/C1)

- FINDINGS:**
- There were portable eyewash bottles, 32 ounces, which give an inadequate supply of water to deluge the eyes.
 - The eyewash solution was not changed regularly.
 - Some showers and eyewashes were blocked.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart K, Medical and First Aid.
(WS.4-2)
(H2/C1)

- FINDINGS:**
- The roller mill (Fenn) at the May Street facility was not guarded. In an interview with plant management the appraiser was told that they could not operate with a guard. This indicated that they knew the mill could be guarded, but it was not guarded because of interference with the operation. This is considered a serious violation and met the criteria for a "willful" violation of OSHA standards. Immediate action was taken to correct the hazard.
 - Hand tools are used to insert piece work into the roller mill. Machine guarding at the point of operation was not provided.

- This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(WS.4-3)
(H1/C1)
CAT.II

EG&G Idaho, Inc. does not comply with 29 CFR 1910.212 (a)(1), Point of Operation or 29 CFR 1910.212 (a)(3)(iii), Hand Tool Usage.

FINDINGS:

- Guarding was inadequate on some machinery with rotating parts or ingoing nip points.
- Many pieces of equipment had not been provided with anti-restart devices.
- Chip guards had not been provided on compressed air lines used for cleaning equipment.
- Brake monitors were not provided on power presses.
- Open circuit control boxes, energized with 440-volt, 3-phase power were not locked-out or tagged-out.
- This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(WS.4-4)
(H2/C1)

EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart O, Machinery and Machine Guarding, or 29 CFR 1910, Subpart P, Hand and Portable Powered Tools and Other Equipment.

FINDINGS:

- Some electrical disconnects were not labeled as to their purpose.
- The path-to-ground on some pieces of machinery or equipment was not permanent and continuous.
- Many cords on electrical equipment and machinery were frayed.
- There were many instances where temporary wiring was used in place of permanent wiring.
- Some outlets were found with hot-to-neutral wires reversed.
- Unused openings in some breaker boxes and outlet boxes were not covered.
- Ground fault circuit interrupters were not provided as required.
- This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart S, Electrical.
(WS.4-5)
(H2/C1)

- FINDINGS:**
- Load ratings on the floors were not posted in some areas.
 - Aisleways were not kept clear.
 - Toeboards were too high above the floor.
 - Standard guardrails with toeboards were not installed around the perimeter of the ATR canal. This was identified previously as a noncompliance issue by an internal audit for fall protection on the ATR Canal. In addition, employees were not provided with personal flotation devices for the ATR Canal.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart D, Walking-Working Surfaces or 29 CFR 1910, Subpart E, Personal Protective Equipment.
(WS.4-6)
(H2/C1)

- FINDINGS:**
- There was no sprinkler protection system downstream from the dry filtering system for a spray paint booth.
 - Bulk and secondary containers were not grounded or bonded.
 - This concern was partially addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart H, Hazardous Materials.
(WS.4-7)
(H2/C1)

- FINDINGS:**
- Personnel were not qualified in hoisting and rigging (see Findings for Concern TC.4-2).
 - Worn and frayed synthetic slings were not removed from service.
 - A lead shield was improperly rigged causing an abnormal amount of stress on the synthetic sling.
 - See Concern TC.4-2, PP.4-1, and MA.3-2.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(WS.4-8)
(H2/C1)

**EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart N,
Materials Handling and Storage.**

WS.5 COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR CONSTRUCTION INDUSTRY

PERFORMANCE OBJECTIVE: Construction activities should be free of uncontrolled physical and health hazards and should be in compliance with DOE-prescribed occupational safety and health standards relating to construction.

NOTE: Noncompliances with this performance objective will be documented utilizing the OSHA Form 1B format. A compilation of these completed forms will be provided as an Appendix to the Tiger Team Assessment Report, and to the TSA.

FINDINGS:

- Employees required to operate bucket trucks were not adequately trained in emergency procedures for bucket override from the lower console control.
- The lower console control markings were illegible.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. does not comply with 29 CFR 1926.21, Subpart B, (WS.5-1) General Interpretations and 29 CFR 1926.556, Subpart N, Cranes, (H2/C1) Derricks, Hoist, Elevators, and Conveyors.

WS.6 PERSONNEL COMMUNICATION PROGRAM

PERFORMANCE OBJECTIVE: Site/facility personnel should be adequately informed of chemical, physical, and biological stresses that may be encountered in their work environment.

NOTE: Noncompliances with this performance objective will be documented utilizing the OSHA Form 1B format. A compilation of these completed forms will be provided as an Appendix to the Tiger Team Assessment Report, and to the TSA.

- FINDINGS:**
- Some hazardous chemicals were not properly labeled.
 - Hazard warnings were not provided on all containers of hazardous chemicals.
 - MSDSs were not always readily accessible or available in areas containing hazardous chemicals.
 - See Concern OP.2-1.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. does not comply with 29 CFR 1910.1200,
(WS.6-1) Subpart Z, Toxic and Hazardous Substances.
(H2/C1)

- FINDINGS:**
- The Bloodborne Pathogen Program was incomplete and not fully implemented.
 - An Infection Control Plan had not been implemented. Subsequent to the appraisal (July 1991), a plan has been prepared.
 - Linens contaminated with blood were not place in impermeable bags or properly labeled as a biohazard.
 - Proper personal protective equipment was not provided to laundry workers to prevent exposure to bloodborne pathogens.
 - Some of the medical staff were not properly instructed in all aspects of the Bloodborne Pathogen Program.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart J,
(WS.6-2) General Environmental Controls, or Section 5(a)(1) of the
(H2/C1) Occupational Safety and Health Act, "General Duty Clause."

4.5.1.17 Fire Protection

4.5.1.17.1 Overview

The seven performance objectives in the Fire Protection technical area were addressed in this appraisal. The appraisal was conducted by means of interviews with EG&G Idaho fire protection engineering and technical support staff, facility managers and administrators, ID fire protection staff, and personnel from the ID Fire Department. The appraisal also consisted of reviews of previous appraisals, audits, and assessments; company and departmental policies, programs, and requirements; as well as physical inspections of selected facilities in all INEL areas occupied by EG&G Idaho personnel and the ID Fire Department.

DOE Orders, EG&G Idaho Safety Manual, National Fire Protection Association (NFPA) and other fire protection requirements are not being fully implemented by the various departments within EG&G Idaho. EG&G Idaho policy mandates line management responsibility for the development, maintenance, and implementation of written programs to comply with DOE "improved risk" criteria. The individual departments are at various stages of compliance to these requirements. The Power Reactor Programs Department and the Waste Management Department are currently implementing a very sound programs. The Fire Protection Programs in the other EG&G Idaho line organizations are well below standards.

The ID Fire Department provides fire suppression and other emergency response function for the INEL site. The ID Fire Department is staffed by 51 personnel. Excluding the Fire Chief and other officers, only 40 fire fighters are available to perform fire suppression duties on rotating shifts. The current staffing levels at the three fire stations do not provide for an effective response to operate existing apparatus or to safely respond to a second emergency situation.

A followup review was performed on the fire protection concerns identified in the previous TSAs conducted at the ATR. By letter, N.S. Burrell, Director, Reactor Research and Technology Division, ID, to F.C. Fogarty, Manager, Power Reactor Programs, EG&G Idaho, Inc., dated June 11, 1991, ID indicated that all fire protection concerns were closed. However, this followup found two specific fire protection concerns that should not have been closed. These include Concern FP.1-1 (Life Safety Code compliance) and Concern FP.5-7 (fire separation enclosure for Loop Data and Loop Control computer areas). The actions remaining to be accomplished under these previous concerns are inclusive of actions required by concerns contained in this appraisal report. Therefore, appropriate corrective action on the fire protection concerns in this report will effect appropriate corrective actions remaining with respect to the older concerns.

The EG&G Idaho fire protection organization and administration is defined in general terms in the EG&G Idaho Resource Manual and the EG&G Idaho Safety Manual. Specific program requirements and implementation are the responsibility of the numerous line organizations, with independent overview provided by the ES&Q Department. The required departmental programs are at

various stages of compliance and overview activities are not at the level specified in DOE Orders. Some of the written program requirements are not facility or department specific and could be written and maintained as company-wide requirements by the ES&Q Department. Many unfunded and unscheduled physical deficiencies exist in facilities.

Although detailed program requirements are not fully in place, most facilities and operations onsite provide an adequate level of life safety features. However, numerous violations of the Life Safety Code were noted. Nearly all of the noted deficiencies have been identified by the EG&G Idaho fire protection staff and are on a list for potential project action. Some of these deficiencies are minor technical violations and would not significantly increase the potential risk to personnel. Although these items are currently on a formal fire protection deficiency list, formal corrective action plans or exemption requests are not in place.

EG&G Idaho fire protection staff has done an excellent job in the identification of physical deficiencies in their facilities. This is especially true for the Power Reactor Programs Department and Waste Management Department facilities. However, formal Fire Hazards Analysis and maximum credible fire loss evaluations have not been completed for all facilities external to the PRP and WM Departments. There currently exists some fire loss potential above DOE limits at the ATR and at the RWMC.

Not all elements of an Improved Risk Fire Protection Program have been incorporated at the company or department level. Deficiencies have been identified in the fire protection design review program, the water supply and distribution systems at most of the site areas, the protection of special hazards, the provision of required automatic sprinkler protection, the inspection and testing programs for fire systems, fire brigade training and interfaces, and the independent audit and appraisal process.

The Life Safety System Unit is responsible for inspection and testing of electrical fire protection equipment and has a well established and documented program that implements the EG&G Idaho Safety Manual requirements for fire alarm equipment testing in an outstanding manner. Implementation of the remainder of the fire protection system testing requirements is not complete or is not verifiable. Additionally, some NFPA testing requirements are not reflected in the Safety Manual.

4.5.1.17.2 Findings and Concerns

FP.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Fire Protection organization and administration should ensure the effective implementation and control of fire protection equipment and activities.

- FINDINGS:**
- The fire protection organization structure is defined in general terms in the EG&G Idaho Safety Manual, Section 11, dated December 29, 1989. Many of the specific "improved risk" programs, duties, and responsibilities are not in place at the department level.
 - Some interdepartment agreements for fire protection system inspection and testing have not been formalized between all departments and the two main inspection and testing organizations. Complete agreements exist only within the Power Reactor Programs Department.
 - Fire protection programs and standards have not been defined by all departments, as required in the Safety Manual.
 - This concern was identified in the EG&G Idaho self-assessment.

CONCERN:
(FP.1-1)
(H2/C2)

The EG&G Idaho, Inc. fire protection organization and administration is not well defined or implemented.

- FINDINGS:**
- Over \$45 million in required physical fire protection improvements have been identified and compiled by the EG&G Idaho fire protection specialists over the last decade.
 - The last major fire protection upgrade project took place over 10 years ago.
 - Significant fire protection deficiencies have been identified, especially in the Power Reactor Programs and the Waste Management Departments where an aggressive internal fire protection surveillance program is being implemented.
 - Except for the Power Reactor Programs and Waste Management Departments, resources have not been provided to complete the required Fire Hazards Analysis and Maximum Possible Fire Loss studies. About 50 percent of these studies are currently complete.
 - This concern was identified in the EG&G Idaho self-assessment.

CONCERN: Needed fire protection improvements and upgrades at EG&G Idaho,
(FP.1-2) Inc. have not been made to meet the required level of fire
(H2/C1) protection, as defined by DOE 5480.7.

FP.2 LIFE PROTECTION

PERFORMANCE OBJECTIVE: All facilities onsite should provide adequate life safety provisions against the effects of fire.

- FINDINGS:**
- Except for the Power Reactor Programs and Waste Management Departments, documented departmental programs are not in place to ensure that facilities comply with specific NFPA 101, Life Safety Code, requirements.
 - Life Safety Code reviews or "Fire Safety Equivalency Studies" have been completed for major buildings, but have not been conducted on many of the minor EG&G Idaho facilities.
 - A documented preventative maintenance program to inspect and maintain rated fire barriers has not been established in some departments.
 - A large number of Life Safety Code and other related deficiencies exist and have been identified by EG&G Idaho fire protection personnel, including:
 - Individual deficiencies involving fire walls, doors, or barriers were noted as follows: 29 in CFA facilities, 13 in in-town facilities, 9 in PBF facilities, 8 in TAN facilities, 65 in TRA facilities, and 4 in RWMC facilities.
 - Local fire alarms and alarm system deficiencies or required upgrades as follows: 39 in CFA facilities, 10 in PBF facilities, 15 in TAN facilities, 11 in TRA facilities, and 3 in RWMC facilities.
 - Emergency lighting deficiencies, as follows: 3 in CFA facilities, 2 in PBF facilities, and 14 in TRA facilities.
 - Egress routes, exit signs, and smoke control system deficiencies, as follows: 4 in CFA facilities, 7 in in-town facilities, 6 in PBF facilities, 5 in TAN facilities, 73 in TRA facilities, and 2 in RWMC facilities.
 - Office partition panels in many facilities are not in compliance with the smoke development limits in ID 12044.
 - This concern was identified in the EG&G Idaho self-assessment.

CONCERN: Formal detailed program requirements and implementation
(FP.2-1) strategies have not been established by EG&G Idaho, Inc. to
(H2/C1) ensure full compliance with DOE 5480.7 and NFPA 101, Life Safety
Code, requirements.

FP.3 PUBLIC PROTECTION

PERFORMANCE OBJECTIVE: All facilities onsite should provide adequate protection to prevent any added threat to the public as a result of an onsite fire causing the release of hazardous materials beyond the site (or facility) boundary.

- FINDINGS:**
- Most major facilities with the potential for an offsite release due to an onsite fire have been evaluated via an SAR or a Fire Hazards Analysis, as required. However, not all facilities have been assessed and some SARs are not current.
 - Automatic fire suppression systems have not been provided for the two air-supported structures at the RWMC.
 - The fire main for the RWMC low-level waste burial site is isolated and left uncharged.
 - These findings were partially identified in the EG&G Idaho self-assessment.

CONCERN:
(FP.3-1)
(H2/C1)

Proper fire protection systems, as required by DOE 5480.7, have not been provided to prevent any added threat to the public as the result of a fire at the EG&G Idaho, Inc. Radioactive Waste Management Complex.

FP.4 IMPAIRMENT OF OPERATIONS

PERFORMANCE OBJECTIVE: The site should not be vulnerable to being shut down for an unacceptable period as the result of a credible fire.

- FINDINGS:**
- Fire Hazards Analysis evaluations have not been completed for:
 - Any of the 147 Facility and Maintenance Department buildings,
 - 12 of 23 Science and Technology Department facilities, and
 - Any of the 9 Nuclear Reactor Research and Technology Department facilities.
 - Except for the Power Reactor Programs and Waste Management Departments facilities, the required Maximum Possible Fire Loss and Maximum Credible Fire Loss evaluations have not been completed for approximately 50 percent of other EG&G Idaho facilities. An outside contract is being established to complete some of these reviews.
 - This concern was identified in the EG&G Idaho self-assessment.

CONCERN:
(FP.4-1)
(H3/C1)

Fire protection evaluations, required by DOE 5480.7, to assess the vulnerability of EG&G Idaho, Inc. facilities to unacceptable program delays and shutdowns have not been completed.

- FINDINGS:**
- Many significant physical fire protection deficiencies have been identified by EG&G Idaho fire protection staff at the ATR that increase the potential for a significant fire loss and operational interruption as a result of an onsite fire. These include:
 - Lack of proper protection for the main transformers located on the east side of the main reactor building.
 - Improper separation between the diesel generator room and the electrical switchgear room.
 - Lack of proper separation between redundant reactor safety shutdown system cables and between power and control cables.
 - Inadequate fixed automatic fire protection systems for reactor cables.

- Inadequate separation of the electrical switch gear in the first basement of Bldg. TRA-670.
- A credible fire could result in the shutdown of the ATR facility for a period exceeding 6 months due to the lack of required fire protection for safety shutdown cables and power supply systems. This was previously identified.
- Due to the lack of required fire suppression systems, it was determined by the S&H Subteam that a credible fire in the air-supported structures at the RWMC could potentially affect the INEL site and other DOE sites that ship waste to this facility.
- This concern was partially identified in the EG&G Idaho self-assessment.

CONCERN:
(FP.4-2)
(H3/C1)

The EG&G Idaho, Inc. Advanced Test Reactor and the Radioactive Waste Management Complex facilities have a credible fire loss potential that exceed the program interruption limitations specified in DOE 5480.7.

FP.5 PROPERTY PROTECTION

PERFORMANCE OBJECTIVE: A maximum credible fire, as defined in DOE 5480.7, Section 6.f, should not result in an unacceptable property loss.

- FINDINGS:**
- Fire Hazards Analysis evaluations have not been completed for:
 - Any of the 147 Facility and Maintenance Department buildings,
 - 12 of 23 Science and Technology Department facilities, and
 - Any of the 9 Nuclear Reactor Research and Technology Department facilities.
 - Except for the Power Reactor Programs and Waste Management Departments facilities, the required Maximum Possible Fire Loss and Maximum Credible Fire Loss evaluations have not been completed for approximately 50 percent of the other EG&G Idaho facilities. An outside contract is being established to complete some of these reviews.
 - This concern was identified in the EG&G Idaho self-assessment.

CONCERN:
(FP.5-1)
(H3/C1)

Fire protection evaluations to assess the maximum credible fire loss of all EG&G Idaho, Inc. managed facilities have not been completed, as required by DOE 5480.7.

- FINDINGS:**
- A credible fire could result in an unacceptable property loss at the ATR facility due to the lack of required fire protection for safety cables and power supply systems.
 - See findings supporting Concern FP.4-2.
 - The S&H Subteam has determined that when cleanup costs are included, a credible fire could result in an unacceptable property loss at the air-supported structures located at the Radioactive Waste Management Complex due to the lack of required fire suppression.
 - This concern was identified in the EG&G Idaho self-assessment.

CONCERN:
(FP.5-2)
(H3/C1)

Due to the lack of required fire protection systems, a maximum credible fire loss at the EG&G Idaho, Inc. Advanced Test Reactor and at the Radioactive Waste Management Complex facilities could exceed the property value limitations as defined in DOE 5480.7.

FP.6 FIRE DEPARTMENT OPERATIONS

PERFORMANCE OBJECTIVE: The Fire Department should have the capacity to promptly terminate and mitigate the effects of a fire in a safe and effective manner.

- FINDINGS:**
- Numerous deficiencies with regard to NFPA 1500, Fire Department Occupational Safety and Health Program, exist within the ID Fire Department:
 - Emergency response frequently occurs with less than the prescribed number of fire suppression personnel specified in NFPA 1500 and NFPA 1410.
 - The Fire Department Safety Officer does not meet all of the qualifications outlined in NFPA 1500, Standard for Fire Department Safety Officer.
 - A Physical Fitness Program has not been established.
 - All NFPA 1500 deficiencies have been previously identified and are being tracked by the ID Fire Department.
 - The number of Fire Department personnel available at each fire station is not sufficient to mount an effective response to operate fire suppression, emergency medical, and hazardous materials apparatus in a safe and effective manner, as prescribed in NFPA 1500 and NFPA 1410.
 - Four firefighters is the typical manning level at two of the three fire stations.
 - Each fire station houses a minimum of three major pieces of apparatus.
 - Authorization has been obtained to increase manning levels by the end of Calendar Year 1991.
 - No effective redundancy capability exists within the department to mount a response to a second emergency situation.
 - The firefighters, driver/operators, officers, and training instructors are not certified by the State of Idaho or any nationally recognized certification process.
 - No formalized Incident Command System (ICS) training program is used within the department.

- The Fire Department training facility does not provide adequate capability for live structural firefighting drills.
- This concern was addressed in the ID Fire Department self-assessment.

CONCERN: The Department of Energy Field Office, Idaho, Fire Department does not meet the staffing and resource levels specified in NFPA 1500 and 1410.
(FP.6-1)
(H2/C1)

- FINDINGS:**
- Two of three fire stations do not comply with facility safety requirements for separation and detection prescribed in NFPA 1500.
 - The alarm room located in the CFA Fire Station does not have an underfloor smoke detection system, as required in DOE/EP-0108, "Fire Protection in Computer Facilities."
 - This concern was identified in the ID Fire Department self-assessment.

CONCERN: Not all Department of Energy Field Office, Idaho, Fire Department facilities comply with the requirements of NFPA 1500 and DOE/EP-0108.
(FP.6-2)
(H2/C1)

- FINDINGS:**
- Except for the Waste Management and Power Reactor Programs Departments, formal fire brigade program requirements are not in place.
 - Incipient fire protection training for most emergency brigades is not being completed, as required by ID 0550.
 - A formal implementation plan has not been developed to achieve compliance with 29 CFR 1910.120 concerning emergency response to hazardous waste operations.
 - Due to the lack of automatic suppression systems at the RWMC air-supported facilities, a high level of reliance is placed on the emergency brigade.
 - Coordination agreements between the ID Fire Department and the various EG&G Idaho facility fire brigades are not in place.
 - A company-wide program addressing this concern has been developed for implementation by the Waste Management Department.
 - This concern was identified in the EG&G Idaho self-assessment.

CONCERN:
(FP.6-3)
(H2/C1)

Most EG&G Idaho, Inc. fire brigades are not meeting the training and interface requirements of NFPA 1500, 29 CFR 1910.120, and ID 0550.

FP.7 PROGRAM IMPLEMENTATION

PERFORMANCE OBJECTIVE: A fire protection engineering program should be in place to effectively provide and maintain an "improved risk" level of fire protection.

- FINDINGS:**
- By company policy, line-management is responsible for the development, maintenance, and implementation of written programs to comply with DOE "improved risk" criteria. The individual departments are at various stages of this process, but none are considered to be in full compliance by the S&H Subteam.
 - To effectively provide and maintain an "improved risk" level of fire protection, specific written programs are required to be in place for fire protection impairments, inspection and testing of fire protection equipment, cutting and welding, flammable and combustible liquids, fire barrier integrity, fire watch, transient combustibles, life safety, emergency lights, design review, water and liquid runoff control, fire brigades, waivers and exemptions, control of smoking, management inspections, Fire Hazards Analysis, and readiness review process. The various departments have not implemented some of these programs.
 - This concern was partially identified in the EG&G Idaho self-assessment.

CONCERN: As required by DOE 5480.7 and the EG&G Idaho, Inc. Safety Manual, many specific fire protection program requirements necessary to meet the "improved risk" level of fire protection are not in place.
(FP.7-1)
(H2/C1)

- FINDINGS:**
- Some physical fire protection deficiencies exist as a direct result of improper or inadequate fire protection review prior to occupancy or use. Some specific examples are noted below:
 - The use of ordinary wood construction materials for work platforms at the Water Reactor Research Test Reactor, Bldg. TAN-640, where the automatic sprinkler protection had been disconnected due to the presence of sodium.
 - Life Safety Code deficiencies (such as unprotected stairwells) at the INEL Electronic Technology Center.
 - The ATR Simulator Upgrade project has many existing fire protection deficiencies involving fire dampers and smoke control systems, manual fire alarms, detectors, sprinkler protection, and other fire

protection features. This project was on a fast track and did not obtain the normal fire protection review. These items have been recognized and corrective actions will occur prior to occupancy.

- The Power Reactors Programs and the Waste Management Departments have a requirements document for providing fire protection engineering review and approval of design modification and projects. Other organizations rely on past practices, good working relationships, and internal Engineering Department procedures to assure that proper fire protection reviews occur.
- The proposed design of upgrades for the joint use fire/sanitary water supply system at the RWMC does not provide physical protection for the fire water supply (such as interior standpipe) against excessive drawdown in the new storage tank due to sanitary water use.
- This concern was partially identified in the EG&G self-assessment.

CONCERN:
(FP.7-2)
(H2/C1)

Not all program requirements for fire protection engineering reviews and approvals at EG&G Idaho, Inc., are documented, and some reviews have not been performed, as required by DOE 5480.7.

FINDINGS:

- A significant number of automatic sprinkler protection deficiencies have been identified by the EG&G Idaho fire protection staff. These include:
 - 29 specific items at CFA facilities,
 - 7 specific items at the in-town facilities,
 - 11 specific items at the PBF complex,
 - 19 specific items at TAN facilities,
 - 84 specific items at TRA facilities, and
 - 6 specific items at RWMC facilities.
- A significant number of fire protection water supply and distribution system problems have been identified by the EG&G Idaho fire protection staff. These include:
 - 12 specific items at CFA,
 - 4 specific items at in-town facilities,
 - 4 specific items at the PBF complex,
 - 17 specific items at TAN,
 - 8 specific items at TRA, and
 - 4 specific items at RWMC.
- A number of special hazards fire protection system modifications and upgrades have been identified by EG&G Idaho fire protection staff. These include:

- 4 specific items at CFA,
 - 8 specific items at in-town facilities,
 - 4 specific items at the PBF complex,
 - 6 specific items at TAN,
 - 21 specific items at TRA, and
 - 6 specific items at RWMC.
- Numerous Life Safety Code violations exist. (See Concern FP.2-1)

CONCERN: See Concern FP.1-2

- FINDINGS:**
- Fire protection systems and equipment are inspected and tested by three different organizations as outlined in the EG&G Idaho Safety Manual. Except for the Power Reactor Programs Department, interface agreements between these organizations and building or facility managers are not current. (See Concern FP.1-1)
 - The Life Safety Systems organization provides the testing and inspection services on fire protection electrical devices. Individual procedures are in place or are being revised on an individual building and system basis for all systems. These are included on a computerized data base for scheduling. Proper storage of all testing and inspection records is provided. This provides an exceptional inspection and testing program.
 - The Fire Engineering organization provides the testing and inspection services on all fire protection mechanical devices. Generic procedures are used by this group. Scheduling of tests and inspections are done manually based on the knowledge of the three individuals in this group. Records are stored in an unprotected facility, Bldg. CF-695, and duplicate records are not maintained.
 - The operations and/or maintenance organization is responsible for performing the inspections and tests of other fire protection equipment such as water storage tanks, deep well pumps, weekly fire pump tests, hydrants, and visual inspections of special systems (i.e., foam and halon, fire extinguishers, fire doors, and control valves). Some departments are not conducting the required tests of these systems at the required intervals. (See Concern FP.7-1)
 - Although most major devices are covered, the inspection and testing requirements listed in the EG&G Idaho Safety Manual do not fully reflect all NFPA requirements such as circuit interfaces (NFPA 72), fire services communication systems (NFPA 1221), and other specified inspections and tests.

- This concern was partially identified in the EG&G Idaho self-assessment.

CONCERN:
(FP.7-3)
(H2/C1)

Fire protection system inspection and testing practices at EG&G Idaho, Inc. are not being performed in full accordance with the National Fire Protection Association Codes and Standards.

FINDINGS:

- Except for the Power Reactor Program and Waste Management Departments, Fire Protection Engineering Surveys or Fire Hazards Analysis have not been prepared for all facilities, as required by DOE 5480.7. (See Concerns FP.4-1 and FP.5-1)
- Except for the Power Reactor Program and Waste Management Departments, annual documented fire protection reviews are not being conducted by some EG&G Idaho departments, as required by the EG&G Idaho Safety Manual.
- The TSA review process used by the Performance Oversight and Assessment Group for evaluating the fire protection of all high and moderate hazard nuclear facilities is excellent. At the verbal direction of ID, this process currently omits the evaluation of the ID Fire Department covered in Performance Objective FP.6, "Fire Department Operations."
- By eliminating the review of Performance Objective FP.6 of the TSA criteria, the EG&G Idaho annual appraisals do not include an evaluation of the fire brigade programs at the appraised facilities.
- The Quality and Safety Assessment Unit of the ES&Q Department performs many discipline audits. However, fire protection is not included in this audit process.
- There is no program or requirement in place to conduct an annual independent fire protection program appraisal of the company-wide program elements, as specified in DOE 5482.1B and in the May 1991 draft of DOE 5480.7.
- This concern was partially identified in the EG&G Idaho self-assessment.

CONCERN:
(FP.7-4)
(H2/C1)

Fire protection audits, appraisals, and assessments at EG&G Idaho, Inc. are not being conducted to verify proper implementation of fire protection standards, as required by DOE 5480.7 and DOE 5482.1B.

FINDINGS:

- EG&G Idaho does not have a documented program requirement for preparing exemption requests for minor fire protection code or standard deficiencies for which corrective actions

are not justifiable from a risk or hazard reduction standpoint. Instead, all deficiencies are simply added to list for future project proposals.

- A number of documented minor fire protection deficiencies exist in the EG&G Idaho operated facilities that could be eliminated from the large volume of noted deficiencies by preparing formal exemption requests. For example:
 - Continued use of the gridded dry pipe sprinkler system in Bldg. TAN-602. The piping capacity and system actuation times are well within standard requirements.
 - The need to upgrade the fire ratings for corridors in many low-hazard, low-value, one-story, office buildings located throughout the site.
 - The sprinkler systems in some facilities do not meet the design requirements in DOE Orders. The use of light hazard sprinkler systems in the Willow Creek Building, the INEL Electronic Technology Center, the Technical Support Building, the Technical Support Annex, and the ID Headquarters Building do not meet requirements.
 - The separation of the fire protection and domestic water supplies in some areas such as TAN, PBF, and CFA based on the proposed water supply and pumping improvements.
 - Upgrades to some sprinkler protection systems to meet the earthquake protection requirements in some low hazard facilities in which the facilities themselves were not designed to withstand the postulated earthquake.
- There are no documented fire protection exemptions currently in place for code deficiencies at EG&G Idaho facilities.
- This concern was not identified in the EG&G Idaho self-assessment,

CONCERN:
(FP.7-5)
(H3/C1)

A formal program for requesting and documenting exemptions to fire protection codes and standards, as required by DOE 5480.4 and DOE 5480.7, is not in place at EG&G Idaho, Inc.

FINDINGS:

- The office partition panels in the ID Headquarters Building do not meet interior finish restrictions contained in ID 12044.
- The computer facility in the ID Headquarters Building has not been evaluated for compliance with DOE/EP-0108. Specific concerns are:
 - The computer area is not separated from the remainder of the facility by a 1-hour fire barrier.
 - There are general purpose offices inside the computer area.
- The book racks in the ID Headquarters Building Law Library obstruct sprinkler protection.
- The sprinkler protection system in the ID Headquarters Building does not meet requirements.
 - Small orifice sprinkler heads are used.
 - Hydraulic design of the system is below DOE and NFPA minimum requirements.
- A testing program is not implemented for some of the fire protection equipment at the ID Headquarters Building.
- This concern was not addressed in available ID self-assessment documentation.

**CONCERN:
(FP.7-6)
(H2/C1)**

Some fire protection system design features and fire protection programs at the Idaho Operations Office Headquarters Building (IF-606) do not meet requirements of DOE 6430.1A, ID 12044, DOE/EP-0108, and NFPA 13 and 101.

4.5.1.18 Medical Services

4.5.1.18.1 Overview

The EG&G Idaho Medical Department was appraised against all five performance objectives in the Medical Services technical area. Areas visited included the main medical offices at the Willow Creek building, CFA, and the various satellite dispensaries. Personnel interviewed included the Medical Director, a majority of his staff, and the various other disciplines who interact with medical, to include ID.

The EG&G Idaho Medical Department provides services to the INEL site. It is a multicontractor operation, which includes EG&G Idaho, WINCO, ANL-W, Morrison Knudsen-Ferguson Idaho Company Inc., PTI, Rockwell-INEL. The total employee population participating in the Occupational Medical Program approaches 10,000. In Fiscal Year 1990, there were 39,000 visits to the medical facilities. An oversight function not at this site is provided to Mountain State Energy, Butte; ChemNuclear GeoTech, Grand Junction; and West Valley Nuclear Services Co., Inc., New York.

The medical staff is well qualified and experienced. The medical program is comprehensive and designed to protect and enhance the physical and mental health of employees. An Employee Assistance Program exists and a random drug testing program for key positions is in the process of expansion. The reporting level of the Medical Director in EG&G Idaho assures adequate communication of health concerns to higher management. The scope and complexity of the industrial operation, the multiplicity of contractors, and the unique geography of the site pose a real challenge to the medical operation.

Concerns do exist in many areas. There are compliance problems with OSHA-mandated health surveillance exams for employees exposed to hazardous agents. At present, there is no system to assure that those employees are properly identified. Attention needs to be focused on the complexity of multiple contractors and the industrial hygiene/medical interface. The Periodic Examination Program does meet the frequency and content requirements of DOE 5480.8. The numerous medical facilities are substandard, and the two major facilities, Willow Creek Building and CFA, are crowded. Examination and storage rooms are functionally inadequate and inefficient. Many of the problems encountered within the Medical Department appear to be related to the organizational complexity of several management structures with varying degrees of interest in the program. (Medical must rely on other departments, and the data that the departments submit, for conduct of the health Surveillance Physical Examinations. They have no assurance on the completeness of the data they receive.)

The Medical Director and his staff have completed an indepth, comprehensive self-appraisal. All of the deficiencies noted in this review have been identified and, in most instances, remedial plans have been suggested.

4.5.1.18.2 Findings and Concerns

MS.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Site and facility organization and administration should ensure effective implementation and control of the Medical Services Program.

- FINDINGS:**
- The INEL Medical Program, as organized, is responsible to EG&G Idaho management. However, the Medical Department provides services to many other contractors. The present organizational structure requires management, communication, environmental, and personnel interface with numerous organizations.
 - In some contractor operations, nursing personnel are not in the EG&G Idaho organization. They do not report to the Medical Director, but rather to someone in their parent company. This varies with each company.
 - The industrial hygiene services are organized and function differently with each contractor. As a result, there is no assurance that all employees are identified who require medical surveillance or other occupational examinations.
 - Employees were identified who were working with hazards for which medical surveillance exams were required, but who had not been identified to Medical.
 - See Concerns OA 1-2.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. has no comprehensive system for ensuring identification of employees who require specially mandated examinations; this is not in compliance with DOE 5480.8.
(MS.1-1)
(H1/C1)

- FINDINGS:**
- The Medical Director and his staff have a direct line of communication with top management of EG&G Idaho. This line of communication is not formalized for other contractor management or ID.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: The Medical Director does not have access to top management for all contractors with regard to health concerns; this is not in compliance with DOE 5480.8.
(MS.1-2)
(H2/C1)

MS.3 MEDICAL TREATMENT

PERFORMANCE OBJECTIVE: Medical treatment should be available and provided by qualified, competent staff, and adequate facilities should be available.

- FINDINGS:**
- In general, the medical facilities are too small and, therefore, overcrowded.
 - Privacy for the employee is lacking.
 - There has not and does not exist a long-term plan to upgrade the facilities.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(MS.3-1)
(H3/C1) Space allocation for medical care is not adequate to meet the required standards of DOE 5480.8 or acceptable industry standards.

- FINDINGS:**
- The Medical Department is not always notified by the various contractor personnel departments of employee transfers and terminations. As a result, the appropriate medical examinations are provided to only a small percentage (less than 10 percent) of the involved personnel.
 - Failure to receive complete data would jeopardize the validity of any future epidemiology studies.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(MS.3-2)
(H2/C1) Contrary to requirements of DOE 5480.8, the Medical Department does not receive notifications of transfers or terminations of employees.

- FINDINGS:**
- The Medical Department is staffed at the minimum levels recommended in DOE 5480.8 including numbers, qualifications, and licensing of the professional staff. DOE 5480.8 requirements for consideration of unusual circumstances, i.e., the geography, the multitude of other contractors, and the type of hazards have not been considered.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(MS.3-3)
(H2/C2) Consideration of unusual circumstances, required by DOE 5480.8 for numbers of professionals in the medical program, have not been applied to the Medical Program.

FINDINGS:

- Inappropriate administrative duties are delegated to the professional staff. This especially applies to the staff Physicians and the Chief Nurse. Insufficient time is relegated for worksite visits, in-service training, and emergency preparedness and drills.
- This concern was addressed in the EG&G Idaho self-assessment.

**CONCERN:
(MS.3-4)
(H2/C2)**

Inappropriate assignments of administrative duties. The lack of appropriate staff dilutes the effectiveness of the Medical Program. Failure to comply with DOE 5480.8 wellness program requirements and to provide professional site visits.

MS.4 REVIEW AND AUDIT

PERFORMANCE OBJECTIVE: Policies, procedures, and practices for medical services should be reviewed and audited periodically to ensure continued effectiveness of the medical services.

- FINDINGS:**
- A QA program draft has only recently been developed for the Medical Department. Implementation of the QA program would require a larger staff of trained administrative personnel that are not now present.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN:
(MS.4-1)
(H2/C2)

There is no formal review and audit program that allows the timely identification of deficiencies and deviations from prescribed practices such as routine care, training, administration of compliance, and emergency exercise drills.

MS.5 PERSONNEL COMMUNICATION PROGRAM

PERFORMANCE OBJECTIVE: Site/facility personnel should be adequately informed of the medical hazards that may be encountered and of the medical services that are available.

- FINDINGS:**
- A comprehensive wellness program is a key feature of preventive medicine in industry. This program should involve identification and measurement of health risk factors in employees. Assistance in modifying those risk factors and the promotion of general health are essential for all employees, and is becoming a standard in industry. A comprehensive health education program does not exist at INEL and lack of a program is not in compliance with DOE 5480.8.
 - This concern was addressed in the EG&G Idaho self-assessment.

CONCERN: There is no organized Idaho National Engineering Laboratory health education (wellness) program.
(MS.5-1)
(H2/C2)

**SAFETY AND HEALTH ASSESSMENT
FINDINGS AND CONCERNS
ANL-W**

4.5.2 Argonne National Laboratory-West

4.5.2.1 Organization and Administration

4.5.2.1.1 Overview

The S&H Subteam appraisal of Organization and Administration was performed by interviewing all levels of onsite management, technicians, craft personnel, and operators. Interviews were also held with representatives of the Trades Union and the DOE Argonne Area Office. Documents were reviewed, and a general tour was made of the Argonne National Laboratory-West (ANL-W) Site. Formal presentations were made by the INEL contractors as well as by the DOE Field Office, Chicago (CH), and the DOE Field Office, Idaho (ID). A valuable part of the appraisal is the interaction with other members of the S&H Subteam.

All of the performance objectives and criteria pertaining to organization and administration were addressed. Concerns are noted in six of the eight performance objectives.

The organization and administration of programs at ANL-W were in a state of flux while the Team was at the site. ANL-W management scrutinized the Tiger Team Appraisal Report of Argonne National Laboratory-East (ANL-E) (performed October 1990), and also performed a pre-Tiger Team self-assessment, documented in a report dated April 15, 1991. As a result of these two activities, management initiated a series of reorganizations and subsequent document revisions that were in various stages of completion, but not fully implemented, at the time of this appraisal. However, management procedures and guidance do not always promote consistent and uniform safety programs within ANL-W.

From an organization and administration standpoint, the ANL-W self-assessment was thorough and identified a high percentage of the organization and administration concerns in this appraisal. ANL-W management recognizes that, to achieve the ANL Laboratory Director's goal of being "first among equals" in environmental, safety, and health (ES&H) achievement within the DOE complex, much work is needed. A good first effort appears to be underway. Employees interviewed stated that ANL-W has always been a good and safe place to work; but that it has improved in the last few months. The Trades Union representatives expressed few concerns with ANL-W management and stated that only two safety grievances were filed against the Laboratory in the past year. Employees exhibited a strong loyalty to ANL-W, which is expressed in a fairly stable job force.

The assignment of responsibilities at ANL-W is contained in many documents including position description, management plans, procedures, etc. Most persons interviewed felt comfortable that they understood their responsibilities. However, the delegation of authority to accomplish the assigned responsibilities was not as well understood or documented.

Mission and function statements are published for most of the ANL-W organization.

Most staff personnel interviewed knew how their job contributed to the overall mission of developing the Integral Fast Reactor, which is the primary mission of ANL-W.

Safety meetings are generally being held. However, the frequency within the various organizations is not generally indicative of the potential hazard associated with the specific facility or activity and there is not a policy regarding the purpose for holding safety meetings.

ANL-W management personnel recognize that the recent self-assessment is just the first step in developing an institutionalized self-assessment program as a permanent part of the self evaluation program to enhance safety and health within ANL-W. This process of institutionalizing the self-assessment program is underway, but not completed.

ANL-W has instituted many management tools to achieve and enhance safety. Actions taken include having safety as a part of each position description. However, the statement prescribed by the Laboratory Director for inclusion in all position descriptions is somewhat generic in nature and may not, as of itself, foster a recognition of line safety responsibility. Identifying safety responsibility that is specific to an individual position would be a better method for promoting safety compliance. Another safety management tool recently instituted includes having safety as an element in each person's annual performance evaluation. Again, a specific element would be better than a generic safety element that is applicable to all employees. Management recognizes that auditable, measurable, realistic, and challenging goals are needed to promote a unified safety effort, but these have not as yet been defined and promulgated to all staff for implementation.

Most upper level management personnel recognized that they do not conduct walkthroughs of the workplace as often as they should because of paper work demands. Even so, most management personnel perceive themselves to be in the workplace much more than employees perceive them to be. There is currently no policy or requirement regarding the frequency that various levels of management should spend in the workplace, nor is there any overall guidance regarding what should be accomplished during walkthrough inspections.

ANL-W management recognizes the need for upgrading the safety analyses of the various facilities and activities at ANL-W. A program is underway to evaluate and/or upgrade the Safety Analysis Reports (SARs); however, the program has been underway for several years and several milestones have been missed. Consequently, ANL-W cannot demonstrate that the high and moderate hazard facilities and activities meet the current DOE requirements for format and content of SARs.

As a result of the recent reorganization, many documents are out-of-date or are being revised. This contributes to a state of confusion among workers, which could affect safety performance. In addition, there is no overview function that provides assurance that all controlled documents are current and up-to-date.

The ANL-W management recently announced that a random drug screening program would be implemented for those management personnel and staff who are in a position to cause serious harm to personnel or could cause damage to vital government property. This is a needed protective safety measure; but was not in place at the time of this appraisal. Even though there has been training on substance abuse, many supervisors and employees were not conversant with the drug and alcohol abuse program, nor did they know how voluntary participation in the Employee Assistance Program would affect their security clearance.

Another recent change in the Substance Abuse Program is to impose the Drug-Free Workplace program upon subcontractors. A statement to this fact will be included in future subcontracts for work at ANL-W. However, there will be no testing, just visual observation of subcontractor employees, which may not be adequate for those subcontractor employees working on equipment vital to the ANL-W mission.

In conclusion, the staff is well qualified and dedicated to doing a good, safe job. Most of the employees felt a part of a unified effort to work safely and accomplish the ANL-W mission.

4.5.2.1.2 Findings and Concerns

OA.1 SITE AND FACILITY ORGANIZATION

PERFORMANCE OBJECTIVE: Management should organize and manage the site/facility's work, programs, and resources so that safety and health are an integral part of the personnel duties and requirements are consistently implemented.

- FINDINGS:**
- Many management personnel and staff do not fully understand how authorities are delegated to them so that they can perform their assigned responsibilities.
 - Some management plans contain the delegation of a few specific authorities along with the assignment of responsibilities. However, these delegations of authorities do not cover all of the assigned responsibilities. Other management plans do not even address the delegation of authority.
 - Some management personnel and staff stated that they received their authority from the following:
 - Individual Position Descriptions.
 - Division manuals, handbooks, and procedures.
 - Division management plans.
 - Technical specifications.
 - Organization charts.
 - Supervisor or manager.
 - Perception of authority implicit in the job or assumed with the position.
 - Safety responsibilities have recently been included in position descriptions and performance evaluations. However, the somewhat generic statements may not foster recognition of line safety responsibility.
 - All management personnel and most staff interviewed thought that they fully understood their line and safety responsibilities; however, they were not as cognizant regarding authority.
 - Some operators, technicians, and crafts personnel interviewed stated that they had no stop work authority. However, they stated that they could discuss the situation with their supervisor, but if he or she told them to go do

the task, they could not refuse to do what they perceived to be an unsafe job. (It is ANL-W policy that any worker has stop work authority for his/her own work if it is perceived to be unsafe.)

- Some non-ES&H personnel thought that they had the authority to stop any unsafe work that they observed any place on the ANL-W site. (It is ANL-W policy that ES&H personnel have full stop work authority.)
- Some management personnel and staff do not fully understand what level of authority is required to make safety decisions and handle safety issues that arise. It was stated that there is no documented policy that addresses this issue.
- See Concerns RP.1-1 and PP.1-1 and Sections 4.5.2.3, OP.1; 4.5.2.14, RP.11; and 4.5.2.15, PP.1.
- This concern was addressed in the ANL-W self-assessment.

CONCERN:
(OA.1-1)
(H2/C1)

Authorities are not well documented, defined, delegated, or understood, as required by DOE 5480.19.

FINDINGS:

- Safety meetings are held at various frequencies by the different organizations at ANL-W; however, the frequencies do not have a direct relationship to the potential hazards presented in the workplace.
- Each division has its own management plan. Some prescribe a specific minimum frequency for safety meetings, while others only prescribe periodically.
- Some safety meetings at which safety issues need to be discussed are only a short part of some other meeting.
- Some safety meetings are an extension of a training effort.
- Applicable unusual event reports from within ANL and from other DOE sites are not always discussed or brought to the attention of ANL-W management personnel and staff.
- Attendance at safety meetings is not always a requirement of the various divisions at ANL-W. A cursory review of one organization showed that one person had missed at least four of the past six meetings, and three other persons had missed at least three of the past six meetings.
- See Concerns TC.1-1 and PP.1-1, and Section 4.5.2.5, TC.9.
- This concern was addressed in the ANL-W self-assessment.

CONCERN:
(0A.1-2)
(H2/C2)

There is no uniform policy or prescribed frequency for holding safety meetings.

OA.2 ADMINISTRATION

PERFORMANCE OBJECTIVE: Administrative programs and controls should be in place to ensure policies concerning health and safety are administered throughout the facility.

- FINDINGS:**
- ANL-W management initiated a self-assessment effort about 18 months ago. It was reported that only the Experimental Breeder Reactor-II Division self-assessment was completed. The other divisions did not complete this effort.
 - A second self-assessment effort resulted in a report entitled "ANL-W Management-Environment, Safety and Health Initial Self-Assessment", dated April 15, 1991.
 - The methodology and mechanism for conducting self-assessments as a continuing and ongoing effort is being developed but is not yet complete.
 - See Concerns QV.1-1, TS.1-2, and PT.11-1 and Section 4.5.2.15, PP.4.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN:
(OA.2-1)
(H2/C1) **Argonne National Laboratory-West does not have a fully institutionalized self-assessment program, as required by DOE 5480.19 and the Secretary of Energy Notices.**

- FINDINGS:**
- There is no uniform policy or prescribed frequency for holding safety meetings. (See Section 4.5.2.1, OA.1.)
 - The frequency of management presence in the workplace and the purpose of walkthrough inspections is not consistently prescribed as required by DOE 5480.19. (See Section 4.5.2.1, OA.5.)
 - No comprehensive status indicating system has been implemented for control of items at ANL-W, as required by NQA-1. (See Section 4.5.2.2, QV.5.)
 - Differing maintenance practices among operating programs within ANL-W has resulted in confusing maintenance rules and an inefficient maintenance effort. (See Section 4.5.2.4, MA.1.)
 - There is no integrated ANL-W training program at ANL-W. (See Section 4.5.2.6, TC.1.)
 - Each division or organization within a division has its own method for maintaining and tracking job specific training records. (See Section 4.5.2.5, TC.1.)

- All ANL-W divisions have currently drafted new management plans and procedures to determine the existence of an Unreviewed Safety Question (USQ) and to require implementation of readiness reviews prior to facility startup. With the exception of the EBR-II recently issued procedure, no formal and consistent readiness review program and process exists sitewide at ANL-W. (See Section 4.5.2.8, TS.3.)
- The nuclear criticality safety program does not have ANL-W sitewide policy and procedures to provide guidance and quality assurance (QA) for responsibilities and practices. (See Section 4.5.2.10, CS.1.)
- There is no ANL-W Laboratory-wide upper-level management plan that addresses the future needs for, and availability of, nuclear criticality safety resources to effectively support the safety requirements of all ANL-W facilities. (See Section 4.5.2.10, CS.1.)
- Lockout/tagout procedures are not uniform across the ANL-W and do not comply with 29 CFR 1910.147. (See Section 4.5.2.15, PP.2.)
- This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(OA.2-2)
(H2/C2)

Management procedures and guidance do not always promote consistent and uniform safety programs within Argonne National Laboratory-West.

OA.3 MANAGEMENT OBJECTIVES

PERFORMANCE OBJECTIVE: Site/facility management objectives should ensure commitment to safe operation, including enforcement of approved work practices and procedures.

- FINDINGS:**
- In a letter to all employees, the ANL Laboratory Director announced his ES&H goal--"that Argonne set the standard for national laboratories in the area of ES&H and QA and be first among equals in the DOE National Laboratory system."
 - Quantitative safety goals are not currently being set for ANL-W activities; however, management recognizes the need for auditable, measurable, realistic, and challenging safety goals, and has written such a requirement in some division management plans.
 - The plotting and trending of safety issues are not generally posted or distributed to ANL-W staff.
 - Very few safety posters or other safety information notices are posted in the ANL-W facilities; however, a safety bulletin entitled "AWARE" is sent to all ANL-W employees.
 - This concern was partially addressed in the ANL-W self-assessment, in that it identified a need for long range safety goals.

CONCERN: There is no program for promoting a unified effort to achieve quantitative safety goals at Argonne National Laboratory-West, as required by DOE 5480.19.
(OA.3-1)
(H2/C1)

OA.5 MANAGEMENT ASSESSMENT

PERFORMANCE OBJECTIVE: Management and supervisory personnel should monitor and assess facility activities to improve performance in all aspects of the operation.

- FINDINGS:**
- Some management plans require periodic walkthrough inspections as part of the required management oversight; however, in many cases no periodicity is prescribed.
 - Management generally perceives itself in the workplace more often than employees observe their presence.
 - Most upper level management personnel interviewed stated that they did not get into the workplace as often as they planned or needed to be.
 - Several management personnel stated that there is no requirement for their presence in the workplace.
 - Some management personnel have developed a check sheet to use as a guide during walkthrough inspections, while others have not.
 - Most management personnel stated that they have not had any specific training regarding what to look for during a walkthrough inspection.
 - Some management personnel stated that a brief training course would be of help regarding what to look for on a walkthrough.
 - See Concerns QV.5-2 and OP.4-2 and Sections 4.5.2.5, TC.1; 4.5.2.5, TC.10; and 4.5.2.15, PP.4.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN:
(OA.5-1)
(H2/C1)

The frequency of management presence in the workplace and the purpose of walkthrough inspections is not consistently prescribed, as required by DOE 5480.19.

OA.7 DOCUMENT CONTROL

PERFORMANCE OBJECTIVE: Document control systems should provide correct, readily accessible information to support site/facility operations.

- FINDINGS:**
- Many policy changes have been initiated at ANL-W in the past few months. This has necessitated the revision of many documents, some of which are still in draft form or not yet revised.
 - Different methods are used to place current procedures in the workplace; however, there is no overview function to assure that this is expeditiously performed. (See Concern PP.2-1.)
 - New requirements flow down to the working level through revised manuals and procedures; however, there is no overview function to assure that new requirements are expeditiously incorporated into these documents. (See Concern PP.2-1.)
 - Controlled manuals are usually updated by page changes. A form accompanies the change that must be signed by the recipient that acknowledges that the change has been received and inserted into the manual. However, there is no periodic audit to ensure that these update sheets are in the correct place in the manual rather than just accumulating inside the front or back cover.
 - See Concerns QV.5-2, OP.3-1, OP.3-4, MA.8-1, TS.2-2, TS.2-3, PT.1-1, PT.10-1, CS.1-1, CS.4-1, RP.3-1, RP.12-1, and PP.2-4.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: Many documents are out of date and there is no overview function to assure that procedures and manuals are expeditiously reviewed or that controlled manuals are actually up to date, as required by DOE 5480.19.
(OA.7-1)
(H2/C1)

OA.8 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: A Fitness For Duty Program should be capable of identifying persons who are unfit for their assigned duties as a result of drug or alcohol use, or other physical or psychological conditions, and should provide procedures to remove them from such duty and from access to vital areas of the site or facility pending rehabilitation or remedial actions.

- FINDINGS:**
- The ANL Laboratory Director issued a revised Substance Abuse Policy on January 26, 1990.
 - This policy includes a provision for all prospective employees to be tested for drugs and alcohol before an offer for employment is extended. It also states that existing employees will be tested "for cause" upon return from drug/alcohol rehabilitation or if included under the Personnel Security Assurance Program.
 - A new program, which includes random drug testing, will commence September 1991.
 - Periodically, bulletins are published to keep employees aware of the ANL drug-free workplace policy, and training and subsequent yearly refresher training and testing are provided; however, some personnel interviewed were not conversant on the content of the training and did not know what effect voluntary submission to the Employee Assistance Program would have on their security clearance.
 - See Section 4.5.2.5, TC.1.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN:
(OA.8-1)
(H2/C2)

Not all aspects of the Argonne National Laboratory Substance Abuse Policy are well understood by employees, and random drug screening does not now occur.

- FINDINGS:**
- The ANL Drug-Free Workplace Program is being imposed on subcontractor employees at ANL-W.
 - ANL-W plans to only use visible detection means to enforce the Drug-Free Workplace Policy upon subcontractors working on vital equipment or systems.
 - Substance abuse is difficult to detect by casual observance of subcontractor workers.
 - No special training is planned to help ANL-W responsible observers detect substance abuse.
 - No random drug screening is planned for subcontractor employees working on vital ANL-W equipment and systems.

- See Concern PP.4-2 and Section 4.5.2.5.2, TC.1.
- This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(OA.8-2)
(H2/C2)

No random substance abuse testing is planned for those subcontractors performing work on vital equipment, nor do responsible Argonne National Laboratory-West personnel receive special training on detecting substance abuse by those subcontractor employees.

4.5.2.2 Quality Verification

4.5.2.2.1 Overview

The Quality Verification review was conducted using the performance objectives and criteria for conducting TSAs. All seven quality verification performance objectives were evaluated. ANL-W has developed a quality assurance (QA) program based on ASME NQA-1-1989 with objectives of attaining and verifying quality at the site. The results of this assessment indicate that the program is not effectively implemented to accomplish the above-stated objectives.

Concerns were identified in each performance objective, including two Category II concerns. One Category II concern resulted from a lack of engineering analysis for use-as-is dispositions to nonconformances. A reactor building secondary sodium piping weld that did not meet original or current codes and specifications was accepted for use with insufficient engineering justification. A potential unreviewed safety question that has existed since 1962 was not identified. The second Category II concern resulted from reactor fuel materials and fabrication work control. Fuel components that do not meet EBR-II Technical Specification or work control requirements were not identified as nonconforming during acceptance inspections, and were routinely accepted and processed into completed fuel assemblies.

This assessment was conducted using performance-based initiatives that focus on the effectiveness of line implementation of programs rather than the program documentation. Where problems encountered lead to documentation or programmatic issues, those were also investigated. Emphasis was placed on activities with a high impact on facility safety, reliability, and overall mission success. Activities given a more intensive review include nuclear facility operation, modification, and maintenance; nuclear fuel manufacturing; and procurement or fabrication of items installed in nuclear facilities.

The ANL-W site is divided into five divisions, and each division demonstrated a different level of quality awareness and commitment. Quality control in the analytical laboratory, manufacturing in the Fuel Manufacturing Facility, and worker qualification for the Hot Fuel Examination Facility are examples where individual supervisors are taking action to excel. The Experimental Breeder Reactor-II (EBR-II) and Fuels and Processes Division lead the others in the current level of quality achievement, but Category II deficiencies were noted in both of these divisions during this assessment. A comprehensive ANL-W sitewide quality culture has not been effectively communicated and enforced at the line level at ANL-W.

Division managers exhibit different levels of expectation and commitment to quality. Most managers are not actively involved in the day-to-day line implementation of work activities. Without in-facility presence, interest, and involvement, managers lose contact with actual work performance and control. Without management visibility and contact, line personnel cannot relate to and implement quality improvement.

Specific sitewide quality concerns include the following:

- The lack of an effective review/audit program to regularly assess line implementation of quality objectives.
- An ineffective nonconformance and work control system that allows defects to remain unidentified and uncorrected.
- An ineffective material and item procurement and control system that does not preclude the use of inappropriate items.
- A lack of management commitment, vigilance, and demonstrated interest in line achievement of sitewide quality improvement.

Some of the programmatic concerns identified during this assessment were uncovered during the ANL-W self-assessment. The self-assessment was limited, however, to program, procedure, and documentation issues. The line implementation of programs was not assessed. Both Category II concerns in this assessment were caused by ineffective line implementation of existing program requirements.

If ANL-W can institutionalize, on a sitewide basis, the individual exemplary practices found in small organizational pockets, a major turnaround toward an improved ANL-W sitewide quality culture could be achieved. For this to start, ANL-W management must identify, communicate, and vigilantly enforce a quality culture to all site personnel.

4.5.2.2.2 Findings and Concerns

QV.1 QUALITY PROGRAMS

PERFORMANCE OBJECTIVE: Administrative programs and controls should be in place to ensure policies concerning quality are administered for each facility throughout the site.

- FINDINGS:**
- Not all ANL-W divisions have implemented a documented and approved QA plan.
 - Quality verification activities at ANL-W operating facilities have been limited mostly to maintenance. Operation of the facilities has not been regularly assessed.
 - Independent quality reviews or audits are not routinely performed to verify compliance with all aspects of the ANL-W QA Program and determine its effectiveness.
 - ANL-W divisions have not developed, implemented, and communicated to line personnel the results of trending, performance indicator, or quality improvement programs.
 - See Concerns OA.2-1, PT.3-1, and PT.11-1.
 - The following concern was addressed in the ANL-W self-assessment.

CONCERN:
(QV.1-1)
(H2/C1)

Plans and actions to assure and verify quality achievement have not been developed and effectively implemented for all activities and facilities at the Argonne National Laboratory-West site, as required by DOE 5700.6B.

- FINDINGS:**
- Most inspection and lead auditor certifications at ANL-W are overdue for the required annual evaluation.
 - Not all personnel that conduct quality verification activities (inspections, test, nondestructive examination, and audits) have been trained, qualified, and certified according to the ANL-W QA manual.
 - The certification of a Level I radiographer was based on a previous certification that had been discarded. No specific or practical exam was available in the certification package.
 - Only recent (within the past year) inspection certifications have required formal examinations and demonstrated proficiency.

- See Concern TC.1-1.
- The following concern was not addressed in the ANL-W self-assessment.

CONCERN:
(QV.1-2)
(H2/C1) A training and qualification program for quality verification personnel has not been effectively implemented, as required by ASME NQA-1-1989 and ASNT TC-1A.

- FINDINGS:**
- The Transient Reactor Test Facility reactor is operated during transient testing using a computer control system. A software QA program has been developed to ensure appropriate data generation during transient testing. The software QA program does not provide for documented verification tests, hardware integration tests, and in-use tests conducted using formal test procedures with specific acceptance criteria, as required by ASME NQA-1-1989, Section 11S-2, or ASME NQA 2, Section 2.7.
 - The following concern was partially addressed in ANL-W self-assessment.

CONCERN:
(QV.1-3)
(H2/C1) Software quality assurance and computer program testing programs have not been developed for computer-controlled reactors at Argonne National Laboratory-West that meet the requirements of ASME NQA-1-1989.

QV.2 PROCUREMENT AND SUPPLIER CONTROL

PERFORMANCE OBJECTIVE: Provisions should be established for the control of purchased material, equipment, and services; for selection and control of suppliers; and for assessing the adequacy of procurement activities.

- FINDINGS:**
- Procurement of spare parts for ANL-W facilities is conducted using a three-level system. This system is not described in the procurement sections of the ANL-W QA Program.
 - The purchasing work control procedures allow procurement of items less than \$2,500 to be handled by buyers with minimal controls. The ANL-W QA Manual does not allow a \$2,500 exclusion.
 - The following procurements were reviewed for determination if vendors were included on the ANL-W Approved Suppliers List (ASL) as required by the QA Manual:

<u>Item</u>	<u>Vendor</u>	<u>ON ASL?</u>
1000° Controller	Love Controls	No
TREAT CRD Absorber	Taylor Devices	No
Fuel Cladding	W-Hanford	No
Fuel Spacer Wire	G&S Titanium	No
Fuel Machine Work	Carpenter Tech.	Yes*

*On ASL for supply of material, not specified for machining.

- Some vendors on the ANL-W Approved Suppliers List are qualified by ANL-E with the approval listed as "AQR-001" or "AQR-002." The purchasing manager was not aware of what limits or criteria were involved in these approvals. Copies of AQR-001 and AQR-002 were not available in the purchasing office or in the Office of Quality Assurance.
- The following concern was addressed in the ANL-W self-assessment.

CONCERN:
(QV.2-1)
(H2/C1)

Not all items and services are procured under controlled conditions, as required by the Argonne National Laboratory-West Quality Assurance Program and ASME NQA-1-1989, including procurement review, purchases from approved suppliers, and documented selection of approved suppliers.

QV.3 RECEIVING AND PRE-INSTALLATION INSPECTIONS

PERFORMANCE OBJECTIVE: Provisions should be established for the inspection of purchased material, equipment, and services in accordance with documented procedures by trained personnel.

- FINDINGS:**
- Fuel assemblies are fabricated from 316 stainless steel that was identified as nonconforming at ANL-E because of incomplete documentation including no Certified Material Test Report. The Certified Material Test Report was sent to ANL-W later, was not reviewed for material acceptability, and did not meet ASTM 580-83 requirements for chemical composition. The Certified Material Test Report was requested for "information only." The Certified Material Test Report listed chromium at 18.28 percent; ASTM 580-83 allows 316 stainless steel to have a chromium content of 16 to 18 percent. Original material certifications from Teledyne-Allvac were in the package for 3 of 70 coils. The Teledyne-Allvac certifications met 316 requirements.
 - The 3.0000 inch gage block used in the Bldg. 782 Precision Tool Room has consistently been out of tolerance since 1975, but has been continuously used for calibration of measuring and test equipment. The most recent calibration (1989) lists this gage block at plus 76 microinches. This block is routinely used to calibrate 4 inch micrometers with a tolerance of 0.0001 inch.
 - The high efficiency particulate air filters ordered under Requisition No.161048 had an Acceptance Criteria Listing that specified that Quality Central inspect only for shipping damage and shipped quantity. The requisition specified many additional technical requirements, including welding to ASME Section IX and leak testing to ANSI-N510. These items were inspected and approved on January 9, 1991, by the design engineer. A memorandum dated November 6, 1990, states that the Office of Quality Assurance will no longer perform "inappropriate inspections" that include shipping damage, quantities, and description.
 - Suppliers' Certificates of Conformance are not periodically evaluated to assure valid and reliable data.
 - The following concern was not addressed in the ANL-W self-assessment.

CONCERN:
(QV.3-1)
(H2/C1)

Contrary to ASME NQA-1-1989, critical attributes of items are not always verified, and documented evidence of conformance to technical requirements is not always available at Argonne National Laboratory-West before items are installed or used.

QV.4 CALIBRATION PROGRAM

PERFORMANCE OBJECTIVE: Provisions should be made to ensure that tools, gages, instruments, and other measuring and testing devices are properly identified, controlled, calibrated, and adjusted at specified intervals.

- FINDINGS:**
- Most instruments observed in the EBR-II, Transient Reactor Test Facility, Fuel Manufacturing Facility, and Fuel Assembly and Storage Building facilities had calibration stickers affixed indicating current calibration status.
 - Dimensional and other quantitative inspections witnessed during this assessment were conducted using measuring and test equipment that had calibration stickers or other indications that the measuring and test equipment was within its specified calibration frequency.
 - Instruments used for inspection or acceptance testing are not listed on the Acceptance Criteria Listing. Use records are not maintained for individual measuring and test equipment. Therefore, a device that is found out of tolerance upon recalibration cannot be traced to any work control document to determine usage and quality impact.
 - See Concern PT.6-1.
 - The following concern was not addressed in the ANL-W self-assessment.

CONCERN: Measuring and test equipment used for inspection and testing at Argonne National Laboratory-West cannot always be traced to usage; no evaluation can therefore be made of the validity of previous inspection or test results, or of the acceptability of items previously inspected or tested, as required by ASME NQA-1-1989.
(QV.4-1)
(H2/C1)

- FINDINGS:**
- Some items identified as "Primary Standards" in the Analytical Laboratory are not traceable to National Institute of Standards and Testing (NIST) listings, and are actually secondary standards or general usage items.
 - Many NIST traceable primary standards in use in the Fuels and Processes Division Analytical Laboratory have exceeded their certified expiration date. Many expired on July 7, 1991; some expired in 1986 and 1987.
 - The 3.0000 inch gage block used for calibration in the Bldg. 782 Precision Tool Room has been out of tolerance since 1975, but has been continuously used for calibration of measuring and test equipment. (See Concern QV.5-2.)

- Some measuring and test equipment routinely used in the Analytical Laboratory was not calibrated at the time of this assessment, and is not included in a periodic calibration program.
- See Section 4.5.2.9, PT.6.
- See Concerns RP.8-2 and RP.9-1.
- The following concern was not addressed in the ANL-W self-assessment.

**CONCERN:
(QV.4-2)
(H2/C1)**

Measuring and test equipment at Argonne National Laboratory-West is not always calibrated according to approved procedures against current certified standards having known valid relationships to nationally recognized standards, as required by ASME NQA-1-1989.

QV.5 IDENTIFICATION AND CONTROL OF HARDWARE/MATERIALS

PERFORMANCE OBJECTIVE: Provisions should be established to identify and control the use or disposition of hardware, materials, parts, and components as well as to ensure that incorrect/defective items are not used.

- FINDINGS:**
- The EBR-II Transient Reactor Test Facility, and Fuel Assembly and Storage Building have programs to control shelf life of elastomeric materials (O-rings, seals, etc.). These programs do not address some items/materials with finite shelf lives such as coatings and lubricants.
 - Several Hot Fuel Examination Facility items were noted in the Bldg. 781 Materials warehouse that had degraded yet were available for unrestricted use. Some sealing materials and hoses for Hot Fuel Examination Facility had fused to their packaging material. There was no shelf life or inspection program to determine if these items were acceptable for use.
 - See Section 4.5.2.2, QV.4.
 - The following concern was addressed in the ANL-W self-assessment.

CONCERN:
(QV.5-1)
(H2/C1) Not all items at Argonne National Laboratory-West are identified and controlled to preclude use of items whose shelf life or operating life has expired, as required by ASME NQA-1-1989.

- FINDINGS:**
- The QA requires that all nonconformances are identified, documented, and resolved using the Inspection/Disposition Report.
 - Many quality verification personnel stated that the Inspection/Disposition Report is only used when an item fails an acceptance test or if a nonconformance is "serious enough to warrant a written disposition." "Minor" nonconformances are routinely fixed without being formally identified and dispositioned.
 - Equipment (shield cooling exhaust fan, turbo pumps) in the EBR-II building is not bolted to equipment pads as required by design. This condition has existed for many years without being identified as a nonconformance.
 - Numerous violations to the National Electric Code were noted in Hot Fuel Examination Facility, Machine Shop, and EBR-II building that had not been identified as nonconforming.
 - Although about half the threaded fasteners in stores at ANL-W were found to be suspect during a recent evaluation,

no active program has been implemented to identify suspect fasteners installed in the EBR-II building or other facilities at the ANL-W site. A plan was submitted to ID on July 16, 1991.

- See Concerns OA.5-1, PP.4-1, FR.6-1, TS.4-1, MA.7-1, and OA.7-1.
- The following concern was addressed in the ANL-W self-assessment.

CONCERN:
(QV.5-2)
(H2/C1)

A program to identify, control, monitor, and resolve items and services that do not meet specified requirements has not been effectively implemented at Argonne National Laboratory-West, as required by the Argonne National Laboratory-West quality assurance manual and ASME NQA-1-1989.

- The disposition of Inspection/Disposition Report No. 20815 dated December 6, 1989, accepted a code-rejectable weld as on the EBR-II secondary sodium system without any evidence of engineering analysis. The ASME Boiler and Pressure Vessel Code and B 31.1 Power Piping Code do not allow use-as-is dispositions for defects that meet the "unacceptable" criteria in new construction.
- The defects in the EBR-II secondary sodium piping weld No. 26Na2-31-500 are outside original construction allowable specification and code.
- Inspection/Disposition Report No. 20819 dated April 24, 1991, was dispositioned to seal weld a drain plug an EBR-II steam stop valve. The Inspection/Disposition Report states that "welder qualification for this seal-welding procedure is not needed..." The B 31.1 Power Piping Code, Section 127.4.5, Seal Welds, states "Seal welding shall be done by qualified welders." Section 127.5.3 states "Each employer shall be responsible for qualifying any welding procedure that he intends to have used by personnel in his organization." (See Concern QV.7-1.)
- Inspection/Disposition Report No. 20710 was written by ANL-E to identify cleanliness and documentation problems with fuel cladding wire material, and was dispositioned use-as-is by ANL-E. The material was provided to ANL-W with a ANL-E "Green Tag" indicating acceptability. There is no evidence that the documentation received at ANL-W later was reviewed. The Certified Material Test Report included in this documentation indicates that the fuel cladding wire material does not meet ASTM 580-83 requirements for 316 stainless steel material required by EBR II Technical Specification Table 6.1, "Design Parameters of EBR-II Driver Fuel Elements." This material has been used to fabricate fuel jacket.
- The following concern was not addressed in the ANL-W self-assessment.

CONCERN:
(QV.5-3)
(H1/C1)
CAT. II

Dispositions to identified nonconformances at Argonne National Laboratory-West including fuel materials and reactor building piping are not always technically justified or correct, as required by ASME NQA-1-1989.

FINDINGS:

- ASME Code and safety-related certified materials are stored in the Bldg. 782 warehouse. No access control is provided in this building to prevent mixing or misuse of this material.
- The certifications for the material stored in Bldg. 782 are traceable to the material by a file number. If two different lots of the same size material were placed in the same file, there would be no way to differentiate between them, and traceability would be lost.
- Safety-related materials in Bldg. 781 Materials Handling are not segregated or tagged to indicate dedicated usage.
- The self-contained emergency lights on the floor level of the EBR-II building were installed without the use of a plant modification or other work control document that analyzed their suitability or environmental compatibility.
- Uncontrolled and unlabeled special process materials were noted in the Bldg. 765 basement and the Bldg. 782 machine shop.
- The following concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(QV.5-4)
(H2/C1)

Control and storage of code and safety related material and parts do not always assure traceability of material and preclude misuse, as required by ASME NQA-1-1989.

FINDINGS:

- Recent spare parts for EBR-II have a label affixed to indicate that the item is a useable spare part. Many items available for use were stored prior to the implementation of this system and are not labeled.
- Hot Fuel Examination Facility and Zero Power Physics Reactor do not use a labeling system to identify acceptable spare parts.
- Items failing initial receipt inspection are tagged with a reject tag awaiting disposition of the Inspection/Disposition Report. A reject tag indicates a disposition has been completed and the item is "unusable for its intended purpose."

- Many items being installed or awaiting installation in the Fuel Cycle Facility are not tagged or identified to indicate status.
- See Concern OP.4-1.
- The following concern was addressed in the ANL-W self-assessment.

**CONCERN:
(QV.5-5)
(H2/C1)**

No comprehensive status indicating system has been implemented for control of items at Argonne National Laboratory-West, as required by ASME NQA-1-1989.

QV.6 INSPECTIONS

PERFORMANCE OBJECTIVE: Prerequisites should be provided in written inspection procedures with provisions for documenting and evaluating inspection results.

- FINDINGS:**
- Fuel elements being fabricated in the Fuel Assembly and Storage Building consistently failed a go/no-go inspection, yet were not identified as nonconforming and were accepted for continued fabrications. A 0.232 inch ring gage is used to determine acceptability of the MKIIIA element J-1 weld joint. None of the 10 plus elements witnessed passed; however, none was identified as nonconforming and all were accepted for continued fabrication. The work control procedure for this operation requires specific actions for correction of dimensional deviations; these actions were not taken.
 - The EBR-II Technical Specification, Table 6.1 - Design Parameters, specifies MKIIIA fuel cladding outside diameter as 0.230 inches. No tolerance is provided for this measurement. The Jacket Assembly drawing No.EB-1-54271 Rev. C does not give a maximum diameter for the J-1 weld joint. Drawing No.EB-1-54544-C Rev. A specifies ".230 at weld after welding." This dimension is provided for the end plug to tube weld. The design basis for the 0.232 inch acceptance criteria is not provided on design drawings or technical specification design parameters.
 - Fuel assemblies are fabricated from 316 stainless steel that was identified as nonconforming at ANL-E because of incomplete documentation including no Certified Material Test Report. The Certified Material Test Report was sent to ANL-W later, was not reviewed for material acceptability, and did not meet ASTM 580-83 requirements for chemical composition. The Certified Material Test Report was requested for "information only." The Certified Material Test Report listed chromium at 18.28 percent; ASTM 580-83 allows 316 stainless steel to have a chromium content of 16 to 18 percent. Original material certifications from Teledyne-Allvac were in the package for 3 of 70 coils. The Teledyne-Allvac certifications met 316 requirements.
 - The Disposition Work/Inspection Record portion of the Inspection/Disposition Report is not retained as part of the inspection package. The information regarding important work control issues such as repair or rework activities is therefore not retained.
 - The fabrication package for the Water Tank Mock-Up (Shop No.61457) being fabricated in the Bldg. 782 machine shop specified visual and magnetic particle inspections on

the completed weld. The QA requirements section did not list magnetic particle examination.

- See Concern QV.3-1.
- The following concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(QV.6-1)
(H1/C1)
CAT. II

Inspections to verify conformance of items or activities including fuel material and fabrication are not always effectively implemented, as required by ASME NQA-1-1989 and the Argonne National Laboratory-West Quality Assurance Program.

FINDINGS:

- Only recent certifications of quality verification personnel have included formal testing and demonstration of performance. Many quality verification personnel have been certified without formal training, examination, and qualification.
- None of the inspection (excluding Nondestructive Examination) or auditor certifications reviewed were current; all were overdue from 6 months to 2 years for the required annual review.
- Some inspectors interviewed did not understand limitations and responsibilities for Level I and Level II inspection certifications. The ANL-W QA Manual does not clearly indicate limits and capabilities for levels of certification.
- The following concern was addressed in the ANL-W self-assessment.

CONCERN:

See Concern QV.1-2.

QV.7 CONTROL OF SPECIAL PROCESSES

PERFORMANCE OBJECTIVE: Provisions should be established to ensure the acceptability of special processes such as welding, heat treating, non-destructive testing, and chemical cleaning, and that special processes are performed by qualified personnel using qualified procedures and equipment.

- FINDINGS:**
- The water tank weld mock-up being fabricated in the Bldg. 782 Machine Shop specified 6010 electrode, 1/4 inch fillet, vertical down. The welding procedure was qualified for vertical up only. This is a critical parameter, as defined by AWS D.1.1, Structural Welding Code. Shop personnel and supervision are unaware of the critical parameters and that the specified welding process was not qualified. The welder assigned to do this work is, therefore, not qualified for this configuration.
 - The specification package for the above job called for Visual Inspection and Magnetic Particle Examination. The work control document (Shop No.61457) did not specify Magnetic Particle Examination under the QA requirements section.
 - The fuel cladding (tube) work control procedure used in the Fuel Assembly Storage Building requires that completed welds over 0.232 inches be hand-worked to the correct size. Completed tubes routinely exceeded the maximum size but were not corrected as required by procedure.
 - See Concerns TC.1-1 and PP.3-2.
 - See Section 4.5.2.15, PP.2.
 - The following concern was not addressed in the ANL-W self-assessment.

CONCERN:
(QV.7-1)
(H2/C1)

Not all special processes used at Argonne National Laboratory-West are conducted using qualified procedures and by qualified personnel, as required by American Society of Mechanical Engineers and American Welding Society codes and Argonne National Laboratory-West procedures.

- FINDINGS:**
- Operators conducting valve cycle preventive maintenance on the Neutron Radiography Facility reactor do not communicate using accepted conduct of operation practices, including readbacks and instrument readings. This resulted in the operational limits being exceeded for flow on the demineralizer system during the work.
 - Operators conducting a control rod insert timing test on the Transient Reactor Test Facility reactor are using a startup log form as an operator aid that does not match the

test procedure. Test termination criteria is not included in the test procedure.

- Phone, intercom, and radio communications observed between operators at Transient Reactor Test Facility, EBR-II, and the Neutron Radiography Facility do not include identification of answering individual, verbatim readbacks, and readouts of instrument or operating parameters.
- See Concern PP.3-2.
- The following concern was addressed in the ANL-W self-assessment.

CONCERN:
(QV.7-2)
(H2/C2)

Personnel performing some special processes at Argonne National Laboratory-West do not follow accepted practices for conduct of operations.

4.5.2.3 Operations

4.5.2.3.1 Overview

Reactor

Four reactor facilities are operated by three divisions; the Experimental Breeder Reactor-II (EBR-II) Division, the Engineering Physics Division (Transient Reactor Test Facility and Zero Power Physics Reactor) and the Fuel Cycle Division (the Neutron Radiography Facility (NRAD) reactor). A fifth reactor, the Argonne Fast Source Reactor, is in shutdown. All operating reactors were reviewed in detail, and all objective areas were covered with the exception of Shift Turnover for Transient Reactor Fuel Facility, Zero Power Physics Reactor, and the NRAD reactor which support one shift operation. A walkthrough examination of Argonne Fast Source Reactor was made. Its fuel has been secured in a vault and staff has been reassigned. The review of the operating reactors was made by comparing the DOE performance objectives and criteria and the more specific details found in DOE Orders, especially DOE 5480.19, to the operation of each reactor and its associated documentation. The review of each operating reactor consisted of a detailed tour with line managers, discussions with supervisors and operators, and a document review. Reactor startups were observed at the Transient Reactor Test Facility and the Zero Power Physics Reactor. Each division has operated independently and has developed its own documentation, procedures, training and qualification, and Quality Assurance (QA) activities.

Good management of ANL-W reactors is evidenced by consistently good housekeeping, good procedures and practices, a knowledgeable staff, and effectively operated reactors. At each reactor, a formal comparison of existing practices had been made with the requirements of DOE 5840.19. This will be very useful in establishing compliance, although minor oversights and/or misunderstandings were found. Good progress toward compliance has been achieved.

The management structure at all reactors was found to be well defined and understood. Position descriptions were readily available, along with statements of responsibilities. Except for the EBR-II, none of these descriptions were accompanied by statements of authorities. In all cases, the vertical flow of information was sufficient to assure good facility management. To control the lateral flow of information, documents of understanding have been issued to clarify matters among various scientific and service divisions, jurisdictions, and other INEL organizations.

All observed activities were conducted in a safe and reliable manner. Control room activities were proper and appropriately restricted. At the EBR-II, a technical specification violation was discovered that resulted in an Unusual Occurrence Report. The manner of assuring compliance with this specification is of concern. Management reacted in a responsible and conservative manner by ordering a prompt reactor shutdown. At the EBR-II, the addition of a fifth shift for training would provide more consistency with accepted practice. Several items of concern not previously identified in the self-appraisal are related to DOE 5840.19. All reactors facilities have developed approved QA

manuals and have QA Representatives. The duties of the QA Representative are primarily in the area of document review, as opposed to reviewing operations and work quality verification.

All of the important aspects of procedure preparation, review, approval, etc. are practiced at the reactor facilities. At EBR-II the failure to cancel some temporary procedures is of concern. At all reactors, data is properly logged on data sheets on which operating limits and ranges have been printed. Data sheets are reviewed to reconcile comments of operators.

Lock and tag procedures meet the minimum requirements for status control at the reactors. A concern is expressed with the lock and tag controls and the NRAD Facility. Specific deficiencies are discussed in Section 4.5.2.15.2 with regard to compliance with 29 CFR 1910 and DOE 5480.19.

The reactors were found to be unusually clean and neat. Storage and condition of special equipment was found to be good. The noise level in the EBR-II control room, which had been considered objectionable, has been greatly improved. The containment building of the EBR-II is a high noise area that is physically designated as such.

Supervisors and operators, while observed at their work stations, exhibited the qualities of responsibility, vigilance, and confidence indicative of good job understanding. Random interviews with operators reflect effective training understanding. The observance of a tabletop emergency drill indicated a good knowledge of emergency procedures on the part of many operators who verbally participated by anticipating the next step of the drill.

Shift turnover was observed at EBR-II. The oncoming shift had been off for 7 days and had lost continuity of activity. The offgoing shift had been on duty for 12 hours. The time allowed for the turnover is somewhat constrained by the bus schedule (For safety reasons, it is desirable for the offgoing crew to go home by bus). The turnover met the requirements of 5840.19, Chapter XII. The shift meeting of the oncoming crew was unusually valuable and informative. All crew members participated in a discussion of the status of each station area. A good practice was noted in the participation of the Assistant Reactor Manager, who assured continuity for the oncoming shift. The Assistant Manager or the Manager attend one turnover each day, 5 days a week.

The EBR-II and the Transient Reactor Test Facility control rooms have been rebuilt within the last 3 or 4 years and the Zero Power Physics Reactor control room instruments have been substantially upgraded since the original construction. These opportunities to correct the human factor problems common to many older control rooms have been used to advantage. The placement of the control instrument grouping, indicators, annunciator panels, lighting, and operator stations were well thought out. Particularly, the flow of noncontrolroom information and maintenance activity is arranged to be outside the control rooms. A concern identified the lack of functional labels, primarily within the EBR-II plant.

Self-appraisals made by the four reactor facility staffs were reviewed. None of the concerns addressed in this appraisal were addressed in the self-appraisal.

Nonreactor

All eight operations performance objectives were addressed during the nonreactor operations review. Activities monitored were the following: Hot Fuels Examination Facility/North hot cell activities (Bldg. 785); cask transfer facilities and sodium washstation (Bldg. 785); fuel manufacturing activities (Bldgs. 704 and 787); Integral Fast Reactor Fuel Cycle Facility (Bldg. 765); sodium treatment facility (Bldg. 799); and sodium storage facility (Bldg. 703).

Documents including management plans, SARs, operational safety requirements, emergency action plans, operations and maintenance manuals, process flow sheets, quality plans, and facility logbooks were reviewed during the appraisal. Personnel interviewed included high level management, supervisors and group leaders, and operators.

The operational atmosphere of these facilities is very different from a more production-oriented facility. ANL-W has a low turnover rate of employees so personnel have a good experience level and a high degree of pride in their work and working environment. Supervisory and worker pride in the mission and work done in the facility is evident. Supervisor and operator knowledge levels are high. Many of the traditional problems found in production-oriented operating facilities are found to a less degree, due to the relatively small crew sizes, single shift operation, and the research and development nature of the operations. Communication is enhanced and shift turnover difficulties are reduced by the fact that all nonreactor fuel handling operations are run on a single shift basis. Observed fuel handling operations in the Hot Fuels Examination Facility hot cell and in the Fuel Manufacturing Facilities were professionally and skillfully performed with emphasis on safety. Fissile material is moved from one area to another with positive control and redundant verification that mass control limits will not be exceeded. Operators are knowledgeable of the safety requirements and concerned for safety of operations.

Operational concerns observed included (1) poor communications and pre- and post-maintenance status verification difficulties when maintenance support groups perform work on facility equipment, (2) inadequate record-keeping and routine recording of operational data in logbooks, and (3) the absence of routine trending of operational data to recognize recurring problems.

Fuel manufacturing operations were professionally conducted and no operational concerns were recognized. However, the "low-hazard nonnuclear" hazard classification assigned to the fuel manufacturing operation is a point of concern. This classification for the unirradiated fuel manufacturing and storage activities is designated in CH correspondence and in the approved SAR. The primary deterrent to a criticality accident is administrative controls and engineered barriers. The assignment of a "moderate-hazard nonreactor nuclear facility" would place additional requirements and overview of the activity.

Self-appraisals made for the nonreactor operations were reviewed. Half of the concerns presented in this appraisal were fully or partially addressed in the self-assessment.

4.5.2.3.2 Findings and Concerns

OP.1 ORGANIZATION AND ADMINISTRATION

Reactor

PERFORMANCE OBJECTIVE: Operations organization and administration should ensure effective implementation and control of operations activities.

- FINDINGS:**
- At all reactors, the responsibilities are clearly described in the operating facility documents, but descriptions of authorities, together with responsibilities, were found only in the Environmental Breeder Reactor-II Facility Manual.
 - Some authority descriptions were found in various documents at the Transient Reactor Test Facility and Zero Power Physics Reactor facilities, which are operated by the Engineering Physics-West Division. These are not complete for any single staff position.
 - At the Neutron Radiography Facility Reactor, which is operated by the Fuel Cycle Division, the facility documents do not provide a description of authorities by position.
 - This concern was identified in the self-appraisal of ANL-W.
 - Authorities, consistent with responsibilities, are not defined by management position in facility documents for reactor facilities operated by the Engineering Physics and Fuel Cycle Divisions.

CONCERN: See Concern OA.1-1.

Nonreactor

- FINDINGS:**
- Occurrence reports for ANL-W reveal five occurrences resulting from poor work control practices during the 20-month period from May 16, 1989, to January 15, 1991. All five occurrences involved Plant Services or line maintenance activities of production facilities. These reports are summarized below:

Occurrence No.	Title	Root Cause
ANL 89-5/ EBR 89-2	Contamination of Maintenance Technician with Caesium-137	1) Inadequate Procedure 2) Violation of tagging procedures
ANL 90-3/ HFEF 90-1	Motor Control Center electrical equipment was found electrically isolated from emergency power generators	1) Inadequate procedures 2) Inadequate work control 3) Inadequate training 4) Lack of verifications, and hold points
ANL 90-19/ HFEF 90-3	Fire water piping to hose cabinets was isolated from fire water source	1) Inadequate use of danger and caution tags 2) Lack of post-work verifications
ANL 90-7/ EBR 90-1	Working on de-energized equipment before the system had been properly tagged	1) Violation of tagging procedures
ANL 90-38/ FP 90-1	Unplanned outage of instrument air to FASB resulting in a ventilation upset	1) Personnel error 2) Inadequate job planning and communications between divisions 3) Poor design

- ANL-W has recognized the need to provide better work control for maintenance activities, as indicated in a task force letter report (letter, "Work Control For Others," dated May 14, 1991). This letter transmits a proposed work control procedure designed to eliminate the above root causes. The letter acknowledges that Plant Services is currently unable to support the proposed procedure due to increase in supervisory workload imposed by the procedure.
- See Concerns PP.2-1, PP.3-2. and MA.1-1.
- This concern was addressed in the ES&H Criteria, Policy, and Procedures, the Fuel Cycle Division, and the Fuels and Processes Division self-assessments.

CONCERN:
(OP.1-1)
(H1/C2)

Existing work control practices do not provide adequate work control for activities being performed by maintenance personnel for operational facilities.

OP.2 CONDUCT OF OPERATIONS

PERFORMANCE OBJECTIVE: Operational activities should be conducted in a manner that achieves safe and reliable operation.

Reactor

- FINDINGS:**
- Within the EBR-II containment structure, the termination point of a 3/4 inch condensate drain from two 20-ton refrigeration units could not be immediately identified because of its torturous path. The Reactor Manager initiated a detailed trace of the line and positively identified its termination at a point downstream of the high efficiency particulate air (HEPA) filter units and also downstream of the radiation monitors.
 - The position of the termination point allowed the unfiltered condensate to exit the containment during normal operation of the reactor. During emergency conditions, with containment in effect, the termination point is within the valved-off (contained) structure.
 - This configuration of the pipe was identified on as-built drawings as original construction.
 - EBR-II Division management recognized this to be possible violation of the technical specifications and performed an immediate evaluation, which was followed by a normal shut-down of the reactor and the initiation of an Unusual Occurrence Report.
 - Technical Specification 3.13 specifies that the rate of release may not exceed 0.7 curies per minute averaged over a 24-hour day. The investigation revealed that this limit was not approached. This Specification also deals with the use of HEPA filters for cleaning the building exhaust gas. On the basis of this filter system being degraded, the violation of a Technical Specification was declared.
 - EBR-II Division management was responsive to the situation and reacted in a responsible and conservative manner. The root cause of this occurrence has not been reported.
 - EBR-II has technically been in violation of Technical Specification 3.1 since the implementation of technical specifications in 1976.
 - The quality of the containment is verified by testing each testable penetration of the containment. Neither this test nor the conventional pressure testing can identify this condensate vent problem.

- This concern was not identified in the facility self-appraisal.

CONCERN: Assessments of the quality of the Experimental Breeder Reactor-II containment process have not provided assurance of compliance with Technical Specifications.
(OP.2-1)
(H2/C1)

- FINDINGS:**
- EBR-II has not implemented the fifth shift for training operators and supervisors. The fifth shift has become an accepted practice in the reactor industry and has facilitated improved training.
 - The 12-hour shift schedule has been put into effect at EBR-II. In the present situation, it may be necessary to hold over an operator who has already worked 12 hours to fill a vacancy on the oncoming shift. (Maximum overtime limit of 16 hours is in effect.) A fifth shift would serve as a manpower pool that could reduce hold-over hours worked.
 - This concern was not addressed in the EBR-II self-appraisal.

CONCERN: Experimental Breeder Reactor-II has not implemented the fifth shift of reactor operators to facilitate training.
(OP.2-2)
(H3/C2)

Nonreactor

- FINDINGS:**
- Interbuilding Cask Washstation records are not complete. The required information was not entered in record file copies of Appendix A and B of OMM 9171, for such information as Step II.1, "Person initiating call" and "Person acknowledging call." Also, only one of the two required operators signed the record.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN: Proper and complete records are not maintained at the Interbuilding Cask Washstation, as required in Procedure OMM 9171 and supervisory checks are not performed to assure records quality.
(OP.2-3)
(H3/C2)

OP.3 OPERATING PROCEDURES AND DOCUMENTATION

PERFORMANCE OBJECTIVE: Approved written procedures, procedure policies, and data sheets should provide effective guidance for normal and abnormal operations of each facility on a site.

Reactor

- FINDINGS:**
- EBR-II operating instructions are temporarily changed by use of Operating Information Bulletins. These are approved appropriately and are expected to be in use for up to 3 months with the expectation that some will be used for 6 months before cancellation.
 - The control room book in which these bulletins are kept contained 10 or more that were overdue for cancellation. Several of these had been in effect for over 1 year.
 - See Concern TS.2-2.
 - The EBR-II Division self-appraisal did not address this concern.

CONCERN: At Experimental Breeder Reactor-II Operating Information
(OP.3-1) Bulletins (temporary changes to operating procedures) are not
(H2/C2) canceled in accordance with procedure.

Nonreactor

- FINDINGS:**
- Trending is not performed for Unusual Occurrence Reports, as required in DOE 5480.19, Chapter VI, and DOE 5000.3A, Section 8.c.2.
 - This concern was addressed in the Incident Reporting and Trend Analysis self-assessment and in the Fuels and Processes self-assessment.

CONCERN: See Concern FR.6-1.

- FINDINGS:**
- The "Safety Analysis Report For the Fuel Manufacturing Facility Vault" and the "Final Safety Analysis Report for the Fuel Manufacturing Facility Building 704" assign these operations to be "low-hazard nonnuclear" activities as defined in DOE 5481.1B and DOE 5480.5. The CH Office of Nuclear Safety has concurred with this designation in the letter, "Safety Analysis for the Fuel Manufacturing Facility," dated December 18, 1986.
 - Fuel production operations require the routine handling of large quantities of enriched fissile uranium. Criticality control is achieved by use of administrative procedures and engineered barriers. Controls include moderator

limitations, use of "birdcages" and fuel racks to control spacing, and inventory control limits in the storage work areas.

- There is a potential for failure of controls that could result in a criticality event. Criticality accident alarm systems are present in the fuel manufacturing work and vault areas. ANL-W acknowledges the need for criticality monitors in the process area due to the potential of a criticality. Personnel present during this event in the facility would be exposed to an unshielded criticality.
- The current low-hazard classification is justification by ANL-W using a determination that a design-basis accident, which consists a uranium fire, will not result in a significant release to the public. The SAR states: "Because of strict compliance with criticality hazards control rules, criticality accidents within the Fuel Manufacturing Facility are not considered a potential hazard."
- An NE-510 letter to Field Office managers, "Guidelines for Designating Non-reactor Nuclear Facilities," dated May 12, 1982, is the primary justification used by ANL-W to classify the facility as "nonnuclear." CH concurred with this designation. The manufacturing and storage operations are designated as nonnuclear based on the fact that the operations were first determined to have a low-hazard classification, according to the design basis accident presented in the SAR. It is then argued that the above guidelines state that the nuclear facility must be classified as moderate or high hazard. Given this requirement, it is rationalized that since the facility is classified as low hazard, it cannot be a nuclear facility. Thus the assumption that a criticality accident is not a potential hazard drove the classification of the facility as a "low-hazard nonnuclear" operation.
- Converse to the above logic, if the facility is first defined as a nuclear facility based on the potential of a criticality accident, it cannot be designated as low hazard.
- This concern is partially addressed in the ANL-W self-assessment by the recognition that SAR upgrades are needed.

CONCERN: The low-hazard class determination and the "nonnuclear facility" designation assigned by Argonne National Laboratory-West for fuel manufacturing operations do not acknowledge the onsite impacts of a criticality accident, when considering criteria in DOE 5480.5 and DOE 5481.1B.
(OP.3-2)
(H2/C1)

FINDINGS:

- This concern was not addressed in the Argonne Area Office-West self-assessment.

CONCERN: DOE Field Office, Chicago, has not provided clear guidelines for designating "nuclear facilities" and hazard classes consistent with DOE 5480.5 and DOE 5481.1B.
(OP.3-3)
(H2/C1)

FINDINGS:

- The Fuel Cycle Division is currently in the process of upgrading procedures to include a different format, more detail, and greater emphasis on regulatory and environmental procedures. Part-time support and transference of Hot Fuels Examination Facility personnel to the Fuel Cycle Facility project promises to diminish the resources available for the upgrade of existing facility procedures.
- Approximately 640 procedures will be revised to reach the goal of a totally upgraded set of procedures. Past experience has shown that procedure review and revision often takes a backseat priority to other work priorities. This is exemplified by the fact that fourth quarter Calendar Year 1990 procedure reviews were not completed because manpower was concentrated on revising Operational Safety Requirements (OSR)-related documents and incorporation of Procedure Change Notices into procedures. Also, past schedules for revising procedures have not been met.
- See Concern OA.7-1.
- This concern was partially addressed in the ES&H Criteria, Policy, and Procedures self-assessment by the recognition that procedures require upgrading.

CONCERN: A Fuel Cycle Division schedule for procedure revision, with milestones, does not exist to assure there will be adequate resources and priority to update operation and maintenance procedures.
(OP.3-4)
(H2/C2)

OP.4 FACILITY STATUS

PERFORMANCE OBJECTIVE: Operations personnel should know the status of the systems and equipment under their control, should know the effect of non-operational systems and equipment on continued operations. They should ensure that systems and equipment are controlled in a manner that supports safe and reliable operations.

Reactor

- FINDINGS:**
- At the Neutron Radiography Facility reactor, shield plugs are secured by both operational status control locks and security locks. No tags are in place to explain why shield plugs are secured.
 - Doors are padlocked for status control and no tags are in place to explain why they are padlocked.
 - See Concerns QV.5-5, and PP.2-1.
 - This concern was not addressed in the Neutron Radiography Facility reactor self-appraisal.

CONCERN:
(OP.4-1)
(H3/C1) At the Neutron Radiography Facility, locks and tags used for status control are not being applied as, required by Chapter IX of DOE 5480.19.

Nonreactor

- FINDINGS:**
- A review of the logbooks of the Fuels Cycle Division and of the Fuel and Processes Division reveals that none of the operations stations are keeping narrative logs at all key shift positions, as required in DOE 5480.19.
 - Currently, no approved management direction exists defining the supervisory review schedule of the logbooks and the type and scope of entries for each log and the format for making entries, as required in DOE 5480.19.
 - The requirement to keep logbooks is recognized by the Fuel Cycle Division in its Draft Operations Management Plan, but the logbook policy has not been implemented.
 - This concern was addressed in the Support Services Division, the Fuel Cycle Division, and the Fuels and Processes Division self-assessments.

CONCERN:
(OP.4-2)
(H3/C1) Narrative logs are not maintained and routinely reviewed by supervisors at the Fuel Cycle Division and Fuels and Processes Division operational facilities, as required in DOE 5480.19.

OP.5 OPERATIONS STATIONS AND EQUIPMENT

PERFORMANCE OBJECTIVE: Operation stations and facility equipment should effectively support facility operation.

Reactor

- FINDINGS:**
- At EBR-II, valves and equipment have been tagged with an identification number relating to a controlled process drawing.
 - No functional labels are affixed to the valves and equipment.
 - This concern was not addressed in the EBR-II Division self-appraisal.

CONCERN: At Experimental Breeder Reactor-II functional labels have not been affixed to valves and equipment, as required by DOE 5840.19, Chapter XVIII.
(OP.5-1)
(H3/C1)

Nonreactor

- FINDINGS:**
- The Interbuilding Cask has a valve that frequently has a radiation level of 300 millirem per hour at contact. A small portable shield has been built to try to reduce the exposure from this valve. The shield has proven largely ineffective.
 - The "HFEF 1990 Calendar Year Radiation Exposure Summary" shows that the Hot Fuel Examination Facility cask handling operations represent 70 percent of the total Hot Fuel Examination Facility radiation exposure. Operators working on this cask typically receive 900 millirem exposure per year. An ANL-W chief technician estimated that personnel exposure could be substantially reduced if this cask source of exposure were redesigned. The cask redesign has been submitted for capital equipment money but is unfunded for FY 1991.
 - No as low as reasonably achievable (ALARA) policy cost/benefit analysis has been done to justify the priority given to cask redesign.
 - See Concern RP.11-1.
 - This concern was not addressed in the Fuel Cycle Division self-assessment.

CONCERN:
(OP.5-2)
(H2/C2)

A cost/benefit analysis has not been performed to determine if the priority of the Interbuilding Cask replacement should be emphasized for as low reasonably achievable radiation policy considerations.

OP.8 HUMAN FACTORS

PERFORMANCE OBJECTIVE: Human factors considerations should be incorporated in the design, layout, and operation of all facilities on the site to facilitate operator control, information processing, and the recognition and proper response to alarms, instruments, and other equipment.

Nonreactor

- FINDINGS:**
- The loss-of-flow alarm for the ventilation fans serving and hoods and gloveboxes in the Fuel Manufacturing Building (Bldg. 704) must be acknowledged by someone outside the facility and cannot be heard inside the facility.
 - This concern was not addressed in the Fuels and Processes Division self-assessment.

CONCERN: The loss-of-flow audible alarm cannot be heard by personnel working within the Fuel Manufacturing Facility to give instant notice that ventilation is lost to the hoods and gloveboxes.
(OP.8-1)
(H2/C2)

4.5.2.4 Maintenance

4.5.2.4.1 Overview

All eight performance objectives in the Maintenance technical area were addressed during this appraisal. Information was obtained by interviewing with ANL-W staff, observing maintenance work being performed, inspecting the material condition of the facilities, and reviewing the various management systems and archives.

The maintenance activities at ANL-W are markedly compartmentalized into one classical maintenance organization (Plant Services), a group of machinists and nuclear-qualified welders (Machine Shop), and six separate program maintenance groups that perform preventive and corrective maintenance on critical systems, instrumentation, building systems, manipulators, etc., for the respective line organizations only. Some of the groups are very small (Neutron Radiography reactor staff is only five people, for example, and the maintenance is performed by the operators during down time: about 75 percent maintenance and administrative time versus about 25 percent operating time).

The duplication of staff, procedures, paperwork systems, and policies has necessitated strict interface agreements; there were six such documents noted. These were mainly to identify jurisdictional boundaries between Plant Services, whose workers are represented by a bargaining unit, and the other groups. The variance in program operating policies has presented difficulties to Plant Services and resulted in overall inefficiency in carrying out the maintenance program.

Regardless of all the organizational complexity, maintenance work itself has been successful in achieving a well-maintained facility that supports safe and reliable operations. The various maintenance organizations need specific and measurable goals for safety and health performance. Staffing levels are satisfactory except that there continues to be a 20 percent overtime trend in Plant Services.

Maintenance work performed by the various ANL-W organizations is through controlled procedures that exhibited authorization data and signatures. Work performed in areas where the potential exists for exposure or contamination is monitored by health physics personnel who also promote ALARA exposure during this sort of work. Proper tools are available during the work and worksites are left in good condition upon job completion. The workers are knowledgeable in the use of procedures, hold points, quality validation requirements, and completion sign-offs. Supervisors were present during appropriate segments of the work observed at ANL-W and a QA representative was at one job site that required his presence. Housekeeping throughout the site, including grounds and construction areas, is excellent.

Properly maintained and neat facilities, tools, and equipment supported a safe maintenance effort. Certified material and spare parts are generally maintained in a controlled manner from receipt to installation, but deviations to this are noted in another section of this report. The instrument and control groups maintained measurement equipment standards, and up-to-date

records of deployed instruments were readily available. Instruments in the field display current calibration status. Some of the maintenance groups follow well-structured storage inspection and shelf-life monitoring programs for their spare parts, but these practices vary throughout ANL-W. Separate storage areas for hazardous material are provided in the Plant Services area. Sufficient (although some slightly cramped areas were noted in Plant Services) work areas exist in which to perform shop-type maintenance. These areas are well ventilated, lighted, and provided a good work environment. Storage of material, tools, and special fixtures is orderly, but some crowded conditions exist. A concern arose regarding the policy on use of safety glasses in some Plant Services shops.

A sampling of maintenance work verified that post-maintenance checks are done to verify successful work completion. All workers interviewed exhibited positive attitudes regarding this work and ANL-W management's commitment to safety (one maintenance mechanic referred to ANL-W as "the people company").

Throughout the operating and maintenance areas there is evidence of good material condition. This includes lubrication, mechanical soundness, good housekeeping, proper calibration levels and intervals, and general good upkeep of the facilities. Maintenance work documentation is not always used to best advantage in trending and age-related studies. The work areas are inspected daily by Plant Services personnel. Any deficiencies detected are noted in a central logbook, which must be signed-off by appropriate foremen or crafts personnel. The manager of Plant Services inspects areas in a random manner but devotes a portion of each day to these inspections.

Each program within ANL-W administers its own preventive maintenance program. These programs are all effectively performed within each program; no delinquent scheduled preventive maintenance work is evident. The excellent material condition of the facilities (no leaking oil, solid mechanical structures, rotary equipment running smoothly, etc.) and fraction of effort devoted to preventive maintenance versus total maintenance (up to 0.8 for one program) illustrates the high priority given to preventive maintenance activities.

The individual line maintenance groups keep their own maintenance records; Plant Services also keep their own records on work that they performed. To date, little or no trending or age-related assessments have been generated for the historical data accumulated, and root cause analysis activities which could be derived from these data are not effectively performed, which prompted a concern.

Maintenance records are kept in accordance with DOE 1324.2A within the various maintenance groups. The groups have assigned people who are trained in this discipline to administer this program. Work procedures are used and vary in complexity, but are appropriate and understandable for the task at hand. However, a concern was generated after viewing some work as to effective review and forethought of the procedures, including health and safety aspects. The formal practices regarding in-process changes are followed in those procedure-governed maintenance activities. Maintenance personnel stated that they will permanently change the deficient procedures as soon as practicable.

ANL-W has, in their self-assessment findings, identified portions of the three concerns that arose from the Maintenance category. They have not identified the findings that led to a concern regarding protective eyewear policy in some Plant Services shops at ANL-W. The ANL-W list regarding maintenance was lengthy and comprehensive. The Team cited findings related to all five major self-assessment findings regarding maintenance listed by ANL-W.

4.5.2.4.2 Findings and Concerns

MA.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Maintenance organization and administration should ensure effective implementation and control of maintenance activities.

- FINDINGS:**
- The maintenance function consists of an overall "Plant Services" organization and several program-specific line maintenance groups that are captive to those programs.
 - The program-specific maintenance organizations have their own work control systems, procedures, and archives. Workers from Plant Services have voiced concern about continually having to adapt to different sets of rules.
 - A proposed procedure to uniformly control the work provided by Plant Services in all areas of ANL-W has been generated in draft form (ANL-W Work Authorization, May 14, 1991). This procedure has not been implemented.
 - The existing maintenance structures do not meet the Maintenance Management Program Objectives regarding efficiency, as delineated in Section 9 of DOE 4330.4A.
 - Maintenance trending on an ANL-W sitewide scale is not performed and is made difficult due to the communication barriers existing among the various maintenance organizations.
 - See Concern PP.2-1 and OP.1-1.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN: A uniform work control procedure governing maintenance activities at Argonne National Laboratory-West is not implemented that would meet the requirements of DOE 4330.4A.
(MA.1-1)
(H1/C1)

MA. 3 MAINTENANCE FACILITIES, EQUIPMENT, AND MATERIAL

PERFORMANCE OBJECTIVE: Facilities, equipment, and material should effectively support the performance of maintenance activities.

- FINDINGS:**
- Although equipment, such as saws and grinders, have a sign next to the switch spelling out the requirement for eye protection when the equipment is in operation, the use of eye protecting safety glasses in the Plant Services maintenance areas relies on personal judgement.
 - ANL-W Plant Services used to require wearing of safety glasses within all areas of the shop. This has been relaxed because many people were ignoring the posted signs.
 - The present policy can result in noncompliance with 29 CFR 1910.133 regarding eye protection.
 - ANL-W did not address this problem in their self-assessment.

CONCERN: See Concern PP.2-4.

MA.7 PREDICTIVE MAINTENANCE

PERFORMANCE OBJECTIVE: Maintenance history evaluation and systematic root cause analyses should be used to support maintenance activities and optimize equipment performance.

- FINDINGS:**
- Review of Plant Services and operating group maintenance records and discussions with their staffs indicate trends on equipment performance data are not analyzed.
 - There are no requirements or provisions that solicit workers to provide input about possible cause of a failure, or to suggest corrective action to prevent further failures. DOE 4330.4A requires that information feedback such as trend analysis be provided for in maintenance practices.
 - Maintenance history is not exchanged among the various operating groups at ANL-W. (See Concern MA.1-1.)
 - Root cause analyses are not being done in most cases.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: Maintenance data are not being used effectively to enhance reliability, safety, or operability of plant equipment including root cause analysis, as required by DOE 4330.4A.
(MA.7-1)
(H3/C1)

MA.8 PROCEDURES AND DOCUMENTATION

PERFORMANCE OBJECTIVE: Maintenance procedures and related documents should provide appropriate directions and guidance for work and should be used to ensure that maintenance is performed safely and effectively.

- FINDINGS:**
- Several noncompliances with the National Fire Protection Association code were noted during a hydrogen purification bed change-out in Bldg. 768. The use of a regular flashlight in the hydrogen cabinet was the most critical safety oversight in the use of the procedure.
 - The change-out of spent catalyst in the metallographic cell purifier unit in Bldg. 785 was beset by a number of preventable delays:
 - Confusion as to Material Safety Data Sheet availability,
 - Sequence problems of heating element disconnection,
 - Use of too-small vacuum wand,
 - A too-long run of tygon tubing collapsed, and
 - The wrong fitting was identified for removal of the catalyst.
 - During the fuel unloading machine disassembly in Bldg. 793, the breathing air supply low-pressure alarm activated twice during the 10-minute in-cell work. The alarms were reset and the work continued after the first alarm, but terminated after the second. The alarms were set per two facility procedures for Bldg. 793, but the operating procedure (STM-SM-2) did not delineate actions to be taken in the event of low breathing air pressure occurrences.
 - See Concerns PP.2-4 and PP.3-2.
 - This concern was not completely addressed in the ANL-W self-assessment.

CONCERN: Maintenance work control procedures are not always effectively reviewed for conditions that could affect safety and for proper definitions of the practices to be used.
(MA.8-1)
(H2/C2)

4.5.2.5 Training and Certification

4.5.2.5.1 Overview

All eleven performance objectives in the Training and Certification technical area were addressed in this appraisal. This appraisal was conducted by reviewing documents, interviewing ANL-W and DOE Argonne Area Office-West personnel, and touring facilities. Facilities toured included Experimental Breeder Reactor-II (EBR-II), Transient Reactor Test Facility, Zero Power Physics Reactor, Hot Fuel Examination Facility, Fuel Cycle Facility, Fuel Manufacturing Facility, and the Analytical Laboratory. Documents reviewed included divisional management plans, operational procedures, training plans, lesson plans and outlines, training examinations, training files and records for selected individuals, EBR-II and Hot Fuel Examination Facility accreditation plans, and the draft EBR-II implementation matrix for compliance with DOE 5480.20. Interviews were held with 42 persons including the Fuel Cycle Division Director, facility and reactor managers, reactor supervisors and operators, chief technicians, technicians, security inspectors, Argonne Area Office-West nuclear program engineers, and training coordinators from various ANL-W divisions and organizations.

There is no comprehensive or formally implemented training program at ANL-W. Each division maintains its own training program. The quality, formality, and methods of providing training are highly variable across ANL-W. EBR-II is the only Category A reactor at ANL-W and has the most formalized and structured training program. Implementation of the EBR-II Training Program is found in well-documented Operations Departmental Procedures. The EBR-II Division also has a well-developed draft training matrix for implementing DOE 5480.20 in accordance with the DOE prescribed schedule. This document is serving as a template for other organizations at ANL-W. Both EBR-II and Hot Fuel Examination Facility have submitted a Training Program Accreditation Plan to CH, as required by DOE 5480.18.

Because the EBR-II Training Program was the most formal and well established at ANL-W, an Environmental, Safety, Health, and Emergency Response Training (ESHERT) group, in the EBR-II Training and Procedures organization, was formed to provide general employee and ES&H training for all ANL-W employees. This training started in April 1991. Some components of ES&H and OSHA training (for example, hazard communication, and laser safety) are not implemented fully in compliance with DOE Orders.

The ESHERT group also provides facility-specific training at ANL-W. Successful completion of the facility-specific training is required for unescorted access to those facilities (for example, Zero Power Physics Reactor, Hot Fuel Examination Facility, Fuel Manufacturing Facility, Transient Reactor Test Facility and Experimental Breeder Reactor-II). Members of the TSA Team attended several of the facility specific training sessions and found them to be thorough and of good quality.

Although the EBR-II Training Program is highly structured, the training for EBR-II and the rest of ANL-W is not based on a systematic analysis of job tasks.

Training files or records of training were readily available. EBR-II uses a computerized examination generator to provide operators, critical systems maintenance personnel, and chemistry technicians with tests. The exam generator randomly selects from a data base of questions to avoid a bias in testing individuals. Feedback on questions missed is incorporated in the data base.

Supervisors responsible for employee training were unable to readily determine if all training requirements were met at facilities other than EBR-II. In many cases this is attributable to a lack of formally established training requirements. Chief technicians providing on-the-job training to technicians are given considerable discretion in determining the amount of training to be received by their technicians.

In some instances training (for example, plutonium safety training in the Fuel Cycle Division) is provided even though not mandated by DOE Orders. Other training programs (for example, worker safety, packaging and transportation, laser safety, and technical support) were found to have deficiencies.

In ESHERT and other training modules, hands-on practice or visual representations are not routinely used to enhance employee training.

Training for Critical Systems Maintenance personnel is well structured. This is not the case for personnel in the Plant Services organization.

Criticality safety training is effective. Fissile material handlers exhibited detailed knowledge of criticality safety requirements and procedures.

Classroom training is conducted to a large extent in conference rooms. Dedicated class rooms and audio visual equipment are not always available when needed.

Training for nondestructive examination technicians is well structured, but the training program for quality control dimensional and receipt inspectors is informal.

The training program for radiological protection personnel is informal and does not include elements (for example, class room training) required by DOE 5480.11. There is no training program for radiological protection chief technicians or health physicists. A plan for complying with DOE 5480.11 was developed and approved in 1989 by CH. The plan was not implemented because management controls were not in place for tracking action items. Argonne Area Office-West was unaware that ANL-W was not in compliance with DOE 5480.11.

ANL-W does not have a formal training program for supervisors, managers, and technical staff. Formal technical training programs exist for reactor supervisors.

The concerns raised in this appraisal were also found in the ANL-W self-assessment. The self-assessment for training and certification appeared to be thorough and of high quality.

4.5.2.5.2 Findings and Concerns

TC.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: The training organization and administration should ensure effective implementation and control of training activities.

- FINDINGS:**
- There is no integrated ANL-W training program. Each division maintains its own training organization.
 - Each division or organization within a division has its own method for maintaining and tracking job-specific training records. The training records are available.
 - The quality of the training provided throughout ANL-W is highly variable. Persons responsible for training do not routinely receive training on development of instructional skills.
 - The types of training provided vary greatly in different organizations at ANL-W. Self-study, classroom, and on-the-job training are the most common types used.
 - Although some of the ANL-W training courses do allow participants to evaluate the course and instructor, there is no ANL-W policy requiring or standardizing evaluations.
 - Managers performing walkthrough inspections do not routinely receive training to improve their ability to monitor and assess facility activities. (See Section 4.5.2.1, OA.5.)
 - Some personnel interviewed by the TSA Team were not conversant on the content of the training regarding the Fitness for Duty Program. (See Section 4.5.2.1, OA.8.)
 - No special training is planned to help ANL-W responsible observers detect substance abuse by subcontractors. (See Section 4.5.2.1, OA.8.)
 - Not all personnel that conduct quality verification activities (inspections, test, nondestructive examination, and audits) have been trained, qualified, and certified according to the ANL-W QA Manual. (See Section 4.5.2.2, QV.1.)
 - Some quality verification inspectors interviewed by the TSA Team did not understand limitations and responsibilities for Level I and Level II inspection certifications. (See Section 4.5.2.2, QV.6.)

- The EBR-II Division has not implemented the fifth shift for training operators and supervisors. The fifth shift has become an accepted practice in the reactor industry and has facilitated improved training. (See Section 4.5.2.3, OP.2.)
- Formalized training is not in place for personnel assigned technical support functions at ANL-W. (See Section 4.5.2.8, TS.1.)
- A formal plan is not in place that will ensure the inclusion of pertinent packaging and transportation information into the training program. There is a general lack of formal, specific training objectives and specific oral and written questions for packaging and transportation on-the-job training. (See Section 4.5.2.9, PT.2.)
- See Concerns OP.2-2, OA.1-2, OA.2-2, OA.8-1, OA.8-2, EP.3-1, PT.2-1, PP.2-4, PP.5-1, QV.1-2, QV.7-1, TS.1-1, and WS.6-1.
- This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(TC.1-1)
(H2/C1)

The Argonne National Laboratory-West Training Program is not comprehensive or formally implemented, as required by DOE 5480.4 in areas including, but not limited to, fire protection, radiation protection, worker safety, emergency preparedness, quality verification, technical support, and packaging and transportation.

FINDINGS:

- There is no ANL-W policy that requires a formal training program with documented training requirements and learning objectives derived from an analysis of the requirements of each job performed.
- Task analyses have been performed only for EBR-II reactor console operators and Neutron Radiography Facility reactor operators.
- The specific requirements for training are not formally established for many ANL-W organizations and the training received by employees cannot be readily audited against training requirements. Training requirements are formally established in the EBR-II Division and most of the Fuel Cycle Division.
- EBR-II qualified instrumentation and control technicians are loaned to other divisions to work in facilities such as the Fuel Assembly and Storage Building and the Fuel Manufacturing Facility. These technicians do not receive

training on the equipment and systems unique to these facilities.

- ANL-W has not developed a job task analysis for each member of the emergency response organization, support staff, and specialized team. (See Section 4.5.2.7, EP.1.)
- The Hot Fuel Examination Facility cask handler training requirements for qualification as a cask handler are not uniquely described in Hot Fuel Examination Training Guidelines and fail to specify packaging and transportation training requirements. (See Section 4.5.2.9, PT.2.)
- This concern was fully addressed in the ANL-W self-assessment.

CONCERN:
(TC.1-2)
(H2/C2)

Analyses of job requirements are not routinely performed at Argonne National Laboratory-West and the level of training provided to all employees is not commensurate with the requirements of their jobs.

TC.3 NUCLEAR FACILITY OPERATIONS OTHER THAN REACTORS

PERFORMANCE OBJECTIVE: The Nuclear Facility Operator and Supervisor Training and Certification Programs should be based on DOE 5480.5, as applicable, and should develop and improve the knowledge and skills necessary to perform assigned job functions. (Nuclear Facilities Only).

- FINDINGS:**
- The basis behind OSRs is not routinely covered in supervisory training at ANL-W's nuclear facilities; for example, at Fuel Cycle Facility and Hot Fuel Examination Facility.
 - The chief technicians in these facilities provide on-the-job training to the technicians. The chief technicians are not required to receive additional formalized training than received by the regular technicians, but are subjected to more thorough and rigorous testing.
 - The chief technicians are given considerable discretion in determining the training to be received by their technicians. The training requirements for technicians are not formally delineated based on job requirements.

CONCERN: See Concerns TC.1-1 and TC.1-2.

TC.4 GENERAL EMPLOYEE/PERSONNEL PROTECTION TRAINING

PERFORMANCE OBJECTIVE: General Employee and Personnel Protection Training Programs should ensure that site/facility personnel, subcontractors and visitors have an understanding of their responsibilities and expected safe work practices, and have the knowledge and practical abilities necessary to effectively implement personnel protection practices associated with their work.

- FINDINGS:**
- The Tool Crib attendant has no training in respirator issue. (See Section 4.5.2.15, PP.2.)
 - No formal confined space training is provided for safety watches or entrants. (See Section 4.5.2.15, PP.2.)
 - Training in the use of hearing protection devices is not conducted in accordance with 29 CFR 1910.95. (See Section 4.5.2.15, PP.2.)
 - No formal laser training is provided. The Laser Safety Officer has not received enough training to feel comfortable in performing his responsibilities. (See Section 4.5.2.15, PP.2.)
 - ES&H training requirements have not been established for workers by job classification. (See Section 4.5.2.15.2, PP.5.)
 - There is no written hazard communication program specific for each worksite at ANL-W. The ANL-W hazard communication program is deficient in many areas including designation of responsible individuals for labeling in-plant containers, obtaining and maintaining the MSDSs, and conducting training. (See Concern WS.6-1.)
 - See Concerns PP.2-4 and PP.5-1.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(TC.4-1)
(H2/C1)

The Argonne National Laboratory-West Personnel Protection Training Program is not in full compliance with DOE 5480.1B and various Occupational Safety and Health Administration regulations for areas including hazard communication, laser safety, and working in confined spaces.

- FINDINGS:**
- Neither hands-on practice nor visual representations are routinely used at ANL-W to enhance the training provided to employees in areas such as use of fire extinguishers, hearing protection, and anti-contamination clothing.

- There is no hands-on training in the use of vital fire fighting equipment. (See Section 4.5.2.17, FP.1.)
- The knowledge, capabilities, and retention of instructional information are not evaluated through the use of hands-on methods during initial training or during the annual requalification training for members of the ANL-W Emergency Response organizations. (See Section 4.5.2.7, EP.3.)
- See Concerns FP.1-1 and EP.3-1.
- This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(TC.4-2)
(H2/C2)

Argonne National Laboratory-West does not routinely use hands-on demonstrations or visual representations in general employee and personnel protection training.

TC.5 MAINTENANCE PERSONNEL

PERFORMANCE OBJECTIVE: The Maintenance Personnel Training Qualification Programs should develop and improve the knowledge and skills necessary to perform assigned job functions.

- FINDINGS:**
- There is no formal training program in place at ANL-W for Plant Services personnel.
 - Plant Services does not have a standard method to track and schedule required training. The Plant Services training magnetic marker board being used is uncontrolled and not current.
 - Plant Services personnel do not receive thorough training on maintenance of all types of diesel generators found at ANL-W.
 - See Concerns TC.1-1, TC.1-2, and TS.1-1.
 - This concern was fully addressed in the ANL-W self-assessment.

CONCERN:
(TC.5-1)
(H2/C2)

Training requirements are not formally established for maintenance personnel in the Plant Services Organization.

TC.7 TRAINING FACILITIES AND EQUIPMENT

PERFORMANCE OBJECTIVE: The training facilities, equipment, and materials should effectively support training activities.

- FINDINGS:**
- ANL-W does not have enough dedicated classrooms to ensure availability when needed.
 - Conference rooms at ANL-W are used for training on an as-available basis. No priority is given to training activities for scheduling conference rooms.
 - Audio visual equipment needed for training presentations is not readily available.
 - This concern was fully addressed in the ANL-W self-assessment.

CONCERN: Training facilities and equipment do not effectively support training activities.
(TC.7-1)
(H3/C2)

TC.9 RADIOLOGICAL PROTECTION PERSONNEL

PERFORMANCE OBJECTIVE: The Radiological Protection Personnel Training and Qualification Program should develop and improve the knowledge and skills necessary to perform assigned job functions.

- FINDINGS:**
- There is no formal, structured classroom training or retraining program in place at ANL-W for health physics technicians as required by DOE 5480.11. There is no written training plan or organized program for implementation of the radiation protection training requirements of the ES&H Manual at ANL-W for all personnel.
 - The responsibility for overseeing ANL-W radiation protection training is assigned to one of the staff health physicists. The training is not effectively implemented. There is no formal training manager for radiation protection.
 - There are no health physics technician training lesson plans, laboratory exercise plans, or classroom aids for health physics instructors.
 - On-the-job training is informally provided to Radiation Protection personnel by chief technicians and health physicists.
 - See Section 4.5.2.14.2, RP.1.
 - This concern was fully addressed in the ANL-W self-assessment.

CONCERN:
(TC.9-1)
(H2/C1)
Argonne National Laboratory-West does not have a training or retraining program for radiation protection personnel including as low as reasonably achievable compliance, as required by DOE 5480.11.

- FINDINGS:**
- ANL-W identified this noncompliance with DOE 5480.11 in 1989 and developed a CH-approved plan to come in compliance by the end of 1990.
 - This plan was not implemented. The manager of the Safety, Environment, and Safeguards organization, responsible for the Radiation Protection Personnel, indicated that the implementation "fell through the cracks" because of a lack of management controls to track action items.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN: See Concern RP.1-2.

FINDING:

- The Argonne Area Office-West Nuclear Program Engineer responsible for training coordination at ANL-W was not aware of the noncompliance with DOE 5480.11.
- See Concern RP.1-2.
- This concern was not identified in the Argonne Area Office-West or CH self-assessment.

**CONCERN:
(TC.9-2)
(H2/C1)**

The Argonne Area Office-West is not providing oversight to assure radiation protection training activities at Argonne National Laboratory-West are in accordance with DOE 5480.11.

TC.10 TRAINING FOR SUPERVISORS, MANAGERS, AND TECHNICAL STAFF

PERFORMANCE OBJECTIVES: Training programs for supervisors, managers, and the technical staff should broaden overall knowledge of processes and equipment and develop supervisory and management skills.

NOTE: This performance objective applies to those managers and supervisors to whom operations, maintenance, engineering, or technician personnel report. Technical personnel are those individuals whose job responsibilities affect the safe and reliable operation of each facility on the site, but who are not operators, maintenance, or quality control inspectors and nondestructive examination technical personnel. Examples of such positions are engineers, engineering technicians, test/surveillance personnel, chemists, and chemistry technicians.

FINDINGS:

- ANL-W does not have a formal training program for supervisors, managers, and technical staff. Formal technical training programs exist for reactor supervisors.
- These concerns were partially addressed in the ANL-W self-assessment.

CONCERN: See Concerns TC.1-1, TS.1-1, and OA.5-1.

4.5.2.6 Auxiliary Systems

4.5.2.6.1 Overview

An assessment of the reliability of the Auxiliary Systems at ANL-W was performed which considered functional requirement definition, procedures, training, maintenance, testing, and data trending of the various auxiliary systems and processes. Personnel interviews, data and procedure reviews, and system walkthroughs were conducted. The nine performance objectives in the Auxiliary Systems technical area were addressed in this appraisal. Facilities visited and reviewed included Experimental Breeder Reactor-II (EBR-II), Zero Power Physics Reactor, Transient Reactor Test Facility, Hot Fuel Examination Facility, Fuel Cycle Facility, and other minor facilities such as Fuel Manufacturing Facility, Fuel Assembly and Storage Building, and the Analytical Laboratory.

Auxiliary systems at ANL-W were found to generally be in good condition and had the appearance of being well maintained. Procedures for some activities needed to be upgraded for consistency between the different divisions at the site. Training of personnel for some activities is informal (on-the-job). Personnel in charge of maintaining and operating these systems are found to be knowledgeable and aware of system problems and operating parameters. This positive operation of the facilities appeared to be due more to the efforts of experienced and dedicated personnel rather than rigorous system safety analysis, procedures, training, and data documentation and trending.

The self-assessment conducted by ANL-W for auxiliary systems was generally thorough and complete. The majority of the concerns in this section were either partially or totally identified by ANL-W. Additionally, several other minor findings and concerns were identified that are not presented in the this report. The ANL-W self-assessment did contain minor discrepancies concerning requirements such as evaluation of the vital electrical power supplies against incorrect standards.

Systems descriptions and functional requirements, as noted in various facility SARs, are not consistently defined or documented for all site facilities. The SAR for the Transient Reactor Test Facility is an example of a comprehensive document that considers all the auxiliary systems. On the other hand, the Zero Power Physics Reactor and Hot Fuel Examination Facility SARs need an overall review and update to be in compliance with DOE Orders. Programs for monitoring and surveillance are not implemented to detect long-term degradation and aging of systems and components.

Effluents released from the site are mostly in the form of airborne radioactivity. These effluents are not always accurately measured or formally trended at specific facilities. An overall site trending program for effluents both liquid and gaseous is generated from data provided to EG&G Idaho via the monthly Radioactive Waste Management Information System reports.

Solid wastes generated at the site are minimal in quantity and generally no significant problems were observed in this area. Solid wastes are shipped to other INEL organizations for storage or disposal.

Facilities for storage and handling of fissile material are in good condition and personnel are very knowledgeable of requirements and controls required.

Ventilation systems at ANL-W exhibited a wide variety of design, testing, and monitoring capability. For example, the Transient Reactor Test Facility has been recently modified to provide an acceptable dioctyl phthalate test capability, whereas the Zero Power Physics Reactor ventilation systems were constructed such that accurate effluent monitoring and high efficiency particulate air (HEPA) filter testing could not be accomplished in accordance with industry standards (ANSI N510). Other ventilation systems such as at the Fuel Cycle Facility are being modified to more rigorous standards, while the old systems that remain in service at that facility are in some places heavily contaminated. The safety analysis documents that describe the functional requirements for these systems vary widely in depth and scope. Some require extensive upgrading to be in compliance with DOE standards. Additionally the effluent monitoring systems at various facilities are not installed in compliance with ANSI 13.1.

Vital electrical, emergency electrical, and water systems at the site were generally in good condition. An ANL-W sitewide problem exists in documenting the loads that will be connected to emergency diesel generator electrical systems in the event of power outages. Normal electrical power systems at various facilities are undergoing upgrades to replace old unserviceable equipment. Water supplies are adequate and recent upgrades have improved system reliability.

Heat removal systems are also in good condition. Heat loads on these systems are not excessive; for example, even under the maximum ambient temperature conditions experienced during the appraisal, various buildings and systems were maintained at acceptable temperature levels.

Engineered safety systems, which are considered primarily applicable to the EBR-II facility appeared to be reliable and controlled by procedures. The containment isolation, shutdown cooling, siphon break, and auxiliary pump systems have been proven by comprehensive testing to comply with technical specification requirements. No significant problems were noted.

Coolant cleanup systems, specifically at EBR-II, such as the cover gas cleanup and sodium cold trap systems are also reliable. No major problems were noted.

4.5.2.6.2 Findings and Concerns

AX.1 SYSTEMS REQUIREMENTS

PERFORMANCE OBJECTIVE: Auxiliary systems should be considered under the same functional criteria for design, engineering, operations, maintenance, and modifications as the structural, confinement, and primary process system of the facility.

- FINDINGS:**
- Trending of airborne effluent data is not accomplished on an individual facility basis, although data reports provided by the EG&G Idaho Radioactive Waste Management Information System give an overall site release perspective.
 - Formal procedures and plans for trending of the monthly, quarterly, and yearly maintenance data at Plant Services do not exist.
 - Significant data are generated during maintenance and testing of the emergency diesel generators, but is not tabulated in an auditable form.
 - No long-term trending program exists to detect age-related degradation of critical systems at many of the facilities at the site, although EBR-II engineering has established a formal program to trend critical and safety systems data.
 - See Concerns MA.7-1, OP.3-2, TS.4-1 and FR.6-1.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN: See Concern FR.6-1.

- FINDINGS:**
- Neither the SAR or procedures for the Hot Fuel Examination Facility (ANL 7959) formally document the load scheme for applying loads to the emergency diesel generators, although a study was completed to verify that the electrical system would not be overloaded during loss of normal electrical power.
 - The SAR for the Zero Power Physics Reactor has never been completely updated to account for a modification to the ventilation system, which added an additional hood in the fuel assembly workroom.

- The Hazards Summary Report for the EBR-II does not discuss emergency diesel generator loading. The System Design Description, an uncontrolled document, does discuss various loads, but no calculations are available to translate this information to the procedures that load test the diesel generators.
- See Concerns TS.2-1 and OA.6-1.
- This concern was partially addressed in the ANL-W self-assessment.

CONCERN: **See Concern TS.2-1**

AX.2 EFFLUENT HOLDUP AND TREATMENT

PERFORMANCE OBJECTIVE: Effluent holdup and treatment should ensure that the amount of hazardous substances released to the environment as escaping emissions and/or as effluent gaseous or liquid releases are less than DOE and EPA standards and are as low as reasonably achievable (ALARA).

- FINDINGS:**
- The alpha/beta monitoring instrumentation for the Zero Power Physics Reactor cell and workroom ventilation system is not installed in such a way that a representative sample is obtained.
 - Instruments that measure effluent releases in the sodium components maintenance shop (EBR-II Division), and the Hot Fuel Examination Facility do not meet the requirements of ANSI N13.1 installation standards.
 - See Concern RP.9-1.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN:
(AX.2-1)
(H2/C1)

Effluents released through the various ventilation systems are not measured accurately for the Zero Power Physics Reactor, Sodium Components Maintenance Shop, and Hot Fuel Examination Facility in accordance with ANSI N13.1.

AX.5 VENTILATION SYSTEMS

PERFORMANCE OBJECTIVE: Ventilation systems should reliably direct all airborne effluents from contaminated zones or potentially contaminated zones through cleanup systems to ensure that the effluent reaching the environment is below the maximum permissible concentration and is ALARA.

- FINDINGS:**
- The Zero Power Physics Reactor facility ventilation systems that service the reactor cell and the fuel assembly workroom cannot be tested strictly in accordance with ANSI N510-1980, in that the individual filters elements are spaced too close together to allow adequate mixing of the DOP suspension. This has been documented in the test report for 1991, but is not documented in the facility SAR.
 - HEPA filter dioctyl phthalate testing is accomplished by the Plant Services personnel for all the filtration systems on-site except EBR-II systems. One basic procedure exists, and is then supplemented by facility specific procedures that vary greatly in quality and content; for example, pretest visual examination of the ventilation system components required by ANSI N510 is not uniformly applied.
 - The ventilation systems at the Fuel Cycle Facility are presently being modified to support the Integrated Fast Reactor project. A new ventilation system has been installed to partially replace the old system. Portions of the old system (HEPA filters) are heavily contaminated, which constitutes a radiation hazard.
 - This concern was identified in the ANL-W self-assessment.

CONCERN: Ventilation systems at Argonne National Laboratory-West that
(AX.5-1) employ high efficiency particulate air filters are not tested in
(H2/C1) accordance with ANSI-N510 requirements.

- FINDINGS:**
- The ventilation system at the Fuel Manufacturing Facility, which provides a negative pressure condition for various portions of the facility, does not have a delta-pressure indication system so that operators can readily verify proper flow balancing.
 - A flow balance is accomplished on a semiannual basis, but a system is not in place that provides timely monitoring such as exists in the Laboratory and Office building.
 - The Fuel Manufacturing Facility flow balancing is accomplished, but the procedure is not complete and the data is not well documented.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(AX.5-2)
(H2/C2)

Testing and verification of ventilation systems for conformance with procedural and environment safety and health requirements is not periodically performed and documented at the fuel manufacturing facility.

AX.6 VITAL SUPPLY SYSTEMS

PERFORMANCE OBJECTIVE: The electric, water, and emergency power systems should reliably provide vital services, as required by all facilities on the site.

- FINDINGS:**
- Test procedures for emergency electrical power system do not contain many attributes required by NFPA 110 for nonreactor applications.
 - The loads that will be applied to the diesel generators are not well documented by safety analysis or other documents, such as technical specifications or operating procedures.
 - Fuel oil arriving onsite is not tested prior to filling onsite tanks. EG&G Idaho provides for the testing of this fuel but no certification is provided to ANL-W.
 - This concern was partially identified in the ANL-W self-assessment.

CONCERN: Emergency power sources are not tested in accordance with NFPA 110 for nonreactor facilities.
(AX.6-1)
(H3/C1)

4.5.2.7 Emergency Preparedness

4.5.2.7.1 Overview

The seven performance objectives in the Emergency Preparedness technical area were addressed in this appraisal. In addition, it addresses the ANL-W Emergency Public Information Program requirements outlined in DOE 5500.4A. This appraisal was conducted by interviews with ANL-W Emergency Management, Facility Emergency Directors, members of emergency support staff and the ANL-W Emergency Planning Coordinator, and review of ANL-W Emergency Plans, Emergency Plan Implementing Procedures, Safety Analysis Reports, and Facility Emergency Plans. Surveys of ANL-W emergency response facilities, ID Fire Department, security response facilities, and Experimental Breeder Reactor-II (EBR-II) Control Room.

The existing ANL-W Emergency Preparedness Program has the majority of the responsibilities outlined in their Emergency Plan and their Emergency Plan Implementing Procedures; however, these documents are still not in compliance with DOE 5500 series; see Section 4.5.2.7.2, EP.1 and EP.2, for more details. Recent modifications require that the ANL-W Emergency Response Organization activate and deploy to the INEL Emergency Operations Center. This caused considerable problems for the EBR-II Shift Supervisor in his attempt to recognize and classify the simulated exercise emergency in the prescribed time limitations. Also, the offsite notifications were late being transmitted to offsite emergency management agencies. Both of the problems resulted in a Category II concern. ANL-W has developed facility emergency plans for each of their 10 facilities that provide emergency action levels and emergency classification, and assign responsibilities. These plans are controlled documents that are reviewed and revised annually and approved by emergency management.

ANL-W provides general employee training on an annual basis and facility-specific training to all ANL-W employees. The existing Emergency Preparedness Training Program is not a performance based training program and does not conform to DOE 5500 series.

The existing Facility Safety Analysis documents are in need of revision and this revision should be expedited and revisions made to ANL-W emergency preparedness documents to reflect these changes.

ANL-W prepared a well-written, challenging, comprehensive emergency preparedness exercise scenario, which involved a sodium problem in the EBR-II reactor with injuries and contamination problems. This was the first time the ANL-W emergency response organization was directed to activate the INEL Emergency Operations Center, which caused the problems highlighted in Section 4.5.2.7, EP.4, of this appraisal. The major problems involved in this exercise have been corrected by providing remedial training and by revising the Emergency Plan Implementing Procedures to ensure that shift supervisors are now capable of performing these cited deficiencies. The verbal and written critiques prepared by ANL-W identified all the findings that the TSA Team members had addressed. ANL-W has an excellent method of tracking cited

drill improvements and self-assessment findings and bringing them to a successful resolution.

The new DOE 5500 series will require that ANL-W management review the available resources allocated to support the normal routine emergency preparedness functions, along with the emergency response efforts need to make modifications to ANL-W's Emergency Preparedness Program.

All concerns that were addressed in this report were also found in the ANL-W self-assessment report, with the exception of the exercise concerns.

4.5.2.7.2 Findings and Concerns

EP.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Emergency preparedness organization and administration should ensure effective planning for, and implementation and control of, site/facility emergency response.

- FINDINGS:**
- The ANL-W Emergency Preparedness Program did not meet the criteria established in DOE 5500.1A and DOE 5500.3.
 - Not all possible credible emergencies are covered in sufficient detail in the existing emergency plan and implementing procedures. All existing ANL-W SARs need to be updated to provide sufficient details for the ANL-W emergency plan.
 - Not all letters of agreement and letters of understanding have been coordinated and approved in accordance with DOE 5480.11 and DOE 5500 Orders series.
 - ANL-W has not developed a job task analysis for each member of the emergency response organization, support staff, and specialized teams.
 - The roles and responsibilities for ID, CH, EG&G Idaho, INEL, and other INEL contractors emergency response organizations have not been addressed in sufficient detail in the existing ANL-W Emergency Response Plan.
 - ANL-W management has not allocated enough resources to accomplish ANL-W emergency preparedness and response tasks for both routine and emergency response.
 - ANL-W Emergency Preparedness Program has not been kept current because not enough resources are allocated to the emergency preparedness function.
 - This concern was addressed in ANL-W self-assessment.

CONCERN: The Argonne National Laboratory-West Emergency Preparedness Program is not fully in compliance with DOE 5500.1A and DOE 5500.3 in addressing credible emergencies, obtaining letters of agreements, and coordinating of offsite field monitoring activities.
(EP.1-1)
(H2/C1)

EP.2 EMERGENCY PLAN AND IMPLEMENTING PROCEDURES

PERFORMANCE OBJECTIVE: The Emergency Plan, the Emergency Plan Implementing Procedures, and their supporting documentation should provide for effective response to operational emergencies.

- FINDINGS:**
- The ANL-W Emergency Plan Implementing Procedure that was used in the simulated emergency exercise did not provide the appropriate emergency classification for the event depicted in the exercise scenario.
 - The Emergency Planning Zone is not described in the ANL-W Emergency Plan, although it is under review by CH.
 - The Emergency Plan Implementing Procedures do not address the following: safeguards and security events, dose assessment and plume projection, field monitoring and sampling functions, in-plant monitoring, hand calculated method for dose assessments, or medical rescue operations.
 - Not all responsibilities are identified in the Emergency Plan Implementing Procedures for all members of the ANL-W emergency response organization; that is, specialized teams, field response teams, support staff, and defined succession of command of facility emergency directives.
 - ANL-W has not removed the "notification of unusual event" from the Emergency Action Levels listing as depicted in both the Emergency Plan and Emergency Action Levels.
 - For backshift operations, Emergency Plan Implementing Procedures do not address the concept of operations to activate the INEL Emergency Operations Center nor actions of the technical liaison person being dispatched to INEL during an emergency situation.
 - Emergency Plan Implementing Procedures do not address methods or procedures for obtaining other INEL contractors, support during emergencies, such as field monitoring and sampling support, additional fire department and medical support, Protection Technology of Idaho, Inc. (PTI) security assistance, etc.
 - Emergency Plan Implementing Procedures do not provide detailed instructions for immediate actions, interim actions, and followup activities for members of the ANL-W emergency response organization and response teams.
 - Checklists have not been developed to support all Emergency Plan Implementing Procedures, and to ensure all appropriate emergency actions are taken by members of the emergency response organization.

- Notification procedures have not been revised to reflect the new concepts of operations for INEL Emergency Operations Center and Warning Communications Center emergency operations.
- This concern was addressed in the ANL-W self-assessment.

CONCERN:
(EP.2-1)
(H1/C1)

The Argonne National Laboratory-West Emergency Plan Implementing Procedures do not fully meet the requirements contained in DOE 5500.1A, DOE 5500.2A, DOE 5500.3, and DOE 5000.3A.

EP.3 EMERGENCY RESPONSE TRAINING

PERFORMANCE OBJECTIVE: Emergency response training should develop and maintain the knowledge and skills for emergency personnel to effectively respond to and control an emergency.

- FINDINGS:**
- ANL-W has not developed a written, approved Emergency Preparedness Training Program description, as required in DOE 5500.3 and accepted industry practices.
 - The knowledge, capabilities, and retention of instructional information are not evaluated through written examinations, demonstrations, and hands-on initial training or during the annual requalification training for members of the ANL-W emergency response organization.
 - Effectiveness of the ANL-W Emergency Response Training Program has not been periodically evaluated, and the results have not been documented and used to make program improvements.
 - The ANL-W Emergency Handbook does not describe the Emergency Planning Training Program in sufficient detail (that is, lesson plan development, certification of instructions, passing grades, training matrix, the use of abbreviated and detailed lessons, etc.).
 - ANL-W has not developed a job task analysis for each position identified in their emergency response organization.
 - The new concept of operations, including the use of INEL Emergency Operations Center during back shift emergency operations and the use of ANL-W liaison support staff has not been sufficiently covered in training and mini-drills to ensure ANL-W personnel capabilities.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN:
(EP.3-1)
(H2/C1)

Argonne National Laboratory-West emergency response training program for members of the emergency response organization did not fully meet the requirements of DOE 5500.3, DOE 5480.11, and accepted industry practices.

EP.4 EMERGENCY PREPAREDNESS DRILLS AND EXERCISES

PERFORMANCE OBJECTIVE: Emergency Preparedness Programs should include provisions for simulated emergency drills and exercises to develop and maintain the knowledge and skills for emergency personnel to effectively respond to and control an emergency.

NOTE: The drills and exercises referred to in this section are related to tests of, and training on, the Emergency Preparedness Program. In many cases, these drills and exercises are best initiated using an operational situation. If accomplished that way, an additional benefit is gained by exercising the operations personnel and the interface between operations and emergency preparedness. Therefore, for maximum benefit, an operational drill or exercise can be used to lead into the emergency preparedness event, providing a drill or exercise to each program.

- FINDINGS:**
- ANL-W has not formally organized an exercise scenario development committee. This committee membership should not include representatives from the fire department, security, public affairs, medical, operations, and the affected simulated incident location.
 - Exercise controllers and evaluators have not received annual training to perform their functions during an emergency preparedness exercise.
 - ANL-W has not developed emergency preparedness administrative procedures to address scenario development, formal training requirements for controllers and evaluators, objectives for the exercise, and post-exercise functions.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: The Argonne National Laboratory-West Emergency Exercise Program is not in full compliance with DOE 5500.1A, DOE 5500.2, DOE 5500.3, DOE 5500.4A, and DOE 5000.3A.
(EP.4-1)
(H2/C1)

- FINDINGS:**
- During the TSA emergency response exercise, ANL-W did not classify the simulated emergency event in a timely manner.
 - Notifications were not made in accordance with DOE 5500.2A, DOE 5500.3A, and public information news releases were not timely, as required in DOE 5500.4A.
 - This concern was partially addressed in ANL-W self-assessment.

CONCERN: Argonne National Laboratory-West does not have the capability for
(EP.4-2) performing emergency classifications and making prompt
(H1/C1) notification to DOE Headquarters Emergency Operations Center and
CAT II to offsite emergency management agencies, as required by DOE
5500.1A, DOE 5500.2A, DOE 5500.3, DOE 5500.4A, and DOE 5000.3A.

- FINDINGS:**
- ID did not provide sufficient written guidance to clarify the following:
 - Determine who will assume command and control over the emergency situation, during a contractor's facility-oriented emergency.
 - Specify that ID is responsible for the oversight of INEL contractors during an emergency.
 - Specify that, for non-EG&G Idaho emergencies, EG&G Idaho will assume a supportive function and a protective action response for all other INEL contractors.
 - Outline individual INEL contractors responsibilities during emergency situations.
 - Ensure that an integrated effort is achieved between INEL contractors to provide the necessary support during emergency operations.
 - Develop a consolidated emergency public information program that is compatible with all INEL contractors.
 - Outline the capabilities of the Warning Communications Center and their assessed responsibilities.
 - This concern was not addressed in the ID self-assessment.

CONCERN: DOE Field Office, Idaho, did not provide sufficient written
(EP.4-3) directions to ensure that effective command, control, and
(H1/C1) oversight is achieved during emergencies, as directed in DOE
CAT. II 5500.1A, DOE 5500.2A, DOE 5500.3A, DOE 5500.4A and DOE 5000.3A.

EP.5 EMERGENCY FACILITIES, EQUIPMENT, AND RESOURCES

PERFORMANCE OBJECTIVE: Emergency facilities, equipment, and resources should adequately support site/facility emergency operations.

- FINDINGS:**
- The existing ANL-W Emergency Operation Center is too small to accommodate the ANL-W emergency management organization.
 - ANL-W has not formalized the Emergency Plan Implementing Procedures for use in activating the INEL Emergency Operation Center as the backup facility for ANL-W Emergency Operation Center.
 - ANL-W Emergency Operation Center and INEL Emergency Operation Center do not have a system installed to monitor the conditions of processes, plant systems, experiments, and engineering safety features during the course of an accident.
 - See Concerns EP.6-1 and TS.2-3.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN:
(EP.5-1)
(H2/C1)

The Argonne National Laboratory-West emergency response facilities do not fully meet the criteria established in DOE 5500.1A, DOE 5500.2, and DOE 5500.3.

EP.6 EMERGENCY ASSESSMENT AND NOTIFICATION

PERFORMANCE OBJECTIVE: Emergency assessment and notification procedures should enable the emergency response organization to correctly classify emergencies, assess the consequences, notify emergency response personnel, and recommend appropriate actions.

- FINDINGS:**
- ANL-W Emergency Preparedness Implementing Procedures do not have sufficient information and instructions for obtaining radiation monitoring or sampling assistance from other INEL contractors.
 - ANL-W Emergency Action Levels do not address safeguards and security incidents (for example, cross reference between code Alpha, Bravo, and Charlie incidents, theft of special nuclear materials, etc).
 - ANL-W Public Affairs Department does not use preformatted messages, and notifications are not made in prescribed time limitations.
 - ANL-W procedures do not provide sufficient information and instructions for assessing a release of hazardous materials (both radiological and nonradiological), including methods for measuring levels inside ANL-W facilities, onsite and offsite. Further, they do not provide sufficient information and instructions for determining the magnitude of the source and projected dose of potential releases.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: See Concern EP.2-1.

- FINDINGS:**
- Coordination has not been established in the review and approval process of ANL-W Emergency Action Levels with ID, Project Support Office, State or local emergency management agencies.
 - ANL-W Emergency Plan Implementing Procedures do not describe the methods that could be used to calculate doses from a release caused by ANL-W facilities. Emergency Plan Implementing Procedures do not provide sufficient guidance and instructions to make protective action recommendations for backshift operations.
 - This concern was addressed in ANL-W self assessment.

CONCERN: See Concern EP.2-1.

- FINDINGS:**
- There is no ANL-W monitoring procedure available.

- The ANL-W Emergency Handbook does not describe the basic responsibilities and procedures to be followed by the radiological emergency monitoring responders (both offsite and onsite).
- This concern was addressed in ANL-W self assessment.

CONCERN: See Concern EP.2-1.

- FINDINGS:**
- The equipment and techniques used by the onsite and offsite field monitoring teams are different in the area of dressout, instrumentation, and monitoring techniques, which may lead to confusion at the INEL Emergency Operation Center and confusion in the field.
 - There are no controlled copies of radiological emergency response Health Physics Technician Procedures available to the onsite responders, contrary to DOE 5500.3A.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: See Concern EP.2-1.

EP.7 PERSONNEL PROTECTION

PERFORMANCE OBJECTIVE: Personnel protection procedures should control and minimize personnel exposure to any hazardous materials during abnormalities, ensure that exposures are accurately determined and recorded, and ensure proper medical support.

- FINDINGS:**
- ANL-W Emergency Plan Implementing Procedures do not address in sufficient detail the individual exposure limits (radiation and chemical), as described in DOE 5480.11 and DOE 5480.1A, Chapter XI.
 - This concern was addressed in the ANL-W self assessment.

CONCERN: See Concern EP.2-1.

4.5.2.8 Technical Support

4.5.2.8.1 Overview

All eight performance objectives for Technical Support were included in the TSA. Six of the eight performance objectives are addressed in this appraisal section. They include Organization and Administration, Procedures and Documents, Facility Modifications, Equipment Performance Testing and Monitoring, Environmental Impact, and Reactor Engineering. The other two performance objectives for Packaging and Transportation, and Criticality Safety are covered separately in Sections 4.5.2.9 and 4.5.2.10.

The information and data collected in this appraisal were generated principally from facility reviews, procedure and document assessments, and interviews conducted with selective technical support and management staff of all five ANL-W divisions. Material and document reviews included Division Management Plans, SARs, Technical Specifications, OSRs, Engineering Department Procedures, self-assessments, ES&H Manual, Operating Procedures and Operating Information Bulletins, Facility Modification and Document Control Procedures, selected Unusual Occurrence Reports, Environmental Assessments and Environmental Checklists, and DOE Orders and supporting documents.

Generally, technical support for ANL-W is provided individually by each of the five separate divisions. Each division has technical organizations whose responsibility and function include providing technical support in areas of procedure and document control, facility modifications, reactor and site engineering, equipment monitoring and controls, environmental impacts, packaging and transportation, criticality safety, training and organization/administrative support.

There are several weaknesses identified in the ANL-W technical support area including their DOE Order compliance and audit process, technical support self-assessment completeness and accuracy, documentation and configuration control within several of the divisions, procedure development and compliance, responsiveness in updating SARs, insufficient technical support training, compliance with DOE Orders, insufficient equipment monitoring and trending, and marginal implementation of the environmental and waste management programs.

A highly experienced staff capability exists to provide technical support functions and responsibilities. A substantial effort was initiated to develop division management plans throughout the site consistent with organizing complex operations. These management plans establish policies and responsibilities (Facility Operations and Technical Support) as well as division goals and objectives, unit functions, and procedures governing conduct of operation. Several concerns were identified related to sufficient training of technical support staff in areas of Orders and directives; codes and standards; controls for facility modifications, materials, and documents; and controls for the ES&H Manual and operation procedure. Technical Support staffing accreditation, qualifications, and experience requirements need to be consistent with DOE 5480.18, DOE 5480.20 and ANS 3.1. A concern identified in the organization and administration area

relates to the quality, accuracy, and completeness of the recent ANL-W self-assessments.~ Identified were missing and/or inaccurate references within the site technical support self-assessments, misunderstanding or misinterpretation of responsibility, and no post-technical assessment and review of the process for completeness, accuracy, quality, and adequacy.

In the Procedures and Documents performance objective, significant effort was demonstrated in keeping Category A and B reactor technical specifications and supporting documentation in place. OSRs, for the required facilities are updated and include surveillance requirements. The required written technical bases and safety implications of exceeding specified limits and controls are met and the operator actions were established if Limiting Conditions for Operations are exceeded. Several concerns were identified including: updated SARs are not being maintained at several facilities, formal procedure validation is not in place, approved process and procedures for conducting readiness reviews does not exist at all facilities, no procedures exist to control the storage of radioactive waste in areas including the Analytical Laboratory including the temporary storage of hazardous waste materials with rad-waste materials (as required by DOE 5820.2A). Procedure violations on the use of Operating Information Bulletins for extended periods (over 90 days) as temporary changes controls were identified at Experimental Breeder Reactor-II (EBR-II) and the Fuels and Processes Division facilities.

In regard to facility modification controls, new procedures were established for determining if modifications involve unreviewed safety questions. Additional requirements were also identified to conduct startup and operational readiness reviews. Action is being taken to fill needed key positions to support the Facility Modification and Configuration Controls. The ANL-W Site Support Division has demonstrated an effective Project Management Construction and Modification Program control system. Several concerns were identified in the updating of critical facility drawings and related documents and procedure within several divisions (that is, EBR-II, Fuel Cycle, Fuels and Processes) and maintaining these documents at required locations including onsite and offsite Emergency Operations Center locations. An additional concern is that no sitewide assessment of DOE 6430.1A, "General Design Criteria," is performed in evaluating facility modifications and SAR updates (DOE 5481.1B).

The Equipment Performance Testing and Monitoring performance objective has been demonstrated by several divisions in developing procedures and in implementing equipment performance data gathering and trending analyses. Additionally, several of the divisions have been following the development of the recently issued Maintenance Management Plan (DOE 4330.4A) and related Institute of Nuclear Power Operation guidelines in equipment maintenance programs. However, several ANL-W divisions have no formalized equipment trending program that meets DOE 4330.4A and auditing requirements.

The Environmental Impact performance objective and related DOE Orders require ANL-W to minimize the impact of plant effluents from radioactive and hazardous materials due to site operations (reactor/facility operations and waste management). Generally, site releases are monitored and controlled both sitewide and at each facility. However, no apparent ANL-W sitewide

environmental program exists that minimizes facility/site releases. Additionally, the current environmental sampling and analysis is performed by the Fuels and Processes Analytical Laboratory, which does not meet the DOE Laboratory QA Program called for in DOE 5400.1. The implementation of DOE 5820.2A for Waste Management is deficient. Annual updates of the Waste Management and the Waste Minimization Plans have not been performed. Order required performance assessments have not been implemented.

The ANL-W reactor engineering support function for all Category A and B reactors appears comprehensive with qualified personnel and procedures, extensive surveillance on core parameters, and structured fuel management and control programs. Detailed special nuclear materials control procedures are in place, along with fuel integrity monitoring and procedures to respond to fuel failure events.

4.5.2.8.2 Findings and Concerns

TS.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: The technical support organization should ensure effective implementation and control of technical support activities.

- FINDINGS:**
- There is no formal training process in place for personnel assigned technical support functions in all ANL-W Divisions. Some limited training is provided, but is not formalized and planned. Specific training needs identified include DOE Orders and directives, codes and standards, QA/quality control, Facility Document Control Maintenance and Material Control, ES&H procedures and controls, and procedure requirements and controls. (See Concern TC.1-4.)
 - While the personnel assigned technical support functions in each of the ANL-W divisions have exceptional experience, the qualifications and experience requirements and positions descriptions do not meet requirements and standards in DOE 5480.20, and ANSI 3.1.
 - EBR-II and Hot Fuel Examination Facility (HFEF) have developed a plan for technical support accreditation, but no formal training is planned for several years.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(TS.1-1)
(H2/C2)

The Technical Support staff qualifications, experience, and staffing requirements at the Argonne National Laboratory-West site are not being implemented, in accordance with DOE 5480.20 and ANSI 3.1.

- FINDINGS:**
- Several questions on the accuracy and completeness were identified in the Technical Support self-assessment area.
 - EBR-II's self-assessment on Reactor Engineering (TS.7) contained omissions and identified issues on degree of completeness, understanding of performance objectives and criterion, the basis of findings and actions, and the use of inaccurate reference documents.
 - The Fuel Cycle Division's self-assessment also had omissions and uncertainty on the responsibility of performance objectives and criterion between Technical Support and Operations functional areas. Record sheets were identified with misinterpretations of responsibility and applicability.

- The ANL-W Site Support Division's self-assessment does not address their Equipment Performance Testing and Monitoring performance objective and specific criterion, or the Environmental Impact (Section 4.5.2.8, TS.5) criterion.
- The Fuels and Processes Division's self-assessment did not initially address the Equipment Performance Testing and Monitoring (TS.4) performance objective. Additionally, they did not address Environmental Impact (TS.5) as a contributor to effluent sources from the site and assumed ANL-W Site Support Division would cover their element of the self-assessment.
- The sitewide ANL-W self-assessment does not follow several of the guidance and requirements established in DOE 5482.1B for TSA and Internal Appraisals. Several of the guidance and appraisal requirements not applied include the following:
 - Conducted by persons directly responsible for performance activities
 - Multidisciplinary technical reviews were not performed
 - Clearly defined written guidance was not used
 - Technical and management review for adequacy were not conducted
- See Concern OA.2-1.
- This concern was not addressed in the ANL-W self-assessment

**CONCERN:
(TS.1-2)
(H2/C2)**

The Argonne National Laboratory-West self-assessment for technical support did not receive technical and management reviews for completeness, accuracy and adequacy, nor follow the requirements under DOE 5482.1B.

TS.2 PROCEDURES AND DOCUMENTS

PERFORMANCE OBJECTIVE: Technical support procedures and documents should provide appropriate direction, allow for adequate record generation for important activities, and should be properly and effectively used to support safe operation at all facilities on the site.

- FINDINGS:**
- ANL-W technical staff has an ongoing effort to review and update, as required, the SARs for Category A and Category B reactors and the moderate and higher hazard facilities. These facilities include the following:
 - EBR-II.
 - Hot Fuel Examination Facility
 - Transient Reactor Test Facility
 - Neutron Radiography Facility
 - Zero Power Physics Reactor
 - SAR deficiencies were noted by the October 1987 TSA of the EBR-II. Part of the ANL-W response to this concern included the commitment to perform a Level I Probabalistic Risk Assessment. This activity is scheduled for completion in August 1991.
 - Deficiencies in the Hot Fuel Examination Facility SAR (dated 1975) were noted in the August 1988 TSA. ANL-W management personnel are currently projecting that this effort will slip into late Calendar Year 1991 and early Calendar Year 1992.
 - An FSAR for the Fuel Cycle Facility is being developed and is currently being reviewed.
 - The SARs for the Zero Power Physics Reactor and Neutron Radiography Facility are planned to be reviewed to determine if the analyses adequately define the risks.
 - See Concern AX.1-2.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN:
(TS.2-1)
(H2/C1)

Not all safety analyses of moderate and high hazard facilities and activities at Argonne National Laboratory-West meet all of the requirements for format and content, as required by DOE 5481.1B.

FINDINGS:

- The use of Operations Instruction Bulletins as temporary procedure changes at several ANL-W facilities is not controlled sufficiently. Over 45 Operational Instruction Bulletins were identified within the Fuels and Processes Division that exceed the procedure expiration date. Seven Operational Instruction Bulletins at EBR-II exceed the procedure expiration date. (See Concern OP.3-1)
- Procedures and policies controlling the use of procedures and procedure conflicts are not completely in place at several divisions including EBR-II Engineering Department Procedures, Fuels and Processes Division Procedures, and Engineering Physics Zero Power Physics Reactor policies and procedures.
- No ANL-W sitewide procedure control specifies requirements, criteria, and methods for validation of new or modified procedures prior to use.
- Procedures for updating the facility Technical Specification facility modifications, procedure changes, and SAR amendments do not meet current DOE Orders for format and content.
- Up-to-date procedures, manuals, and reference materials including technical document and drawings are not maintained current within the Fuels and Processes Division, Fuel Cycle Division, ANL-W Site Support Division, Engineering Physics Division facilities. System Description Documents are not readily updated, with the exception of the Transient Reactor Test Facility documents, throughout the ANL-W site.
- Procedures and controls for the Temporary Radioactive Waste Storage area in the Fuels and Processes Division Analytical Laboratory do not exist, as required in DOE 5820.2A
- See Concern TS.2-3 and OA.7-1.
- This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(TS.2-2)
(H2/C1)

Contrary to ASME NQA-1-1989, Criterion 5, and DOE 5700.6B, complete and current procedures for controlling activities, development of Technical Specification, Safety Analysis Reports and procedure controls on documents and drawings have not been developed and implemented.

FINDINGS:

- Current ANL-W system controls do not exist to assure the onsite and offsite Emergency Operation Centers maintain controlled copies of critical system documents.
- The ANL-W Emergency Planning Document was not located in the Hot Fuel Examination Facility command center on June 24, 1991, as is required by the Facility Emergency Plan and Procedures and site directives.
- Facility SARs, as-built drawings, engineering procedures, are not updated and maintained at emergency response centers in accordance with DOE 5500.3A.
- See Concern TS.2-1 and TS.2-2.
- This concern was not addressed in the ANL-W self-assessment.

**CONCERN:
(TS.2-3)
(H2/C1)**

The control of critical system procedures, drawings and documents are not being maintained at the Emergency Operations Centers in accordance to DOE 1324.2, DOE 5500.1A, 5500.3A.

TS.3 FACILITY MODIFICATIONS

PERFORMANCE OBJECTIVE: Technical support services required by each facility on the site to execute modifications should be carried out in accordance with sound engineering principles, which should assure proper design review, control, implementation, and documentation in a timely manner.

- FINDINGS:**
- All ANL-W divisions have currently drafted new management plans and procedures to determine the existence of an Unreviewed Safety Question and to require implementation of readiness reviews prior to facility startup. With the exception of the EBR-II recently issued procedure, no formal and consistent Readiness Review Program and process exists sitewide at ANL-W.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: No sitewide Readiness Review Program exists at Argonne National Laboratory-West that assures compliance under DOE 5480.5, (TS.3-1) DOE 5480.6, 5481.1B, and DOE 5480.19. (H2/C2)

- FINDINGS:**
- Outdated facility drawings and noncontrolled system description documents exist throughout the ANL-W site. Within the Fuels and Processes Division's Fuel Assembly and Storage Building facility, over a dozen major facility and glovebox modification drawings have not been updated since 1984 including safeguard modifications and fire safety improvements.
 - Codes and standard required by DOE 5480.4 are not readily referenced in facility modifications, with the exception of the Hot Fuel Examination Facility.)
 - Design changes do not always receive formal ALARA review within several ANL-W facilities (including the Support Division, EBR-II, and Engineering Physics Division's Zero Power Physics Reactor facility). (See Concern PP.11-1)
 - Several divisions including ANL-W Support Division, Fuel Cycle Division, and the Fuels and Processes Division have no procedures and record verification that all affected procedure revision have been implemented and training performed prior to record closeout.
 - Assessments and implementation of DOE 6430.1A and DOE 5481.1B are not applied consistently at ANL-W including SAR amendments and facility modifications. The ongoing Fuel Cycle Division's Hot Fuel Examination Facility Modification Program did reasonably implement the General Design Criteria and is noting deviations with basis. Other facilities based on DOE Order interpretation and facility

classification have not assessed the General Design Criteria Order and the basis for not implementing it.

- This concern was not addressed in the ANL-W self-assessment.

**CONCERN:
(TS.3-2)
(H2/C1)**

There is no Argonne National Laboratory-West requirement to consider DOE 6430.1A General Design Criteria in facility modifications and Safety Analysis Report amendments as required by DOE 5481.1B.

TS.4 EQUIPMENT PERFORMANCE TESTING AND MONITORING

PERFORMANCE OBJECTIVE: Effective equipment performance testing and monitoring should be performed by technical support groups to assure that equipment and system performance is within established safety parameters and limits.

- FINDINGS:**
- The Fuels and Processes Division and ANL-W Site Support Division do not have programs for gathering equipment performance data needed for trending.
 - The ANL-W Site Support Division, Fuels and Processes Division, and Fuel Cycle Division have no formalized trending program to optimize equipment reliability and safety, and to check for age-related degradation. (See Concern MA.1-1.)
 - Optimum performance levels for equipment are not sufficiently defined through the use of vendor manuals and initial baseline data. Performance testing and data monitoring and trending are not auditable.
 - The Engineering Physics Division's Zero Power Physics Reactor does not have a program to monitor and evaluate age degradation on fuel drive motors.
 - With the exception of the Fuels and Processes Division, Engineering Physics Division, and ANL-W Site Support Divisions, all other divisions are currently implementing a graded approach to DOE 4330.4A Maintenance Management Program.
 - See Concerns OP.3-2, AX.1-1, MA.7-1, and FR.6-1.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN: Equipment performance testing, monitoring, and trending programs are not in place within several divisions, as required by DOE 4330.4A.
(TS.4-1)
(H2/C1)

TS.5 ENVIRONMENTAL IMPACT

PERFORMANCE OBJECTIVE: The impact on the environs from the operation of each facility on the site should be minimized.

- FINDINGS:**
- There is no environmental plan that describes how ANL-W minimizes releases to the environment.
 - There is no individual ANL-W facility that assesses effluent releases and minimizes releases.
 - Fuels and Processes Division's Analytical Laboratory provides sample collection and analysis services within the ANL-W site, but does not participate in the DOE Laboratory Quality Assurance Program called for in DOE 5400.1, Chapter IV Section 10.c.
 - The Engineering Physics Division and Fuels and Processes Division did not conduct facility self-assessments for the releases associated with their facilities (Zero Power Physics Reactor, Transient Reactor Test Facility, Fuel Manufacturing Facility, Fuel Assembly and Storage Building, Fuels and Processes Division's Analytical Laboratory).
 - ANL-W Site Support Division's Environment and Safeguards Department has primary responsibility for sitewide environment and waste management and has no apparent environmental program for minimizing effluent release to the environment.
 - See Concerns RP.9-1 and AX.2-1.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(TS.5-1)
(H2/C2) The effectiveness of the Argonne National Laboratory-West performance on minimizing releases to the environment has not been demonstrated.

- FINDINGS:**
- Contrary to DOE 5820.2A, ANL-W has not annually updated or reissued the Waste Management Plan since December 1988.
 - The annual requirement of updating the Waste Minimization Program Plan was due March 13, 1991, but has not been completed.
 - The ANL-W site has not performed a waste management systems performance assessment (DOE 5820.2A, Chapter III, Section 3.b.(2)) to evaluate waste storage, treatment, and disposal.

- This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(TS.5-2)
(H2/C1)

The Argonne National Laboratory-West waste management programs, including the Waste Management Plan, the Waste Minimization Program, and a sitewide systems performance assessment, are not in compliance with DOE 5820.2A and guidelines in DOE/LLW-63T.

4.5.2.9 Packaging and Transportation

4.5.2.9.1 Overview

The scope of the Packaging and Transportation appraisal included all 12 performance objectives. Procedures, audit reports, records, manuals, Certificates of Compliance, test results, DOE Orders, and correspondence were reviewed in the appraisal process. Interviews were conducted with the Hot Fuel Examination Facility (HFEF) cask handlers, radiation safety technicians, and truck drivers in the field, as well as managers and engineers responsible for packaging and transportation. The appraisal included direct witnessing of an offsite shipment and a return shipment of Shipping Cask T-2, Certificate of Compliance No. 5607 (for irradiated reactor fuel). Information was also gathered by hands-on checking of casks, (for example, Cask T-3, and HFEF-5) and tours of the Hot Fuel Examination Facility, Sodium Storage (Bldg. 703) outside storage areas, supply storage of compressed gas, and bulk storage tank facilities.

The packaging and transportation functions are performed by personnel within different departments and divisions. At times, interface communications are missed because of procedural weaknesses or informal methods.

The oversight of shipments is primarily centered in the Physical Control Section of Nuclear Material. Support is provided by the ANL-W Supply and Radiation, and Fire and Safety Engineering Departments. The success of shipments was viewed as being a cooperative effort of experienced professionals.

There is a need to formalize the accumulation of information and regulation changes to be included into current procedures and training documents. The formalization would better assure timely distribution of the information and its incorporation into practices.

The procedures that affect packaging and transportation need to be identified and given a quality classification to be reviewed for inclusion into current regulations. This effort would provide a better record for future reference and information.

The interdepartment participation of the packaging and transportation function requires a more formalized focal point. This is partially done through the Hot Fuel Examination Facility operations weekly schedule meeting; however, this meeting is not formally established through ANL-W site documents. This meeting needs to be formalized, a transportation safety committee or program needs to be established, and a transportation safety manual needs to be developed. The transportation safety committee or program would provide a site focal point for improved coordination of packaging and transportation activities, information gathering, distribution, regulation, and implementation, and promote better interface communication.

The ANL-West self-assessment of the packaging and transportation area was thorough and resulted in findings that when addressed and implemented into programs and procedure will result in an improved, integrated activity.

4.5.2.9.2 Findings and Concerns

PT.1 ADMINISTRATION AND ORGANIZATION

PERFORMANCE OBJECTIVE: Management should develop and implement a system of policies and directives that will provide for effective implementation of DOE Orders, particularly DOE 5480.3, DOE 1540.1, DOE 1540.2, Federal and State regulations, and accepted industrial practices in operations involving packaging and transportation of hazardous materials.

- FINDINGS:**
- A copy of Procedure Operations and Maintenance Manual OMM 6202, "Off-Site Shipping Casks (T2-1 and T2-2) Operation" is located close to the work being performed in preparing Cask T2-2 for shipment.
 - Procedure OMM 6202 has not been revised since 1985; it contains two Procedure Change Notices (PCN No.1 and No. 2) dated November 8, 1988.
 - The Procedure Change Notices contain steps that are not found in the sequence of steps within the main body of Procedure OMM 6202.
 - The Certificate of Conformance referenced on the procedure change notice is out of date.
 - There is no system for assuring a periodic review for all documents affecting packaging and transportation.
 - A sample review of Fuel Cycle Division Operation and Maintenance Procedures indicated inconsistent periodic reviews. There was no assurance that there was timely updating of procedures to ensure inclusion of current requirements or regulations.
 - See Concern OA.7-1 and PP.2-4.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(PT.1-1)
(H2/C2)

The Fuel Cycle Division operational and maintenance procedures are not reviewed on a periodic basis to assure inclusion of Procedural Change Notices, correct referenced information, and current regulations.

- FINDINGS:**
- Instructions for the participation of the radiation safety technician are not always clear from information presented in Procedure OMM 6202.
 - A Hot Fuel Examination Facility Crown lift truck was found to be past due for its annual load test. Plant Services' records indicated the annual maintenance was complete. The

load testing requirement is noted on the Plant Service Maintenance tracking system. The need for a load test is verbally communicated via the Hot Fuel Examination Facility person to the ANL-W Supply person to schedule and perform the load test.

- On June 19, 1991, during a hands-on check of Cask T-3 located in Bldg. 785, Hot Fuel Examination Facility, it was noted that the empty Cask T-3 did not have the required tamper indicating devices in place.
- The instructions in the ANL-West Environmental, Safety and Health Manual, Section IV, Chapter 3, "Shipment of Radioactive Materials to Off-Site Destinations," paragraph 3.3.8 for placement of tamper indicating devices is not clearly stated to assure interface contact for the placement of tamper indicating devices.
- The tamper indicating devices were in place during a revisit to the Hot Fuel Examination facility on June 21, 1991. The devices were installed by the Nuclear Materials Controls Representative.
- This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(PT.1-2)
(H2/C2)

Procedures and directives do not assure interaction communication and provide clear, unambiguous instructions for performance of packaging and transportation tasks.

FINDINGS:

- Although personnel from the Safety, Environment and Safeguards Department, Fuel Cycle Division, Fuels and Processing Division, and the Experimental Breeder Reactor-II Division meet to discuss and schedule package movements, the meeting is not captured in an interdepartment document.
- A transportation safety committee does not exist at ANL-W to review and implement the changing packaging and transportation policies and regulations in a coordinated, specific, timely manner.
- A similar finding was identified in the July 30 through August 3, 1990 Appraisal Report, conducted by CH (DOE/EH, PATS-90-002).
- There is no formal system established at ANL-W to incorporate packaging and transportation considerations into future needs for specialized packagings or appropriate action taken to locate and design such packages.
- The Intra-Laboratory Memorandum, November 28, 1990, Subject: "Draft Policy for the Packaging and Transportation

of Hazardous Materials, Substances, and Waste," represents an attempt to organize a task force to address DOE 5480.3 and new packaging and transportation policies on onsite hazardous material transportation safety.

- ID 5480.3, March 14, 1991, "On-Site Transfers," paragraph 2, "Documentation" requires an onsite transportation safety manual to be completed and issued by December 1992.
- This concern was addressed in the ANL-W self-assessment.

CONCERN:
(PT.1-3)
(H2/C2)

There is no Argonne National Laboratory-West onsite transportation safety manual or a formal oversight program/group.

PT.2 TRAINING

PERFORMANCE OBJECTIVE: Personnel should be trained, qualified, and certified in handling hazardous materials, as required by DOE 5480.3 and 49 CFR.

- FINDINGS:**
- The Hot Fuel Examination Facility cask handler training requirements for qualification as a cask handler is not described in the Hot Fuel Examination Facility Cask Training Guidelines. The Guidelines also fail to specify packaging and transportation training requirements. (See Section 4.5.2.5.2, TC.1.)
 - See Concerns TC.1-1 and TC.4-1.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: The cask handler training program does not meet packaging and transportation training requirements of DOE 5480.3.
(PT.2-1)
(H2/C1)

- FINDINGS:**
- Lessons learned from other DOE operations and from industry are not factored into the training program on a timely basis.
 - Specific training programs for dissemination of lessons learned and other pertinent information to the personnel are not conducted.
 - A formal plan is not in place that will ensure the inclusion of pertinent current packaging and transportation information into the training program.
 - No task analysis has been performed for packaging and transportation functions.
 - On-the-job training is described in general terms in the Hot Fuel Examination Facility Training Guidelines.
 - Learning objectives for the Hot Fuel Examination Facility Operation and Maintenance Procedures related to packaging and transportation tasks remain to be finalized for each procedure.
 - There is a general lack of formal specific training objectives and specific oral and written questions for packaging and transportation on-the-job training.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN: See Concerns TC.1-1 and TC.5-1.

PT.3 QUALITY ASSURANCE

PERFORMANCE OBJECTIVE: A system of checks and balances should exist that ensures the Quality Assurance (QA) requirements of the applicable DOE Orders, especially DOE 5700.6B, and NQA-1 are met.

- FINDINGS:**
- Currently, packaging and transportation procedures remain to be classified according to quality level. A procedure affecting a Class A item may be considered a Quality Level A.
 - Procedure Change Notice No. 1, of OMM 6202 November 8, 1988, is used as a verification checklist of actions to be completed prior to each Cask T-2 cask shipment.
 - The Procedure Change Notice requires an update when referencing the Certificate of Compliance No. 5607.
 - Procedure Change Notices No. 1 and No. 2 are both dated November 8, 1988. The Fuel Cycle Division QA Program, Revision 0, May 31, 1991, recommends a review cycle normally not to exceed 2 years. The Procedure OMM 6202 last revision was dated October 30, 1985.
 - Procedure Change Notice No. 2 contains steps and changes to steps within the procedure proper. The changes remain to be made. The steps and changes are not presented in a manner to minimize human error.
 - Procedure Change Notice No. 2 addresses activities requiring the use of tools and testing equipment. The format is required by the Fuel Cycle Division Program to include space for recording the serial or identification number and calibration date.
 - See Concern QV.1-1 and PP.2-4.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(PT.3-1)
(H2/C2)

Operating and Maintenance Procedure 6202 has not been updated to include outstanding Procedure Change Notices and quality level classification, as required by the Fuel Cycle Quality Assurance Program.

- FINDINGS:**
- Checklists are not used in all packaging and transportation activities, for example, receipt checklists.
 - A checklist for the receipt of radioactive, hazardous materials is being developed.

- This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(PT.3-2)
(H2/C2)

Checklists are not used to assure that all packaging and transportation activities are correct and recorded.

FINDINGS:

- Even though the Fuel Cycle Division QA Program requires that the Fuel Cycle Division Director ensure the implementation of a timely and effective corrective action program, this is not being accomplished.
- Even though the Fuel Cycle Division QA Program also requires that management have a system to record a deficiency, determine and document appropriate corrective action, and track the deficiency until implementation of corrective action, it is not being effectively accomplished.
- Overdue corrective action is not formally prescribed for escalation to higher management to assure timely attention and resolution.
- This concern was not addressed in the ANL-W self-assessment.

CONCERN:

See Concern FR.3-1.

PT.4 REGULATORY COMPLIANCE

PERFORMANCE OBJECTIVE: All packaging and transportation operations involving hazardous material should be conducted in compliance with the applicable State and Federal regulations, including those of the Department of Transportation, Nuclear Regulatory Commission, Occupational Safety and Health Administration, and Environmental Protection Agency.

- FINDINGS:**
- ID 5480.3 has undergone changes. The new Order compliance is required by June 1, 1991. The Order remains to be completely implemented.
 - Currently, Hot Fuel Examination Facility (HFEF) HFEF-5 and HFEF-6 Casks do not meet Department of Transportation requirements.
 - Waste resulting from the decapsulation of experiments was accumulating in the HFEF Hot Cell. Discussion with the HFEF Operations Manager indicate that the inability to use HFEF-5 will affect operation in about 4 months.
 - Correspondence between DOE, Department of Transportation, and the ANL-W site indicates that the requirements for strict adherence to Department of Transportation regulations and the interpretation of what constitutes a public road was indicated at the EM50.1 Workshop, March 18, 1991.
 - Intra-Laboratory Memorandum, Subject: "Transportation of Hazardous Materials/Waste RWMC and RSWF," April 1, 1991, states that the inability to ship hazardous waste offsite would have a severe impact on the facilities and programs at ANL-W. The memorandum also suggests that a program to procure needed casks begin as soon as possible.
 - There is a lack of interface document coverage associated with the intra/inter building (facility) casks, for example HFEF-12, Interbuilding Casks (IBCs), Laboratory and Office Cask, and Experimental Breeder Reactor-II hand-carried subassembly containers, as required by DOE 5480.5, Section 11.c and 12.f.
 - There was no indication that ANL-W has taken action to prepare documentation or to obtain a Department of Transportation exemption, to develop a specification for eventual purchasing new casks, or to present a request for removing ANL-W shipments out of Department of Transportation jurisdiction (DOE 1540.2).
 - This concern was addressed in the ANL-W self-assessment.

**CONCERN:
(PT.4-1)
(H2/C2)**

Argonne National Laboratory-West has not developed and implemented a plan of action to address the need for upgraded casks, exemptions, and/or purchase of new casks.

FINDINGS:

- Memoranda containing information regarding current and pending packaging and transportation regulation changes are sent to individuals and to distribution without any assurance that all persons requiring the information are contacted.
- A detailed listing of regulations and the corresponding procedures and the individuals implementing or the individuals affected by DOE Orders is not available.
- Hot Fuel Examination Facility Operation and Maintenance procedures affecting equipment used in the containment and transport of radioactive materials or hazardous materials are not reviewed on an annual basis.
- There is no formal program in place to ensure the timely inclusion of current DOE Orders and associated regulations into packaging and transportation activities.
- This concern was addressed in the ANL-W self-assessment.

CONCERN:

See Concern PT.1-1.

PT.5 ACCIDENTS AND INCIDENTS

PERFORMANCE OBJECTIVE: Accidents and incidents involving packaging and transportation of hazardous materials should be reported in a timely manner to DOE.

- FINDINGS:**
- Accidents and incident reports are reviewed at the Nuclear Materials scheduled meetings. They are also reviewed by the ANL-W Supply Services at their meetings.
 - There is no programmatic assembly of packaging and transportation accidents and incidents collected for review to ascertain that current emergency directives are addressing credible packaging and transportation events.
 - There has not been an emergency scenario that includes a credible packaging and transportation incident or accident to ascertain the viability of current emergency coverage for a packaging and transportation occurrence.
 - The ANL-W Appraisal Report of the Program for Packaging and Transportation, July 30 - August 3, 1990, identified the need for ANL-W to review all the emergency directives to assure that credible packaging and transportation events are addressed.
 - See Section 4.5.2.7.2, EP.1.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN: There is no compilation of lessons learned identifying credible packaging and transportation accidents or incidents and no practice drills are conducted.
(PT.5-1)
(H2/C2)

PT.6 OPERATIONS

PERFORMANCE OBJECTIVE: Sitewide operations involving packaging and transportation of hazardous materials should be conducted in a safe, consistent, and accountable manner, following approved procedures, in conformance with applicable standards and acceptable practices.

- FINDINGS:**
- Procedures are in effect that require the inspection of reusable packages. There are inspections and checks described in Hot Fuel Examination Facility Procedure OMM 6202 that require leak tightness confirmation and that specific torque values are met.
 - The inspection forms do not require the notation of an identification number of test or torque equipment used.
 - The inspection forms do not provide space to document the calibration information of the test or equipment being used.
 - Calibrated equipment is not always identified and traceable by notation of a unique identification number, as required by ASME NQA-1-1989.

CONCERN: See Concern QV.4-1.

- FINDINGS:**
- Procedures are not being reviewed on a periodic basis to include DOE and regulatory changes in the packaging and transportation area.
 - The procedures have not been classified as to their importance to safety.
 - The SAR for packaging for T2-1 and T2-2 is currently being upgraded and reviewed for renewal of the Nuclear Regulatory Commission Certificate of Compliance. However, there is no systematic ongoing program to maintain the currency of the SAR for packaging.
 - The SAR for packaging is used as the basis for the transportation and packaging procedure content further emphasizing reviews for currency.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN: See Concern PT.1-1.

FINDINGS:

- The current Procedure OMM 6202, page 22, Step A.1, requires the use of "an approved transfer form." In discussions with cognizant personnel, it was determined that the form is the Fissionable or Moderator Material Transfer Record.
- Procedure OMM 6202 contains several requirements to use "appropriate" tackle. The word "appropriate" does not provide specific guidance.
- ID 5480.3, March 14, 1991, addresses good rigging practices and the use of rigging tables and figures. See ID 5480.3, Chapter III, paragraph 3.a. and 3.g.
- This concern was not addressed in the ANL-W self-assessment.

**CONCERN:
(PT.6-1)
(H2/C2)**

Not all procedures include the engineered rigging requirements in cask lifting procedures.

PT.7 INTRABUILDING MOVEMENTS

PERFORMANCE OBJECTIVE: Intrabuilding movements and enroute storage operations should be conducted in a safe, consistent, and accountable manner, following approved procedures in conformance with applicable standards and accepted practice.

- FINDINGS:**
- Fuel burner oil tanks 755A and 755B do not have a sealed catch basin.
 - 40 CFR 112.7 provides guidance for the preparation and implementation of a spill prevention control and counter measure plan. The guidance includes impervious retaining walls as a possible action.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: The above ground fuel burner oil tanks do not meet spill
(PT.7-1) abatement standards, as required by 40 CFR 112.7.
(H2/C1)

PT.9 OFFSITE SHIPMENTS

PERFORMANCE OBJECTIVE: Offsite shipments of hazardous material should be conducted in a safe, consistent, and accountable manner, following approved procedures, in conformance with applicable regulations, standards, and accepted practices.

- FINDINGS:**
- An informal checklist for incoming shipments of hazardous material packages is used in the checking for breakage and leakage, and vehicle acceptance.
 - Current ANL-W plans include a formal checklist to have formal checks made of received packages.
 - ES&H Manual, Section IV, Chapter 6, paragraph 4.3, requires all incoming shipments of radioactive material and transport vehicles be inspected for proper packaging, labeling, evidence of damage or tampering, and completeness of shipping papers.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: See Concern PT.3-2.

PT.10 RECORDS

PERFORMANCE OBJECTIVE: Records of hazardous materials movements, transfers, and shipments should be prepared and maintained to ensure compliance with DOE and other regulatory requirements, and to provide an auditable trail of actions.

- FINDINGS:**
- ANL-W supply procedures do not specify record storage and retention requirements.
 - There was no list of specific documents to be maintained by the ANL-W Supply Department.
 - This concern was not addressed in the ANL-W self-assessment.
 - See Concern OA.7-1.

CONCERN:
(PT.10-1)
(H2/C2)

Record requirements for hazardous material movement transfers and shipment are not specified for Argonne National Laboratory-West supply.

PT.11 APPRAISAL AND INTERNAL AUDITS

PERFORMANCE OBJECTIVE: Periodic Packaging and Transportation safety appraisals of contractors by the Field Office, and independent internal Packaging and Transportation safety audits by each contractor are required by DOE 5480.3 and are conducted in accordance with DOE 5482.1B.

- FINDINGS:**
- The classifying of packaging and transportation activities, equipment, and procedures performed in each of the various divisions and departments regarding importance to safety is not complete.
 - A graded audit or appraisal definition for QA activities remains to be addressed for various organizations having packaging and transportation activities.
 - This concern was not addressed in the ANL-W self-assessment.
 - See Concerns QV.1-1 and OA.2-1.

CONCERN: A comprehensive surveillance or audit plan has not been developed for packaging and transportation at Argonne National Laboratory-West.
(PT.11-1)
(H2/C2)

PT.12 PACKAGING AND STORAGE PROCEDURES

PERFORMANCE OBJECTIVE: All packaging and storage procedures for hazardous material are in conformance with DOE 5480.3, 49 CFR, and 40 CFR.

- FINDINGS:**
- Bldg. 703 is used to store 1,400 55-gallon drums of sodium obtained from the Fermi-I plant. There is a current, ongoing discussion between the Environmental Protection Agency and DOE on the classification of the sodium in Bldg. 703.
 - It was noted that there was a stack of overpack and 55-gallon drums in Bldg. 703 at the entrance. The overpack drums were not labeled and their contents were indeterminant. The 55-gallon drums were not labeled.
 - The content of the overpack and 55-gallon drums has not been determined and labeled.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: See Concern WS.6-1.

4.5.2.10 Nuclear Criticality Safety

4.5.2.10.1 Overview

All five performance objectives for Nuclear Criticality Safety were evaluated in this appraisal. Documentation was reviewed and evaluated for nuclear criticality safety policy, procedures, analyses, training, audits, and inspections. Discussions were held with the Assistant Laboratory Director/Site Manager, Fuel Cycle Division Director, Office of Nuclear Safety Manager and Staff Criticality Safety Specialist, Physical Control Manager, Analytical Chemistry Section Manager, Criticality Safety Representatives, fissionable material handlers, and electronic engineers and technicians. Visits were made to criticality hazard control zones at the Experimental Breeder Reactor-II, a Category A reactor; Transient Reactor Test Facility and Zero Power Physics Reactor, Category B reactors; Fuel Cycle Facility and Hot Fuel Examination Facility, each a moderate-hazard facility; and Fuel Manufacturing Facility, Analytical Laboratory, Experimental Fuels Laboratory, and fissionable material storage vaults, all low-hazard facilities. At the Fuel Manufacturing Facility, an emergency evacuation test was also observed. The ANL-W self-appraisal was reviewed and found to have identified only one of the concerns expressed in this appraisal.

The ANL-W sitewide Nuclear Criticality Safety Program works effectively to minimize the potential of a criticality accident. Competent specialists, conservative mass limits and controls, and redundant material accountability procedures all contribute to the assurance of criticality safety. The rapport among nuclear criticality safety specialists is evident, but professional interactions among specialists who reside within the various divisions are not formalized. Also, the startup of new facilities and the impending retirement of some criticality safety specialists suggests that planning for future needs is required by upper Laboratory management. This has been expressed as a concern.

The Nuclear Safety Procedures Manual Rev. 7, May 31, 1991, documents the policy and broad requirements for nuclear criticality safety for ANL-W. Specific requirements and procedures for the ANL-W site and its five independent divisions is presented in the "General Plan for Nuclear Criticality Safety, ANL-W Site," ID-CHCS-G01, June 1991. Day-to-day activities within each division are performed by a Criticality Safety Representative who reports to the Division Director, independent-from operations. As this individual generally serves as a line engineer who supports operations, the question is raised of a potential conflict of interest. Nuclear criticality safety analyses, limits, and procedures are reviewed by the Office of Nuclear Safety and recommendations for approval are made to the Assistant Laboratory Director, ANL-W, independent of operations. The Assistant Laboratory Director may also call upon the Nuclear Facility Safety Committee, as well as specialists from ANL-E, to provide independent review and sometimes independent analysis. The Office of Nuclear Safety also conducts annual criticality safety audits and inspections. The Office of Nuclear Safety maintains records and documentation of safety committee minutes, annual appraisals, audits and inspections, and some portions of criticality safety analyses. However, analyses and documentation supporting

criticality limits and procedures are generally maintained by the Criticality Safety Representative within each division with little document control. Lack of sitewide quality control of the Nuclear Criticality Safety Program has been expressed as a concern.

Although physical barriers are used where possible to provide engineered control, administrative procedures generally control fissile material mass and moderator mass to ensure subcriticality. In most facilities, very conservative limits, which fortunately do not interfere with operations, are applied. Strict accountability and control procedures by the Nuclear Materials Section, independent of operations, gives a redundant check and balance for nuclear criticality safety. There have been very few criticality safety rule infractions during the last 10 years, although one occurred in the Hot Fuel Examination Facility during this appraisal. The infraction was subsequently investigated and classified as an off-normal event.

Subcriticality is ensured for operations involving fissile materials, under both normal and credible off-normal conditions, within each division through nuclear criticality safety evaluations that establish limits and controls. These limits and controls appropriately allow for the potential of double batching, moderation, and full reflection. The principle that two or more independent and concurrent violations of limits must happen before a criticality accident could occur is followed. Very often the limits are easily obtained from standard reference charts and graphs, but some require analyses using the KENO Computer Code, which has been validated with experimental data. Review of analyses was verified to be rigorous and independent of operations.

Based on the results of nuclear criticality safety evaluations, Criticality Hazards Control Statements govern nuclear criticality safety practices in each division. In general, operating procedures reference Criticality Hazards Control Statements. Whenever an operation changes, each Criticality Hazards Control Statement requires full, independent review and approval. Even without change, each Criticality Hazards Control Statement is reviewed annually by the Office of Nuclear Safety. A concern has been expressed about the extent and depth of these reviews. Facility-specific training, which is recognized to be important to the safety of operations, follows the Criticality Hazards Control Statements as a training guide. In addition, Criticality Hazards Control Statements limits are effectively posted within each criticality control zone.

Although nuclear criticality alarms are usually placed where significant quantities of fissile materials are handled at ANL-W, the practice is irregular. Alarms are placed in control zones where less than significant quantities are allowed, for example, the Analytical Laboratory, and are not to be found in a control zone where kilogram quantities are in regular use, for example, the Zero Power Physics Reactor cell. This has been expressed as a concern. In addition, the alarm system chosen for the Transient Reactor Test Facility differs from that used at the other facilities onsite. Alarm systems throughout ANL-W are performance tested and calibrated with documentation on a regular schedule. However, radiation response tests have been performed semiannually rather than each month, as recommended by ANSI standard. This

procedure was being corrected during the course of this appraisal. Emergency procedures, including requirements for fixed and personnel accident dosimeters, are in place at each criticality control zone and evacuation drills are conducted on an annual basis. However, there is some uncertainty about calibration of the fixed accident dosimeters.

4.5.2.10.2 Findings and Concerns

CS.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: All operations with fissionable material should be conducted to provide effective nuclear criticality control during all activities.

- FINDINGS:**
- The Nuclear Safety Procedures Manual gives the Office of Nuclear Safety responsibility for providing and maintaining cognizance of the ANL-W Nuclear Criticality Safety Program. Evidence shows that the Office of Nuclear Safety functions effectively for coordination, but it does not have well defined policy and procedures to provide guidance and quality control to nuclear criticality safety practices sitewide.
 - The "General Plan for Nuclear Criticality Safety" for each division presents some aspects of nuclear criticality safety management for facilities within that division. The "Criticality Hazards Control Statement Desiderata (Rev 1) 1974" gives specific guidance for the preparation of Criticality Hazards Control Statements. An updated version of Desiderata, which is in draft form, also presents some requirements for nuclear criticality safety analyses, but does not spell out such things as documentation, records, and validation requirements.
 - Nuclear criticality safety analyses are maintained in each division with no centralized document control.
 - A Criticality Safety Representative within each division maintains cognizance of operations to assure the manager of the safety of operations. However, there are no formal training or qualification requirements for Criticality Safety Representatives. (See Concern TC.1-1.)
 - The Criticality Safety Representative reports to the Division Director to provide independence from operations, but usually serves as a line engineer, who prepares analyses and Criticality Hazards Control Statements. Policy and guidance do not address this potential conflict of interest.
 - Evidence shows that professional interaction occurs among at least some of the division Criticality Safety Representatives, but there is no formal policy or guidance to encourage technical discussion, work review, methods update, etc.
 - See Concern OA.2-2.

- This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(CS.1-1)
(H3/C2)

The Nuclear Criticality Safety Program does not have Argonne National Laboratory-West sitewide policy and procedures to provide guidance and quality assurance for responsibilities and practices within the divisions.

FINDINGS:

- The new Fuel Cycle Facility, scheduled to come online in October, presents a new set of nuclear criticality safety challenges at the ANL-W site; that is, fluid mixtures of plutonium-uranium involving electrowinning and casting operations. At the same time, many staff-years of criticality safety experience is being lost.
- The chairman of the Nuclear Facility Safety Committee, who has extensive nuclear criticality safety credentials and experience, is due to retire soon. Two retired nuclear criticality safety specialists, who are currently used as consultants, will not always be available to assist the Fuel Cycle Division.
- The staff criticality safety specialist of the Office of Nuclear Safety, with many years of nuclear criticality safety experience, provides important review and coordination, but in that role can contribute only limited technical assistance to the divisions.
- The one criticality engineer in the Fuel Cycle Division is currently handling technical support for both the Hot Fuel Examination Facility and the Fuel Cycle Facility.
- This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(CS.1-2)
(H2/C2)

There is no Argonne National Laboratory upper-level management plan that addresses the future needs for, and availability of, nuclear criticality safety resources to effectively support the safety requirements of all Argonne National Laboratory-West facilities.

CS.4 OPERATING PROCEDURES AND CRITICALITY SAFETY LIMITS

PERFORMANCE OBJECTIVE : The approved written operating procedures should address criticality safety limits in providing effective guidance for all aspects of facility activities.

- FINDINGS:**
- Within each division, a Criticality Hazards Control Statement, which specifies criticality limits and controls, is required for each operation. Both new and revised Criticality Hazards Control Statements are reviewed and recommended for approval by the Office of Nuclear Safety or the Nuclear Facility Safety Committee.
 - Although every Criticality Hazards Control Statement is reviewed at least annually for reapproval, unless there has been a significant change, the review is not thorough and comprehensive. Further, there is no formal requirement for periodic review of the criticality safety analysis supporting the Criticality Hazards Control Statement.
 - See Concern OA.7-1.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN: There is no Argonne National Laboratory-West formal requirement for thorough periodic review of all Criticality Hazards Control Statements, including the analyses supporting limits and controls.
(CS.4-1)
(H2/C2)

CS.5 CRITICALITY ALARM SYSTEM AND EMERGENCY PROCEDURES

PERFORMANCE OBJECTIVE: All reasonable steps should be taken to mitigate the consequences of a nuclear criticality accident.

- FINDINGS:**
- DOE 5480.5 and/or ANSI-8.3-1986 requires nuclear criticality accident alarm systems in areas where significant quantities of fissionable material are handled. At the Zero Power Physics Reactor facility, criticality alarm systems are installed in the fuel storage vault and in the fuel preparation workroom, but no alarm system is installed in the reactor cell where kilogram quantities of fissionable material are loaded into, and unloaded from, the critical assembly.
 - Although the Zero Power Physics Reactor is classified as a Category B reactor, it operates as a critical assembly. Generally accepted practice at DOE critical facilities requires a criticality accident alarm to cover loading and unloading operations.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN: A criticality accident alarm system is not installed in the Zero Power Physics Reactor assembly cell, in accordance with DOE (CS.5-1) 5480.5 and ANSI 8.3-1986.
(H1/C1)

- FINDINGS:**
- Criticality accident alarms within each division are radiation source calibrated by instrument and control technicians every 6 months. They also electronically test each electronics package and audible signal generator quarterly. Health physics technicians check the trouble lights and record the background readings daily. However, system response to radiation is not tested at least monthly, as recommended by ANSI 8.3-1986.
 - During this appraisal, procedures were being considered to perform a monthly radiation response check on criticality accident alarm systems sitewide.
 - See Concern RP.8-1 for additional comments about the calibration of Mark II detector-monitors.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN: Argonne National Laboratory-West criticality accident alarm systems are not tested at least monthly for radiation response, (CS.5-2) as recommended by ANSI 8.3-1986.
(H2/C2)

4.5.2.11 Security/Safety Interface

4.5.2.11.1 Overview

All four performance objectives in the Security/Safety Interface technical area were addressed in this appraisal. This appraisal was conducted by reviewing documents, interviewing ANL-W and Argonne Area Office-West personnel, touring facilities, and observing exercises. Facilities toured included the Experimental Breeder Reactor-II, Transient Reactor Test Facility, Zero Power Physics Reactor, Hot Fuel Examination Facility, Fuel Cycle Facility, Fuel Manufacturing Facility, and the Analytical Laboratory. Documents reviewed included Site Engineering and Security Management Plans, security post orders, drill and exercise plans and critiques, project files related to the design and construction of Fuel Manufacturing Facility, and correspondence between ANL-W, Argonne Area Office-West, CH, and Headquarters, DOE. Interviews were held with nine persons including managers from security, safety, engineering, and other facilities and reactors, security inspectors, and an Argonne Area Office-West Nuclear Program Engineer.

The interface between the ANL-W safety and security organizations is functioning effectively except as related to the formality of tracking action items resulting from safety reviews of security projects. A concern was developed by TSA Team No.3 during the firearm safety review of ANL-W related to the frequency of safety participation in protective force drills. (See Section 4.5.3.17.) The manager of the Radiation, Fire, and Safety Engineering group reviews and approves security documents. Some concern was also expressed during the firearm safety review on the lack of assistance provided by the Safety Department to the Security Department in the preparation of the ANL-W Live-Fire Range SAR.

The Fuel Manufacturing Facility project was examined. To provide adequate security for this facility, it was necessary to use doors for egress that did not meet all of the requirements of the Life Safety Code. Safety professionals at ANL-W determined that the risk to personnel in the Fuel Manufacturing Facility was low even when using these doors. A variance from the requirement for compliance with the Life Safety Code for these doors was requested of, and granted by, DOE. Studies by safety professionals of alternate egress routes from the Zero Power Physics Reactor Building during emergencies such as a criticality accident were documented.

Security upgrade or modification projects are coordinated and managed by the ANL-W Site Engineering group. There is no program to formally and systematically document, track, and resolve action items resulting from reviews of engineering projects by safety professionals. However no instances were found where safety comments were not incorporated into projects.

Prompt egress during emergencies can be made while maintaining security from protected facilities such as special nuclear material vaults. Because of ANL-W's security posture, facility access is not denied to emergency personnel.

Facility managers, technical staff, security inspectors, and emergency response personnel had appropriate knowledge of responsibilities for security/safeguards emergencies. Safety authorities are defined in Security Engineering Management Plans for Projects.

Security inspectors were found to be highly professional and knowledgeable of various safety aspects of security measures. Security inspectors are taking the training offered by the Environmental, Safety, Health, and Emergency Response Training group on facility-specific hazards. Personal dosimeters with automatic alarms are available to security inspectors. Security post orders, exercise plans, and management plans routinely address safety considerations.

One concern was developed in this performance area which was partially identified in the self-assessment. Otherwise the self-assessment of this performance area was adequate.

4.5.2.11.2 Findings and Concerns

SS.1 SAFETY OF IMPROVEMENTS

PERFORMANCE OBJECTIVE: Security/safeguards improvements and modifications should not create or increase hazards that would impede the safe, reliable operation or shutdown of any facility on the site in normal, abnormal, or emergency situations.

- FINDINGS:**
- The manager of the Radiation, Fire, and Safety Engineering organization reviews and approves security/safeguards improvements and modifications. Comments are informally transmitted to the Site Engineering organization responsible for the project. There is no program to formally and systematically document, track, and resolve action items resulting from reviews.
 - ANL-W does not require a formal transmittal of comments from safety oversight organizations resulting from the review of projects. The only mechanism for documenting comments are the minutes of the design review committee meetings. There is no formal system for tracking to resolution action items resulting from comments made during project reviews.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN: Argonne National Laboratory-West does not have a formal system for tracking to resolution action items resulting from safety reviews of security projects.
(SS.1-1)
(H3/C2)

4.5.2.12 Experimental Activities

4.5.2.12.1 Overview

The four performance objectives in the Experimental Activities technical area were addressed in this appraisal. The appraisal was conducted by means of interviews with managers, experiment coordinators, and technical staff; by walkthrough of the main facilities; and by reviewing numerous operating manuals, guides, and documents. It was found that guidance for the experiments ranged from very little (Fuel Cycle and Fuels and Processes Divisions) to detailed manuals (Experimental Breeder Reactor-II and Engineering Physics Divisions) that give extensive guidance. Reasons given for the extreme ranges in guidance varied from "experiments are always conducted by assigned staff" to length of time the division has been in existence. The longer the division has been in existence the better the guidance.

Overall, the performance in the experimental activities area was well managed and, while formal agreements on ES&H issues between the Engineering Research Divisions and the ANL-W Site Support Division do exist, they lack explicit criteria directing what requires ANL-W Site Support Division review and approval. No evidence of any safety compromise was found, however, the lack of criteria did result in the only concern found in this technical area.

The two reactor operating divisions, Experimental Breeder Reactor-II and Engineering Physics, have detailed written guides and procedures that lead to an extensive interface between the experimenters and the operators. The other two divisions, Fuel Cycle and Fuels and Processes, do not have similar documents in place. However, with rare exception, their staff members are the only experimenters and, therefore, are very familiar with their own internal procedures and process. It would appear that these latter two divisions could benefit from the other divisions' experience and effort by extracting applicable portions of their guides and adapting them to their own needs. If this approach were to be taken it might lead to the establishment of some uniformity between the individual organizations of the Engineering Research Divisions, which were concerns in several other sections of this report.

Most, but not all, experiments are reviewed by standing committees, the most prominent being the Reactor Safety Review Committee and the Nuclear Facility Safety Review Committee. The Reactor Safety Review Committee reviews all new experiments that require placement within the core of any ANL-W reactor unless similar experiments have previously been analyzed. A similar process conducted by the Nuclear Facility Safety Review Committee takes place for the nonreactor or out-of-reactor experiments. There are other committees that are used to review those experiments, which are known to involve lesser risk or potential risk and do not require changes to either technical specifications or the SAR for the particular facilities involved. The ANL-W Site Support Division has the ES&H functional responsibility, but they are not necessarily involved in these review processes. This situation is further exacerbated by the Engineering Research divisions, which add to personnel with ES&H expertise to their own staff. This has the appearance of conflict and does not provide the independency that DOE Orders require (DOE 5480.5 and DOE 5482.1B).

As experiments progress, they are continually monitored. Some include automatic data gathering and analysis. Any unusual conditions or indications are brought to the attention of the responsible individuals for action. In-core experiments are always under continuous monitoring and under the direct supervision of the reactor operating staff. The experiment must fall within the prescribed safety envelope. Any deviation during the conduct of the experiment requires, as a minimum, the facility operating manager's approval before continuing. This, coupled with the fact that most experiments are conducted by ANL-W staff, results in close and continuous communication between operations staff and the experimenter.

The ANL-W self-assessment did identify the lack of uniformity with experiment reviews, but did not identify the need for independent and in-depth ES&H reviews.

4.5.2.12.2 Findings and Concerns

EA.3 EXPERIMENTAL ACTIVITIES

PERFORMANCE OBJECTIVE: Sufficient information on a proposed experiment should be submitted to permit a safety evaluation to be made.

NOTE: This performance objective may be reviewed under Site/Facility Safety Review, FR.

- FINDINGS:**
- There is a Reactor Safety Review Committee and a Nuclear Facility Safety Committee that review various operations or proposed operations involving reactors and nuclear facilities, respectively, but not necessarily experiments. Experimental Breeder Reactor and Engineering Physics Divisions have detailed experimental review guides and procedures, whereas Fuel Cycle and Fuels and Processes divisions do not.
 - DOE 5480.5 and DOE 5482.1B require ES&H formal review of systems or processes, which can be quite different from what the two standing committees noted above are responsible. The Interface Agreement Between ANL-W Divisions On Environment, Safety, and Health (ES&H), approved May 31, 1991, is an attempt to formalize the ES&H review process, but, as written, lacks the independency the Orders suggest is needed. The choice of words such as "when required," "as requested," and the failure to address experimental activities in any way detract from the rigor of the document.
 - See Concerns FR.4-1, 4-2, RP.2-1, PP.1-1, PP.1-2, and PP.3-1.
 - This concern was not addressed in ANL-W self-assessment.

CONCERN:
(EA.3-1)
(H2/C1)

No formal procedures, directives, or guides are in place that clearly delineate the role of an independent environment, safety, and health function in the design, review, or conduct of experiments within the Engineering Research Divisions of Argonne National Laboratory-West, as required by DOE 5480.5 and DOE 5482.1B.

4.5.2.13 Site/Facility Safety Review

4.5.2.13.1 Overview

All six performance objectives were evaluated during the course of this appraisal. Documentation was reviewed and evaluated for annual, triennial, and functional safety appraisals; safety committee minutes; and audits and inspections. Interviews were conducted with the Assistant Laboratory Director/Site Manager; Fuel Cycle Division Director; Office of Nuclear Safety Manager and staff; Safety, Environment and Safeguards Manager; Nuclear Facilities Safety Committee members; Reactor Safety Review Committee Chairman; Office of Quality Assurance Manager; and Division ES&H Coordinators. Tours were made to review operating experience and the trending of data at Experimental Breeder Reactor-II, a Category A reactor; Transient Reactor Test Facility and Zero Power Physics Reactor, Category B reactors; Fuel Manufacturing Facility; and Fuel Cycle Operations. The ANL-W self-appraisal was reviewed and found to have identified about half of the concerns expressed in this appraisal.

ANL-W has a long history of nuclear safety. Safety review committees, composed of individuals with impressive credentials and years of experience, have addressed the site's nuclear safety questions very well. The safety of nonnuclear facilities, however, has not received the same level of attention. Further, functional areas of safety other than nuclear safety have not been handled as well. ANL-W recognizes these deficiencies and has taken steps to elevate these other areas of safety up to par with nuclear safety. The site is also getting underway in gathering and trending operating experience data to improve safety and reliability.

ANL-W has two major safety committees, the Reactor Safety Review Committee and the Nuclear Facility Safety Committee for nonreactor facilities. These are, in fact, Argonne National Laboratory committees with roughly equal membership from ANL-W and ANL-E. The committees regularly review a broad range of safety-related questions, reporting to upper-level management in an advisory capacity. Internal independent reviews required by DOE 5480.5 and DOE 5480.6 are covered by the Nuclear Facility Safety Committee and Reactor Safety Review Committee, respectively. Significant changes to facility operations, Operational Safety Requirements, and Technical Specifications are consistently reviewed. The Office of Nuclear Safety works closely with both the Reactor Safety Review Committee and the Nuclear Facility Safety Committee, coordinating activities and processing communications between the committees and the Laboratory Director. The Office of Nuclear Safety also independently reviews safety matters that do not require the attention of the full committees. A concern about the management level to which the Office of Nuclear Safety reports has been expressed in this appraisal.

Although the safety committees are composed of members with in-depth technical backgrounds, the emphasis has historically been nuclear safety. As a result, these committees do not spend much time looking at Unreviewed Safety Questions in other areas, except that Safety, Environment, and Safeguards may be called upon for input from time-to-time. Furthermore, nonnuclear facilities and low-hazard facilities do not come under the purview of the Reactor Safety Review

Committee and Nuclear Facility Safety Committee, which results in a number of facilities at ANL-W whose operations are not reviewed for safety by an independent committee on a regular basis. This has been expressed as a concern.

The safety committees operate in a formal manner with meetings held at least quarterly. Because of the division of members between Chicago and Idaho, telephone conferencing is often used to conduct business. Committee meetings are documented by minutes, which identify the safety topics considered and the resolution of issues.

An annual operating review of reactors, as specified by DOE 5480.6, is conducted by the Reactor Safety Review Committee and the Office of Nuclear Safety. The Nuclear Facility Safety Committee and the Office of Nuclear Safety perform similar annual reviews for the nonreactor facilities, as required by 5480.5. But there is really little ES&H input, except for fire protection and health physics, included in these appraisals as specified in DOE 5482.1B. Also, there are no annual reviews of operations in nonnuclear and low-hazard facilities. ES&H Quality Assurance (QA) Oversight has been given the responsibility to ensure review of the overall operation of each facility for adequate ES&H coverage, but the concern expressed is that this has not yet been done.

Triennial appraisals of how well the ANL-W safety review system is working have been performed regularly, but directed only at reactors and nuclear facilities. These triennial appraisals have not addressed the role of ES&H coverage in the overall safety review system or the need for safety coverage in other than reactors and nuclear facilities.

4.5.2.13.2 Findings and Concerns

FR.3 OPERATION OF SAFETY REVIEW COMMITTEE

PERFORMANCE OBJECTIVE: Review of site/facility activities by the Safety Review Committee should ensure achievement of a high degree of safety.

- FINDINGS:**
- The Nuclear Facility Safety Committee provides objective and independent reviews of nonreactor nuclear facilities and the Reactor Safety Review Committee of the reactor facilities. These committees submit advice and recommendations to the Laboratory Director, a sufficiently high level of management to assure necessary corrective actions are taken, as required by DOE 5480.5 and DOE 5480.6.
 - The Office of Nuclear Safety reports to the Assistant Laboratory Director/Site Manager ANL-W. In its role of Laboratory-wide independent review and appraisal of safety questions not addressed by the two major committees, the Office of Nuclear Safety does not report to Laboratory-wide top-level management.
 - In "Triennial Review of Argonne National Laboratory Reactor Safety Review and Appraisal System," March 15, 1991, the suggestion was made that ANL management evaluate whether their Office of Nuclear Safety reporting level is sufficiently high to take necessary corrective action for identified reactor safety concerns.
 - This concern was not addressed by the ANL-W self-assessment.

CONCERN: The Argonne National Laboratory Office of Nuclear Safety, in its role of independent review and appraisal, does not report to a sufficiently high level of management to assure necessary corrective actions are taken, as required by DOE 5480.5 and DOE 5480.6.
(FR.3-1)
(H3/C1)

FR.4 ANNUAL FACILITY SAFETY REVIEW

PERFORMANCE OBJECTIVE: An annual operating review of the facility should be performed by a committee appointed by top contractor management, as specified in DOE 5480.5 and DOE 5480.6.

- FINDINGS:**
- The Reactor Safety Review Committee and the Nuclear Facility Safety Committee along with the ANL Office of Nuclear Safety conduct annual appraisals of reactors and nuclear facilities. However a number of facilities, for example, the Fuel Assembly and Storage Building, Radioactive Liquid Waste Treatment Facility, Sodium Process Facility, Analytical Laboratory, and Live-Fire Range, are not reviewed on a regular schedule to assure adequate ES&H coverage
 - Environment, Safety and Health, and Quality Assurance (ES&HQA) Oversight draft procedure, April 30, 1991, assigns to the Assistant Laboratory Director, ES&H QA Oversight the responsibility to ensure review of the overall operation of each facility for adequate ES&H coverage. Although two functional safety appraisals, environmental protection and health physics, have been conducted and a number of others are planned over the next 2 years, overall operation of nonnuclear and low-hazard facilities has not been reviewed.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN:
(FR.4-1)
(H2/C1)

The independent review and appraisal system does not ensure review of the overall operation of nonnuclear and low-hazard facilities to assure environment, safety, and health coverage, as required by DOE 5482.1B.

- FINDINGS:**
- The annual appraisals of reactors and nuclear facilities cover the nuclear safety review topics specified in DOE 5480.5 and DOE 5480.6, but all ES&H functional areas are not addressed, as required by DOE 5482.1B.
 - ES&HQA Oversight draft procedures give no indication how the ES&H component will be included in reactor and nuclear facility annual appraisals. Further, discussions with the managers of Safety, Environment, and Safeguards and the Office of Nuclear Safety did not fully explain how this requirement is to be met.
 - See Concern EA.3-3.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(FR.4-2)
(H2/C1)

Annual operating reviews of reactors and nonreactor nuclear facilities do not fully address all areas of environment, safety, and health, as required by DOE 5482.1B.

FR.5 TRIENNIAL APPRAISAL OF SITE/FACILITY SAFETY REVIEW SYSTEM

PERFORMANCE OBJECTIVE: A triennial appraisal of the safety review system should be performed by contractor management.

- FINDINGS:**
- "Triennial Review of Argonne National Laboratory Reactor Safety Review and Appraisal System," March 15, 1991, evaluated the adequacy of the internal safety review program against the requirements of DOE 5480.6. However, it did not fully address the requirements of DOE 5482.1B to assure adequate ES&H coverage.
 - "Triennial Review of the ANL Internal Review and Appraisal System for Nuclear Facility Safety," September 19-23, 1988, focusing only on the requirements of DOE 5480.5, also failed to address the ES&H requirements of DOE 5482.1B.
 - Neither of the triennial appraisals addressed the role of the ES&H Division at ANL-E and the Safety, Environment, and Safeguards Department at ANL-W in the internal safety review system. Further, they did not address the adequacy of the functional safety appraisals conducted by Environment, Safety and Health, and Quality Assurance Oversight.
 - Environment, Safety and Health, and Quality Assurance Oversight Procedure 1.0, draft prepared April 30, 1991, assigns to the Assistant Laboratory Director, Environment, Safety and Health, and Quality Assurance Oversight the responsibility to ensure that an independent triennial appraisal is made to assure adequate ES&H coverage in accordance with DOE 5482.1B. None of these appraisals has yet been conducted.
 - See Concern RP.2-1.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN: Triennial appraisals of the site/facility safety review system do not fully address environment, safety, and health coverage, as required by DOE 5482.1B.
(FR.5-1)
(H3/C1)

FR.6 OPERATING EXPERIENCE REVIEW

PERFORMANCE OBJECTIVE: Operating experiences should be evaluated, and appropriate actions should be undertaken to improve safety and reliability.

- FINDINGS:**
- Except at Experimental Breeder Reactor-II, there is minimal evidence that normal and off-normal operating performance data are gathered, evaluated, and trended to achieve improvements. The Transient Reactor Test Facility has done some evaluation on events of the year, and the Fuel Cycle Division has been trending a few performance indicators.
 - The ANL-W QA section gathers and distributes letters, bulletins, and information notices relating industry experience. However, their procedures dealing with lessons learned have not been fully implemented.
 - Quarterly reports of DOE Performance Indicators for five facilities at ANL-W are now required. As yet, not enough data were available for trending.
 - See Concerns OP.3-2, MA.7-1, AX.1-1, TS.4-1, and RP.10-2.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: There is no Argonne National Laboratory-West sitewide program to gather, evaluate, and trend operating experience data to improve safety and reliability.
(FR.6-1)
(H3/C2)

4.5.2.14 Radiological Protection

4.5.2.14.1 Overview

All 12 performance objectives in the Radiological Protection technical area were addressed in this appraisal. All facilities were evaluated. The appraisal included review of documentation, including records of audits and assessments and radiation measurements at ANL-W facilities; tours of all facilities; discussions with radiation protection, instrument and control, emergency preparedness, and operational as well as radiation protection staff at all organizational levels; and observations of tasks being performed in radiation areas.

Radiation Protection at ANL-W is a function of the office of Radiation, Fire, and Safety Engineering in the Safety, Environment, and Safeguards Department. The Radiation Protection Program, while conducted by highly dedicated and competent personnel, is not sufficiently formalized to ensure effective implementation of DOE 5480.11. Delineation of authorities and responsibilities for the radiation protection staff is not in sufficient detail to ensure effective implementation of DOE 5480.11. There are no formal written programs describing ANL-W requirements for such major areas as radiation protection training or ALARA. DOE 5480.11 was issued over 2 years ago, and still has not been implemented.

Failure to correct noncompliance items for DOE 5480.11 as identified by ANL-W in their implementation plan for DOE 5480.11 dated February 9, 1989, and in their self-assessment dated April 15, 1991, results in major deficiencies as the lack of a health physics technician training and retraining program.

ANL-W has not documented ALARA plans and programs or trended area contamination survey results. The documented oversight authority of the ALARA Coordinator is not strong.

The independent audit and self-assessment program has not been comprehensive in its evaluation of the Radiation Protection Program. The ANL-W self-assessment does not address the majority of concerns documented in this assessment.

The lack of a uniform Radiological Protection Program applied across all divisions results in differences in radiation instrument calibration, operability checking, and procedures. In some cases, documentation does not exist of tests on instruments required by the ANSI Standards, which are incorporated into DOE Orders.

Controlled and radiation areas are not consistently posted. In some cases they are not posted at all, and in others the radiological conditions in the posted areas are not included on or in conjunction with the signs.

Removal and storage or disposal of radioactive material in the basement of the Laboratory and Office Building and in the Inside Radioactive Storage Building does not ensure that personnel radiation exposure is minimized.

The issuance of multiple dosimeters to radiation workers, and the wearing of dosimeters anywhere from the neck to the pocket on either the front or the side of the body, violates ANL-W policy and decreases the accuracy with which radiation dose is determined. Internal dose or deposition baseline levels are normally not established for visitors.

The Radiation Monitoring and Contamination Control Program has not resulted in determining the minimum detection capabilities of the hand and foot monitors.

Records are not easily retrievable, and they are not transferred to storage in accordance with DOE 1324.2A.

Excellence was noted at ANL-W in vertical communications, morale, and teamwork. Source control was excellent.

Occurrence reporting and accident investigations are thorough and include corrective actions to preclude repetition of accidents. Safety inspections of each building are conducted quarterly, results are documented, and corrective actions are timely.

Numbers and locations of fixed instruments are adequate to assess radiation conditions. There are sufficient numbers of portable survey instruments available for both routine and emergency use. Calibration sources are traceable to recognized standards.

4.5.2.14.2 Findings and Concerns

RP.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Site/facility organization and administration should ensure effective implementation and control of radiological protection activities on the site/facility.

- FINDINGS:**
- A written management plan clearly defining organizational responsibilities, interfaces, duties, and accountabilities between the Radiation, Fire, and Safety Engineering group, and other ANL-W divisions, as well as other INEL organizations is not in place.
 - The ANL-W Environment Safety and Health (ES&H) Manual does not define the authorities, responsibilities, duties, and conduct of operations for radiation protection functions in sufficient detail to ensure effective implementation of DOE 5480.11.
 - See Concern OA.1-1.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(RP.1-1)
(H2/C1)

Argonne National Laboratory-West has not fully delineated authorities, responsibilities, and conduct of operations for radiation protection to effectively implement a Radiation Protection Program, as required by DOE 5482.1B.

- FINDINGS:**
- The plan for implementing DOE 5480.11 was submitted by ANL-W to DOE Argonne Area Office, dated February 9, 1989.
 - The ANL-W Management-ES&H Initial Self-Assessment, April 15, 1991, states that the Health Physics Technician Training Program is not in compliance with DOE 5480.11.
 - Radiation, Fire, and Safety Engineering staff stated that no action is underway to bring ANL-W into compliance with DOE 5480.11 and cited "a lack of funding."
 - The Argonne Area Office stated that the implementation plan for achieving compliance with DOE 5480.11, is not on their tracking system.
 - No individual or organization is assigned the responsibility to assure ANL-W compliance with DOE 5480.11.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN: The Argonne National Laboratory-West has not maintained adequate
(RP.1-2) surveillance of the implementation of DOE 5480.11 to assure
(H2/C1) compliance with its requirements, as required by DOE 5700.6B.

FINDINGS: • This concern was not addressed in the ANL-W self-
assessment.

CONCERN: The Argonne Area Office has not maintained adequate surveillance
(RP.1-3) of the implementation of DOE 5480.11 to assure compliance with
(H2/C1) its requirements, as required by DOE 5700.6B.

RP.2 INTERNAL AUDITS AND INVESTIGATIONS

PERFORMANCE OBJECTIVE: The Internal Audit Program for both routine operations and unusual radiological occurrences should provide adequate performance assessments.

- FINDINGS:**
- An internal audit of the ANL-W Health Physics Program was conducted during April 17-21, 1989, by an individual from Argonne National Laboratories-East knowledgeable in radiation protection. The audit did not address all of the elements of the Radiation Protection Program required by DOE 5480.11, Section 9.r; for example, it did not address respirators, nuclear accident dosimetry, source material control, and x-ray protection.
 - The April 1989 audit did not provide an objective and independent review of ES&H functions to determine whether reviews of proposed plant modifications, proposed experiments, and organization and staffing of each facility are conducted, as required by DOE 5482.1B.
 - In addition, the audit did not address certain elements of the ANL-W Radiation Protection Program; for example, Program Management and Administration, Audits and Investigations, External and Internal Radiation Dosimetry, and portions of Radiation Instrumentation dealing with the portable survey instrument calibration and repair facility.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN: Internal audits of Argonne National Laboratory-West Radiation Protection Program do not meet requirements of DOE 5480.11 and DOE 5482.1B for an independent review of all of the elements of the program.
(RP.2-1)
(H2/C1)

RP.3 RADIOLOGICAL PROTECTION PROCEDURES AND POSTING

PERFORMANCE OBJECTIVE: Radiation protection procedures for the control and use of radioactive materials and radiation generating devices should provide for safe operations and for clearly identified areas of potential consequences.

- FINDINGS:**
- A copy of the procedure, SAR, or any other documentation that had been approved by Radiation, Fire, and Safety Engineering for the experimental fuel fabrication being planned for the Experimental Fuel Laboratory was requested. Radiation, Fire, and Safety Engineering does not have that documentation.
 - During a tour of the Fuel Cycle Facility, a copy of the operational procedure for cask handling was requested from the Chief Radiation Safety Technician. He reported that these were operational procedures and that he did not have a copy.
 - The actions that the radiation safety technicians are to take with the personnel neutron threshold detectors, normally referred to as a personnel neutron accident detector, in the event of a criticality exposure is not specified in the Dosimetry Procedure, Chapter 2, Section IV, of the Radiation Safety Manual. Actions to be taken are documented in Section II, Appendix F, ANL-W Emergency Handbook, Volume 1. The person designated to take these actions is not specified.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN: Procedures and radiation safety documentation are not all readily available and comprehensive, as required by DOE 5480.11.
(RP.3-1)
(H3/C1)

- FINDINGS:**
- The controlled and radiological area terminology used in Chapter 4, Section VII, of the ANL-W Environmental, Safety and Health Manual is not the same as used in DOE 5480.11. The ANL-W manual uses the term "Radiation Control Zone" and DOE 5480.11 uses the term "Controlled Area."
 - Controlled and radiological area signs are not consistent from one area to another; for example, the sign on the Laboratory and Office Building Analytical Laboratory source storage safe differed from other signs on radioactive material storage areas. The anticipated dose rate or range of dose rates are frequently not included on each sign, as required by paragraph 9k of DOE 5480.11.

FINDINGS:

- There are no labels on the "NAK" and "NA" storage containers in the outside radioactive material storage area. Boxes are roped off by black and yellow rope, but there are no labels on the boxes or on the rope indicating the contents of the boxes or the radiological conditions. The "high radiation" sign has no information concerning the radiological conditions (levels) in the area.
- In the radioactive liquid waste treatment facility, the filter fans have hot spots that are 20 millirem per hour. These radiation levels were reported to go as high as 200 millirem per hour at times. The fan hot spots are not identified, barricaded, or posted.
- This concern was partially addressed in the ANL-W self-assessment.

**CONCERN:
(RP.3-2)
(H2/C1)**

Controlled and radiation areas are not consistently posted using the terminology and including the information specified by DOE 5480.11.

RP.4 EXTERNAL RADIATION EXPOSURE CONTROL PROGRAM

PERFORMANCE OBJECTIVE: External radiation exposure controls should minimize personnel radiation exposure.

FINDINGS: • Radioactive subassemblies are stored in the basement of Laboratory and Office Building. The dates on the radiation signs indicate that they have been stored there since 1975. These radiation signs indicate that they have not been updated in 10 years.

CONCERN: See Concern RP.11-1.

RP.5 EXTERNAL RADIATION DOSIMETRY

PERFORMANCE OBJECTIVE: The Routine and Accident Personnel Radiation Dosimetry Programs should ensure that personnel radiation exposures are accurately determined and recorded.

- FINDINGS:**
- External dosimeters, including albedo, are provided to ANL-W by EG&G Idaho and are accredited. ANL-W does not have an audit program for external dosimetry. It was reported that Radiological and Environmental Sciences Laboratory (RESL) audits the EG&G Idaho external dosimetry service.
 - The personal accident radiation dosimeters are tested, but have not been accredited.
 - The Argonne Special Code Radiation Dose Equivalent Report shows that some ANL-W employees have four dosimeters. It was explained that some of these are located at different INEL sites since ANL-W does not want to be charged with radiation dose from other sites. Also, a few of the dosimeters are duplicated because the albedo dosimeter is attached to a beta-gamma dosimeter, and because a different albedo dosimeter is needed at Zero Power Physics Reactor and Transient Reactor Test Facility as a result of the different neutron energies at the two facilities. Considering that the lower limit of detection for the dosimeter is 15 millirem, monthly dosimeter exchanges of four dosimeters would result in a potential lost dose of 720 millirem per year. Quarterly dosimeter exchanges would result in a potential lost dose of 240 millirem per year.
 - Personnel at ANL-W wear their dosimeter located anywhere from the neck to their pocket below the waist and on either the front or side of their body. This is not in compliance with the ANL-W Radiation Safety Manual, Chapter 2, Section IV, requirement to wear the dosimeter on the front outside of the clothing in the chest area where its ability to record the best average whole-body dose is optimized.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(RP.5-1)
(H2/C1)

The use of multiple dosimeters and the manner in which they are worn do impact the accuracy with which personnel radiation exposures can be determined, as required by the Argonne National Laboratory-West Radiation Safety Manual.

RP.6 INTERNAL RADIATION EXPOSURE CONTROL PROGRAM

PERFORMANCE OBJECTIVE: Internal radiation exposure controls should minimize internal exposures.

- FINDINGS:**
- The ANL-W Contamination Control Program is generally excellent. However, a coffee preparation and dispensing area on the second floor of the Hot Fuel Examination Facility is located within approximately 6 feet of a rubber hose and clamp assembly on the pneumatic system labeled "internally contaminated" and with obvious external cracks in the hose. This assembly is used to remotely smear the interior of the hot cell. Rapid insertion ports to the hot cells are also located in the vicinity. Adequate surveys are not performed of the coffee area to document the absence of contamination.
 - Also see Concern PP.2-4.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN:
(RP.6-1)
(H2/C1)

Internal radiation exposure controls in the Hot Fuel Examination Facility coffee preparation and dispensing area do not assure that internal exposures are minimized, as required by DOE 5480.11.

RP.7 INTERNAL RADIATION DOSIMETRY

PERFORMANCE OBJECTIVE: The Internal Radiation Dosimetry Program should ensure that personnel radiation exposures are accurately determined and recorded.

- FINDINGS:**
- ANL-W does not have a quality control program for internal dosimetry.
 - No documented technical criteria exist to determine bioassay requirements, frequency, or adequacy for potential uranium exposures.
 - Baseline bioassay levels are not established on visitors to the ANL-W facilities unless they are going to work in an area where they would be classed as radiation workers.
 - Radiation standards for the public require monitoring where committed effective dose equivalent from internal radiation plus the effective dose equivalent from external radiation could exceed 100 millirem.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN:
(RP.7-1)
(H2/C1)

The Internal radiation Dosimetry Program does not include a quality control program or baseline data for all persons who may be exposed to airborne radioactivity, and therefore is not in compliance with DOE 5480.11.

RP.8 FIXED AND PORTABLE INSTRUMENTATION

PERFORMANCE OBJECTIVE: Personnel dosimetry and radiological protection instrumentation used to obtain measurements of radioactivity should be calibrated, used, and maintained so that results are accurately determined.

- FINDINGS:**
- The Remote Area Gamma Monitoring System Mark II ion chambers have not been tested against the criteria in ANSI 323, namely tests for electronic and mechanical requirements, radiation response, interfering responses, and environmental factors.
 - In addition, the Remote Area Gamma Monitoring System has not been tested for extracameral effects (instrument response from radiation on parts of the instrument other than the detector itself), as required by ANSI N323.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN: Argonne National Laboratory-West Remote Area Gamma Monitoring System instrumentation has not been evaluated for radiological and nonradiological characteristics and extracameral effects, as required by ANSI N323.
(RP.8-1)
(H2/C1)

- FINDINGS:**
- Radiation instrumentation has not been calibrated and/or tested in accordance with the applicable standards as evidenced by the following:
 - Experimental Breeder Reactor-II high-range containment monitors have not been calibrated, as required by ANSI N323.
 - The source/detector geometrical response of the 200 Curie Caesium-137 and Remote Area Gamma Monitoring System used at the ANL-W source range has continually changed over the years since 1975 due to radioactive decay; however, no evaluation has been made to determine those changes, as required by ANSI N323.
 - The Remote Area Gamma Monitoring System monitors are not calibrated at the mid-point of each decade.
 - Calibration of the fixed radiation monitors and records of maintenance and calibration are under the control of four separate Instrument and Control offices. The calibration procedures are not consistent with one another in format and detail. Calibrations are performed every 6 months. Operational checks of the monitors performed by the

instrument and control and/or health physics personnel are not consistent in frequency or technique.

- Response and/or operability checks of the portable neutron survey instruments at the Hot Fuel Examination Facility and the Zero Power Physics Reactor are not performed in accordance with Section I of the Radiation Safety Manual.
- From a review of three Health Physics Instrument Laboratory calibration procedures (one alpha, one beta-gamma, and one neutron), it was determined that precalibration checks are not done for geometrical response, linearity, and reproducibility, as required by ANSI N323, nor were the calibrations performed at a minimum of one point near the midpoint of each scale for instruments having a logarithmic readout.
- See Concern QV.5-2.
- This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(RP.8-2)
(H2/C1)

Not all fixed and portable radiological protection instruments used at Argonne National Laboratory-West are calibrated, for response or operability checked, as required by the Environment, Safety, and Health Manual, ANSI N323, and DOE 5480.11.

RP.9 AIR MONITORING

PERFORMANCE OBJECTIVE: Air monitoring systems through selection, location, calibration, and maintenance should ensure reliable estimates of air activity for radiological control purposes.

- FINDINGS:**
- Calibration of air flow rates for the following ANL-W air monitoring systems has not been done:
 - The fixed air sampling system, the rotometers associated with the Eberline Model Alpha-3 constant air monitors, the Nuclear Measurement Corporation constant air monitors used for real-time monitoring and the sampling system used to monitor airborne concentrations in the cask unloading tunnel in the Hot Fuel Examination Facility.
 - All other sampling monitors at ANL-W facilities that contain rotometers.
 - Air flow studies have been performed and updated at the Hot Fuel Examination Facility to ensure that the positioning of the constant air monitors is adequate to monitor for airborne activity. However, formally documented studies do not exist for other ANL-W facilities.
 - The stack monitors at both the Hot Fuel Examination Facility and the sodium cleanup and makeup system were initially calibrated using vendor supplied data, but the actual entire system has not been primarily calibrated using radionuclide(s) of known concentration, as required by Section 5.4.10 of ANSI N13.10-1974.
 - The minimum detection capability has been formally documented for the Hot Fuel Examination Facility Fixed Air Sampling System. However, the minimum detection capabilities have not been documented for other air monitoring systems throughout the ANL-W complex.
 - Some alpha-constant air monitors at the Hot Fuel Examination Facility and the Experimental Fuel Laboratory are not capable of detecting an 8 derived-air-concentration-hour exposure, as required as ANSI N317-1980 and DOE 5480.11.
 - See Concern QV.5-2.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(RP.9-1)
(H2/C1)

Not all of the Argonne National Laboratory-West air monitor systems, through location and calibration, ensure reliable estimates of air activity for radiological control purposes, as required by ANSI N317-1980 and DOE 5480.11.

RP.10 RADIATION MONITORING/CONTAMINATION CONTROL

PERFORMANCE OBJECTIVE: The Radiation Monitoring and Contamination Control Program should ensure worker protection from radiation exposures.

- FINDINGS:**
- Section VII, Chapter 2, of the ES&H Manual specifies personnel contamination limits of 100 cpm above background for beta-gamma and nondetectable for alpha. However, no analysis has been done to determine the capability of the hand and foot monitors to detect the low levels of alpha required to ensure that personnel adhere to the requirements of the ES&H Manual.
 - The minimum detection capability of the hand and foot monitors used throughout the ANL-W complex have not been formally documented to demonstrate compliance with the requirements of Section 5.3.2 of ANSI N317-1980.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(RP.10-1)
(H2/C1)

The minimum detection capability of the hand and foot monitors used throughout Argonne National Laboratory-West has not been determined, as required by Section 5.3.2 of ANSI N317-1980.

- FINDINGS:**
- Trending of radiological conditions in the ANL-W facilities does not include trending of smear data and the trending of air sample data is limited to a manually prepared table of filter counting data for the Hot Fuel Examination Facility and Fuel Cycle Facility. Subsequently, an air sample trending methodology was developed for the Laboratory and Office Building, and a plot of 1990-1991 data was made. A meeting was scheduled to determine future trending requirements for the Hot Fuel Examination Facility and Fuel Cycle Facility.
 - It was reported by EG&G Idaho that they do not monitor laundry received from ANL-W for alpha. They do not accept alpha-contaminated laundry, and rely on ANL-W to ensure that there is no alpha contamination on the laundry sent. ANL-W does not monitor protective clothing for alpha before it is sent to the laundry.
 - Radiation, Fire, and Safety Engineering staff was not aware of low levels of depleted uranium alpha contamination documented in the Zero Power Physics Reactor contamination survey records.
 - A bag of shoe covers had been returned by EG&G Idaho to, and accepted by, ANL-W with the cleaned laundry in a yellow bag, which is normally reserved for contaminated laundry.

- This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(RP.10-2)
(H2/C1)

The Radiation Monitoring and Contamination Control Program does not ensure, through trending, monitoring, and calculations, that radiation exposures are minimized, as required by DOE 5480.11.

RP.11 ALARA PROGRAM

PERFORMANCE OBJECTIVE: A formally structured, auditable program should be in place with established milestones to ensure that exposures are maintained as low as reasonably achievable (ALARA).

- FINDINGS:**
- ANL-W does not have a documented, ALARA program incorporating the guidance contained in DOE/EV/1830-T5.
 - The ANL-W ALARA policies are contained in the ES&H Manual, Section VII, Chapter 1. However, plans and programs used to assure that occupational radiation exposures are maintained ALARA are not documented, as required by DOE 5480.11.
 - ANL-W personnel assignments of ALARA responsibilities are specified in position descriptions only. However, the position descriptions provide no detail.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(RP.11-1)
(H2/C1)

Argonne National Laboratory-West does not have a formally structured, auditable program with established milestones to ensure that radiation exposures are maintained as low as reasonably achievable, as required by DOE 5480.11.

- FINDINGS:**
- Monthly exposure reports to the Engineering Research Division required by the ES&H Manual were not available at some facilities.

CONCERN: See Concern FR.6-1.

- FINDINGS:**
- The ALARA Coordinator has only limited authority to effect ALARA-related procedures at ANL-W. The ES&H Manual states: "The ALARA coordinator, or his designated alternate, shall administer the ANL-W site exposure program and provide technical consultation concerning ALARA policy and practices UPON REQUEST." (Emphasis added.)
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: See Concern OA.1-1.

- FINDINGS:**
- There is no classroom training or retraining of radiation safety technicians. (See Section 4.5.2.5, TC.7.)

CONCERN: See Concern TC.7-1.

RP.12 RECORDS

PERFORMANCE OBJECTIVE: Records related to occupational radiation exposure should be maintained in a manner that permits easy retrievability, allows trend analysis, and aids in the protection of an individual and control of radiation exposure.

- FINDINGS:**
- Radiation and radiation training records are not maintained in a central location.
 - The ANL-W ES&H Manual does not specify the retention period or place at ANL-W prior to retirement to long-term storage.
 - The report of personnel dose provided to ANL-W by EG&G Idaho ceased including a column showing the lifetime dose for each individual about 3 years ago.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: Records related to radiation exposure are not readily available in accordance with DOE 5480.11, and are not transferred to storage in accordance with DOE 1324.2A.
(RP.12-1)
(H3/C1)

4.5.2.15 Personnel Protection

4.5.2.15.1 Overview

Occupational safety and industrial hygiene aspects of this assessment were addressed in the Personnel Protection technical area. All personnel protection performance objectives were assessed. Findings were developed through discussions with representatives from the Safety, Environment, and Safeguards Department as well as all five ANL-W operating divisions. Facilities from all five divisions were assessed. During facility visits, policies, procedures, and records were reviewed, and field observations were made to evaluate effectiveness of, and adherence to, the Health and Safety Program. Personnel discussions were often conducted in concert with facility walkthroughs. Findings are summarized below.

The line management safety program and the coordination of line management with the Safety, Environment, and Safeguards Department's independent ES&H role of oversight and technical support are in a state of development. New organizational initiatives have recently been established or are anticipated, but they have not yet been fully implemented. These initiatives include establishing health and safety representatives within the operating divisions to provide internal support and oversight to line management. This health and safety expertise within the divisions is in addition to the existing independent oversight and support provided by the Safety, Environment, and Safeguards Department. Despite an environment, safety, and health interface agreement intended to define responsibilities of the Safety, Environment, and Safeguards Department compared to operating divisions, the relationship between line management, division safety and health groups, and the Safety, Environment, and Safeguards Department is not clearly established. Roles, responsibilities, and systems for communication, information transfer, record-keeping, and documentation are ill-defined. In addition, line management, instead of being the principal player in Health and Safety Program implementation and enforcement, is deferring to division safety and health groups. Lacking a coordinated effort, health and safety program enforcement, oversight, and support is inhibited.

Many deficiencies exist in the application of a Health and Safety Program including program aspects of lockout/tagout, confined space entry, respiratory protection, hazard analysis, exposure monitoring, asbestos abatement, work control, hazard communication, safety and health training, laser safety, occupational noise exposure, and personal protective equipment policy, among others. Deficiencies identified as Category II concerns include the following:

- Lockout/tagout procedures vary by division and do not comply with requirements of the ANL-W ES&H Manual or 29 CFR 1910.147. Despite recognizing the problem, ANL-W management has not issued a directive to divisions to bring their procedures into compliance with the ES&H Manual. A Category I concern is reported in the Worker Safety section of this report involving an immediate danger situation regarding failure to lockout a diesel generator.

- Work control practices are also not uniform for all five divisions and do not consider safety issues in a credible manner.
- Requirements for work permits are at times ignored. When they are issued, they often lack consideration for vital health and safety issues. The Category I concern mentioned above also relates to these work control deficiencies.
- Asbestos abatement actions conducted over the past 2 years have consistently resulted in uncontrolled releases of fibers to occupied spaces. This hazard was either not acted upon or was not recognized.

Many credible hazards at ANL-W have not been evaluated. These include potential exposures to benzene, arsenic, polynuclear aromatic hydrocarbons, particulates, silica, chromium, and lead, among others. High hazard situations are often not recognized, and corresponding hazard controls are not implemented. Examples include a nitrogen engulfment hazard during primary pump cleaning, potential benzene exposure during cleaning using anhydrous alcohol, and the asbestos releases noted above, among others. Numerous instances were identified where radiation hazards were considered for an operation, but other health and safety hazards were not, despite an equal or greater degree of hazard.

Of the 12 concerns identified in this appraisal area, 9 were at least partially addressed in the ANL-W self-assessment. The self-assessment was lacking in detail and was difficult to follow because each division reported separately. Nevertheless, it is apparent that initiatives are underway to address many of the findings reported herein. However, for these initiatives to be successful, it is essential that an acceptable standard of practice be established for all divisions, that the environment, safety, and health responsible groups be coordinated to effectively interact and complement each others efforts, and that health and safety issues receive proportionate attention as radiological protection issues.

4.5.2.15.2 Findings and Concerns

PP.1 PERSONNEL PROTECTION

PERFORMANCE OBJECTIVE: Site and facility organization and administration should ensure effective implementation of the Personnel Protection Program.

- FINDINGS:**
- A line management safety program is not defined, developed, or implemented on a sitewide basis at ANL-W. Instead, each of the five divisions has developed or is in the process of developing management plans which include its own organizational approach to a safety program.
 - Division management plans are in various states of revision, completion, development, and implementation. However, in all cases, the application of a line management safety program is not fully implemented.
 - Division management plans vary in the detail in which they define systems to apply a line management safety program (for example, conduct of safety meetings and self-inspections, identification of line management responsibilities, etc.). (See Concerns OA.1-1 and OA.1-2.)
 - Each division has recently established its own group of health and safety personnel to provide oversight and support internal to the division and to coordinate with the independent health and safety functions provided by the Safety, Environment, and Safeguards Department. However, division management plans, interface agreements (that is, between Safety, Environment, and Safeguards and divisions regarding ES&H), and the ANL-W ES&H Manual do not clearly define respective responsibilities of line management versus division health and safety staff versus Safety, Environment, and Safeguards health and safety staff. Examples include the following:
 - DOE 5480.1B and DOE 5480.4 require that each level of line management be responsible for the application of the health and safety program. ANL-W has not clearly defined responsibilities of foremen, supervisors, managers, department heads, etc. In addition, approaches are not defined for line management to apply their safety responsibilities. (See Concerns OA.1-1 and OA.1-2.)
 - Interface agreement functions are not assigned to either line management or division environment, safety, and health groups, as appropriate.
 - Communication, information transfer, and reporting mechanisms have not been established between division

ES&H groups and the Safety, Environment, and Safeguards Department. (See Concern PP.3-1.)

- In many cases, line management has deferred to division environment, safety, and health groups for the conduct and application of health and safety program aspects, such as self-inspections, walkthroughs, and safety meetings. Line management, which should be in the lead role, is playing a secondary role. (See Concern PP.4-1.)
- Safety inspections and safety meetings performed by the divisions vary in formality, frequency, and effectiveness. (See Concerns OA.1-2, PP.3-1, and PP.4-1.)
- See Concerns EA.3-1, FR.4-1 and FR.4-2.
- This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(PP.1-1)
(H2/C1)

A line management safety program complemented by health and safety oversight and support have not been fully developed and implemented, as required by DOE 5480.1B and DOE 5480.4.

FINDINGS:

- Two different approaches have been taken at ANL-W to provide radiological protection oversight and support versus health and safety oversight and support.
 - For radiological protection, a staff of over 30 health physics personnel have been assembled within Safety, Environment, and Safeguards. Staff members are dispatched to various division operations and are regularly rotated among operations. An independence between operations and oversight functions is thus maintained.
 - For health and safety, only a minimal staff has been assembled within Safety, Environment, and Safeguards. Each division has chosen to develop its own internal staff. Coordination of independent safety and health oversight and support provided by Safety, Environment, and Safeguards with safety and health functions internal to divisions has not been clearly established. (See Concerns EA.3-1, PP.1-1, and PP.3-1.)
- The health and safety staff within Safety, Environment, and Safeguards includes only two safety engineers and one industrial hygienist who also has environmental compliance responsibilities.
- Many safety and health functions are not being accomplished such as exposure monitoring, training, hazard analyses,

asbestos abatement oversight, laser safety functions, procedural development, and identification of non-compliances, among others. (See Concerns PP.3-3, PP.4-1, and PP.5-1.)

- Health and safety support services from other sources such as ANL-E or contractors are not provided to Safety, Environment, and Safeguards.
- This concern was addressed in the ANL-W self-assessment.

CONCERN:
(PP.1-2)
(H2/C2)

Coordination and distribution of health and safety resources between Argonne National Laboratory-West divisions and the Safety, Environment, and Safeguards Department has not been established to ensure effective oversight, support, and hazard control.

PP.2 PERSONNEL PROTECTION

PERFORMANCE OBJECTIVE: Procedures and documentation should provide appropriate direction, record generation, and support for the Personnel Protection Program.

- FINDINGS:**
- The ES&H Manual, Section VI, Chapter 15, "Uniform Lockout/Blockout/Tagout Requirements," is a generic procedure developed by Safety, Environment, and Safeguards and adopted on May 1, 1991. The procedure appropriately emphasizes lockout over tagout, when feasible; however, it often uses the terms "lockout" and "tagout" interchangeably, which causes confusion.
 - According to this procedure, each facility or organization must follow the manual's lockout/tagout requirements or develop a procedure which meets those requirements as a minimum. However, the divisions have not uniformly complied with this requirement, and Safety, Environment, and Safeguards has not assured division compliance, as exemplified below:
 - "ZPPR Status Control Procedure" (revised June 1991 and reportedly reviewed and approved by Safety, Environment, and Safeguards) does not specify lockout and seldom mentions the term. The procedure specifies tagout to comply with the ES&H Manual but does not specify lockout.
 - "EBR-II Operations Tagging Requirements" adopted December 17, 1990, emphasizes tagout rather than lockout. It predates the revised ES&H Manual procedure. Experimental Breeder Reactor-II management at the time of this assessment had no plans to modify the procedure to comply with the revised ES&H Manual procedure, and indeed recognized no inconsistencies. Safety, Environment, and Safeguards also did not recognize the procedural inconsistencies, did not review the Experimental Breeder Reactor-II procedure for compliance with the new ES&H Manual procedure, and did not require its modification.
 - Plant Services developed a lockout/tagout procedure consistent with the ES&H Manual. However, this procedure also interchanges the terms "lockout" and "tagout." Its "Tagout Authorization" form, as the name implies, mentions only tagout; lockout is not mentioned.
 - The ES&H Manual procedure, when revised, was not accompanied by a management directive instructing all

divisions to implement its requirements or rewrite existing procedures to comply.

- It is reported that ANL-W does not have enough locks to perform lockout procedures.
- Key control for locks is inconsistently applied and violates provisions of 29 CFR 1910.147 as indicated below:
 - The Hot Fuel Examination Facility has a person who keeps all keys and conducts lockout and lock removal for others. This is contrary to 29 CFR 1910.147, which specifies that locks be placed and removed by the individual performing maintenance.
 - Zero Power Physics Reactor locks are keyed alike; therefore, workers can lock and unlock for each other, also a violation of 29 CFR 1910.147.
 - Neither the ES&H Manual nor the division procedures define key control.
- The lockout/tagout procedures can be confusing because they intermix the requirements of 29 CFR 1910.147, which addresses lockout/tagout for service and maintenance of equipment with tagging for purposes of providing special instruction on operational limits.
- Lockout/tagout procedures are not uniform at the site, and this is a concern to workers.
- Use of tags instead of locks and tags was noted for various electrical and mechanical equipment at the site.
- Yellow caution tags are sometimes used incorrectly to take equipment out of service; however, the equipment is not rendered inoperable by any means other than a tag.
- An automatically starting diesel generator at the Fuel Cycle Facility was not tagged-out or locked-out during housekeeping performed around and under its improperly guarded, power transmission shaft, creating an immediate danger to employees. This hazard also indicates work control deficiencies in violation of DOE 5480.19. (See Concerns PP.3-2 and WS.4-4.)
- See Concerns WS.4-1, OA.2-2, OA.7-1, MA.1-1, MA.8-1, QV.7-1, and OP.1-1.
- This concern was addressed in the ANL-W self-assessment.

CONCERN:
(PP.2-1)
(H1/C1)
CAT. II

Lockout/tagout procedures are not uniform across the Argonne National Laboratory-West and do not comply with 29 CFR 1910.147, regarding lockout and key control, among others.

FINDINGS:

- ES&H Manual, Section II, Chapter 11, "Respiratory Protection" defines the Respiratory Protection Program. This program has various deficiencies including the following:
 - Protection factors specified for certain respirators are far too high and not consistent with OSHA regulations and National Institute for Occupational Safety and Health guidelines.
 - Qualitative fit testing is not performed in full conformance with 29 CFR 1926.58.
 - Quantitative fit testing is not performed.
- Respirators to protect against radiation exposures are issued, recalled, and maintained in a programmed manner; whereas, respirators to protect against chemical exposures are poorly controlled. For instance,
 - Two supplied air hoods stored in the boiler building and used for boiler cleaning operations are filthy.
 - Paint mist and solvent vapor respirators used by Plant Services personnel are issued in uncontrolled fashion from the Tool Crib. Respirator cartridges are improperly stored, the Tool Crib attendant has no training in respirator issue, cartridges are not regularly replaced, respirators are not inspected, respirators are not recalled and maintained.
 - Single use respirators are purchased, issued, and used without controls. (See Section 4.5.2.16.2, WS.3.)
- Respirators have been improperly issued. For instance, hooded respirators and air purifying respirators were specified for primary pump cleaning operations to guard against radiation exposures. The potential for nitrogen engulfment resulting in an atmosphere immediately dangerous to life and health existed, but was not considered. Neither respirator specified was acceptable for this immediately-dangerous-to-life-and-health potential.
- Compressed air used for supplied air respirators is not tested at all distribution points. One example is in the

boiler building where various hookups and air lines are used.

- This concern was not addressed in the ANL-W self-assessment.

**CONCERN:
(PP.2-2)
(H1/C1)**

The Respiratory Protection Program is not in compliance with 29 CFR 1910.134, 29 CFR 1926.58, and ANSI Z88.2 regarding respirator selection, fit testing, maintenance, storage, and protection factors, among others.

FINDINGS:

- ES&H Manual, Section VI, Chapter 18, "Confined Spaces" as well as Section II, Chapter 1, "Safe Work Permit" define procedures for confined space entry. These procedures do not conform to Draft 29 CFR 1910.146, "Permit Required Confined Spaces" and ANSI Z117.1-1989, "Requirements for Confined Spaces." Examples include the following:
 - The permit used does not include all required information and is not specific for confined space use. A modified permit is being prepared.
 - No rescue provisions have been developed. No training or guidance concerning rescue is provided. It is unclear who would perform rescues.
 - No formal confined space training is provided for safety watches or entrants.
- Confined spaces have not been fully identified and labeled. For instance, the boilers are not listed as confined spaces.
- Hazard potential for all confined spaces has not been evaluated and Safety, Environment, and Safeguards personnel have not classified obvious confined spaces as such.
- The authorizing person does not verify all permit conditions have been met.
- Authorized entrants and attendants are not identified.
- See Concerns PP.4-1 and WS.4-1.
- This concern was addressed in the ANL-W self-assessment.

**CONCERN:
(PP.2-3)
(H1/C1)**

Argonne National Laboratory-West confined space entry procedures do not comply with DRAFT 29 CFR 1910.146 and ANSI Z117.1-1989, regarding permit issuance, rescue provisions, training, and classification, among others.

FINDINGS:

- ES&H Manual, Section V, Chapter 3, "Noise Control and Hearing Conservation" does not address requirements of 29 CFR 1910.95, "Occupational Noise Exposure." It does not specify the elements of a hearing conservation program such as annual audiograms for workers exposed above 85 decibels, fitting of hearing protection devices, controls to mitigate exposure, etc. Deficiencies concerning noise and hearing conservation include the following:
 - Training in the use of hearing protection devices is not conducted in accordance with 29 CFR 1910.95.
 - Noise monitoring conducted at ANL-W has not addressed all exposure sources and has not quantified all credible employee exposures.
 - Audiograms are not provided for workers as part of a hearing conservation program.
 - No personnel have been enrolled in a hearing conservation program even though credible exposures exist for such personnel as carpenters, welders, and machinists.
 - Policy on use of hearing protectors is neither clear nor enforceable.
- ES&H Manual, Section V, Chapter 12, "Laser Safety" defines requirements for the safe use of lasers and laser systems. This procedure references the requirements of ANSI Z136.1; however, in practice, the program has numerous deficiencies including the following:
 - The assigned Laser Safety Officer has not conducted many of the responsibilities required by ANSI Z136.1-1986 such as review of laser use and modifications, approval of laser acquisition, approval of standard operating procedures, establishment of nominal hazard zones, maintenance of a laser inventory, and establishment of laser classifications.
 - Standard operating procedures are not approved or in place for all Class IV lasers.
 - Interlocks are not tested or approved.
 - No formal laser training is provided.
 - Beam stops are not in place.

- Entrances are not properly posted. Warnings are not in place.
- Laser classifications have not been made.
- The Laser Safety Officer has not received enough training to feel comfortable in performing his responsibilities.
- Other deficiencies in ES&H Manual procedures or in the application of procedures include the following, as examples:
 - The ANL-W hazard communication procedure does not address information transfer to subcontractors. Labeling requirements are not enforced. (See Concern WS.6-1 and Section 4.5.2.15, PP.5.)
 - The carcinogen procedure is not implemented or enforced.
- Personal protective equipment policy and procedure has the following deficiencies:
 - Protective eyewear policy, such as in shops, is based on equipment usage and is arbitrary and difficult to control or enforce. It offers no protection for co-workers, visitors, or other occupants. (See Section 4.5.2.4, MA.3.)
 - Goggles are not required for use in conjunction with faceshields to protect against chemical splash hazards.
 - Hard hats are not required where overhead hazards exist, such as in industrial areas with grated floors and multiple levels.
 - Hearing protection requirements are based on time spent in an area rather than potential for exposure by job function. Time spent in multiple high noise areas is not considered in the policy.
- Operating procedures are not always available or do not address key health and safety issues, practices, and controls, examples of which include the following:
 - Asbestos abatement procedures are not in place. (See Concern PP.3-3.)
 - The procedure for primary pump cleaning did not address nitrogen engulfment or fall hazards.

- Plant Services and Fuel Manufacturing procedures do not incorporate safety items into checklists used to ensure proper conduct of procedural steps. (See Concern MA.8-1.)
- Quality control criteria and standard operating procedures have not been established for industrial hygiene monitoring.
- See Concerns PP.2-1, PP.2-2, PP.2-3, OA.7-1, and PT.3-1.
- This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(PP.2-4)
(H1/C1)

Numerous health and safety policies, procedures, requirements, and guidelines addressing such items as occupational noise, laser safety, hazard communication, personal protective equipment, carcinogens, hazard control, and quality control are not in conformance with regulations, are not applied and enforced, or are not available, as required by DOE 5480.1B, DOE 5480.4, DOE 5480.10, and Occupational Safety and Health Administration regulations.

PP.3 PERSONNEL PROTECTION

PERFORMANCE OBJECTIVE: Chemical, physical, and/or other environmental stresses arising in the workplace should be identified, evaluated, and controlled.

- FINDINGS:**
- A systematic program to evaluate health and safety concerns has not been established as indicated below.
 - Industrial hygiene surveys and job hazard analyses have not been conducted. (See Concern PP.4-1.)
 - Health and safety issues are often not considered in the planning, conduct, and control of work. (See Concern PP.3-2.)
 - Health and safety site inspections for high hazard operations are not required and generally not performed. (See Concerns PP.2-3, PP.3-3, and PP.4-1.)
 - Health and safety personnel are unclear as to group or individual responsibility concerning specific health and safety functions, as well as to reporting and communication mechanisms. As an example,
 - The Fuels and Processes Division Health and Safety Coordinator intended to conduct job hazard analyses for his division, including air monitoring. He did not feel it necessary to involve the Safety, Environment, and Safeguards Department or to communicate or report results to Safety, Environment, and Safeguards.
 - The interface agreement for ES&H states that the Safety, Environment, and Safeguards Department will conduct monitoring "as requested" by the divisions rather than as part of a proactive hazard analysis program. (See Concern EA.3-1.)
 - Health physics and safety and health personnel within Safety, Environment, and Safeguards do not coordinate their efforts to address all safety matters for operations and for preparation of work permits. (See Concern PP.3-2.)
 - Management directives are not issued to divisions to emphasize key health and safety initiatives. (See Concern PP.2-1.)
 - Safety, Environment, and Safeguards does not effectively monitor division adherence to health and safety

requirements. (See Concerns PP.1-1, PP.2-1, PP.4-1, and QV.5-2.)

- A coordinated health and safety effort between senior management, line management, division safety and health personnel and Safety, Environment, and Safeguards is not applied.
- See Concerns OA.1-1 and EA.3-1.
- This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(PP.3-1)
(H2/C2)

The health and safety functions of the Argonne National Laboratory-West Safety, Environment, and Safeguards Department, line management, and division health and safety personnel are not coordinated to apply a systematic program to address health and safety issues.

FINDINGS:

- Radiation work permits are issued by Safety, Environment and Safeguards health physics personnel for operations potentially involving a radiation exposure. However, these permits do not consider health and safety issues which could represent an equal or greater hazard, and Safe Work Permits are often not prepared concurrently. For example, procedures and associated radiation work permits for primary pump cleaning address radiation hazards, but not potential for falls and nitrogen engulfment. (See Concern PP.2-4.)
- Health physics and health and safety personnel within Safety, Environment, and Safeguards do not coordinate with each other to address all hazards on a job. For example,
 - Waste was bagged for disposal at the Fuel Cycle Facility. Before being disposed of as general waste, it had to be scanned for radioactivity by health physics personnel. The waste was heavily laden with solvent-soaked rags and solvent material and effused a strong odor. No consideration was given to whether the waste represented a chemical hazardous waste. It was disposed of as a general waste when no radioactivity was found.
 - In cleaning under a diesel generator in the Fuel Cycle Facility, a health physics technician specified use of protective clothing in case of radiation presence. No consideration was given to check with safety personnel concerning other safety hazards.

- The Respiratory Protection Program is applied at different standards of care depending on whether a radiation or chemical exposure exists. (See Concern PP.2-2.)
- A list of work items was developed for a subcontractor by the section head of Facility Engineering. Work control procedures were not followed to ensure safe work conduct, as required by DOE 5480.19 and DOE 5480.1B. In addition, OSHA regulations were violated including 29 CFR 1910.147 for lockout and 29 CFR 1910.212 for machine guarding. Deficiencies included the following:
 - The list was hand written and did not identify critical equipment with safety considerations, such as the diesel generator.
 - No formal work order was prepared.
 - The construction supervisor was not informed of work to be conducted under a diesel generator that could start automatically in the event of power failure. The generator was not properly guarded and was to only be worked on by Plant Services personnel using proper controls.
 - Safety, Environment, and Safeguards safety engineers were not notified of the work.
 - No safety analysis was performed for work to be conducted.
 - Hazards were not communicated to the subcontractor personnel.
 - No Safe Work Permit was issued.
 - No instructions were issued regarding lockout/tagout of the diesel generator.
 - The fact that the generator could start automatically was not posted.
 - Plant Services, the department responsible for the generator, was not notified of work to be performed.
 - As a result, subcontractor personnel worked under the generator shaft that was not properly guarded, not locked-out, and which could have started in the event of a power failure. This represented an immediate danger to the employees and work was stopped. (See Concern WS.4-4.)

- Work control has been recognized as a problem by ANL-W. A study was conducted and recommendations were made for improvement. However, the study and recommendations did not address subcontract work and are not yet implemented.
- Work involving confined spaces, electrical lockout/tagout, and asbestos abatement is not properly controlled. (See Concerns PP.2-1, PP.2-3, and PP.3-3.)
- See Concerns OP.1-1, QV.7-1, QV.7-2, MA.1-1, and MA.8-1.
- This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(PP.3-2)
(H1/C1)
CAT. II

An effective work control program addressing health and safety hazards is not applied at Argonne National Laboratory-West, as required by DOE 5480.19, DOE 5480.1B, and Occupational Safety and Health Administration regulations, such as 29 CFR 1910.147 for lockout and 29 CFR 1910.210 for machine guarding.

FINDINGS:

- Asbestos abatement is conducted by the ANL-W Site Support Division, Plant Services Department. Most abatements involve glovebag removals without use of other containment.
- No oversight of abatements is performed by the Safety, Environment, and Safeguards Industrial Hygienist or Plant Services Health and Safety Coordinator, as required by DOE 5480.1B and DOE 5480.10. No competent person as defined by 29 CFR 1926.58 was onsite to provide oversight.
- No inspection or documentation is provided to ensure and demonstrate appropriate work practices are applied.
- No final clearance visual inspection is performed to verify abatement is conducted satisfactorily and that the area is free of debris, as specified by Environmental Protection Agency (EPA) guidance documents.
- No final clearance air monitoring is performed to ensure the area is acceptable for occupancy, as specified by EPA guidance documents.
- The Safety, Environment, and Safeguards industrial hygienist provides sampling equipment to the workers for monitoring during abatement. However, the workers operate the equipment without industrial hygiene oversight, as required by DOE 5480.10.
- Monitoring reports were reviewed for abatement actions conducted over the past 2 years. In almost all cases, data demonstrated significant fiber releases to occupied areas.

Except for one report in June 1989, the problem was not recognized. No corrective action has been taken.

- The June 1989 report indicated a need for corrective action, but no follow up was performed, and no action was taken.
- Regulated areas were not established when it was reasonable to expect fiber levels above 0.2 fibers per cubic centimeter of air (f/cc), the Occupational Safety and Health Administration time weighted average permissible exposure limit. This is a violation of 29 CFR 1926.58.
- A complete asbestos survey has not been performed. Asbestos materials are not labeled. Material which has been replaced is not identified as asbestos-free for reference in future renovation or maintenance activities.
- Asbestos is considered in renovation and maintenance on piping or on industrial system components. However, it is not considered in general building renovations/maintenance; for example, in ceiling tiles, floor tiles, etc. Such materials are handled in an uncontrolled manner.
- Asbestos materials are not considered as part of the design factors for renovation activities. Surveys are not required as part of the planning process.
- Abatement specifications, abatement procedures, oversight procedures, monitoring procedures, work practice requirements, stop work action criteria, dry removal variances, and other procedures and criteria to define asbestos abatement processes and asbestos management are not in place.
- See Concerns WS.3-1 and PP.3-2.
- This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(PP.3-3)
(H1/C1)
CAT. II

Management of asbestos materials and conduct of abatement activities are not performed in a manner to control exposures and prevent building contamination, contrary to DOE 5480.1B, DOE 5480.10, 29 CFR 1926.58, and Environmental Protection Agency guidelines.

PP.4 PERSONNEL PROTECTION

PERFORMANCE OBJECTIVE: Appropriate surveillance of activities should be conducted to measure safety and health performance and ensure the continued effectiveness of controls.

- FINDINGS:**
- Industrial hygiene surveys or job hazard analyses have not been performed to identify and evaluate occupational health and safety hazards associated with ANL-W operations, as required by DOE 5480.10 and DOE 5480.1B. During this assessment, operations with potential hazards involving benzene, lead, arsenic, polynuclear aromatic hydrocarbons, silica, asbestos, nitrogen engulfment, rotating parts, and many others were found that have not been considered by the Safety, Environment, and Safeguards Department or line management.
 - Exposure monitoring is limited and does not meet requirements of DOE 5480.10. Monitoring has not been performed for chromium and nickel associated with stainless steel welding; for benzene potentially associated with alcohol used in sodium decontamination; for many noise exposures; for lead and chromium during painting; for wood dust from carpentry shop operations; for silica during sandblasting; or for asbestos, arsenic, other trace metals, particulates, and polynuclear aromatic hydrocarbons during boiler cleaning.
 - Monitoring which has been performed has not been properly interpreted and acted upon in some cases. For instance,
 - Asbestos monitoring has consistently shown uncontrolled fiber releases to occupied areas. Except for one instance, 2 years ago, the reports have not mentioned the problem.
 - Lead monitoring has shown significant exposures, which could have exceeded the OSHA permissible exposure limit had the operations been performed for slightly longer durations. Reports did not acknowledge this possibility or recommend controls.
 - Nominal hazard zones have not been established for laser operations, as required by ANSI Z.136.1-1986.
 - Uncertainty exists over the classification of confined spaces. Safety, Environment, and Safeguards has not recognized obvious confined spaces as such.
 - Lacking hazard analyses, controls and work practice guidelines have not been established for many hazards.

- Safety surveillance, oversight, and self-inspections by line management and division health and safety personnel are progressing, but are not yet fully implemented, as exemplified by the following:
 - Walkthrough inspections by the Fuel Cycle Facility ES&H representatives are documented, but not in a formal manner to identify deficiencies, assign responsible parties for corrective action, and track and verify correction.
 - Plant Services does not formally conduct and document self-inspections.
 - More formal programs to identify, assign, and track deficiencies have recently been developed by Experimental Breeder Reactor-II and the Fuels and Processes Divisions; however, only a limited number of walkthroughs had been conducted by the time of this assessment.
 - No minimum standard has been established for division self-inspections. Each division can establish its own criteria, frequency, and process for inspections. (See Concerns OA.1-1, OA.1-2 and OA.5-1.)
 - Line management self-inspections are not evident. Instead, line management relies primarily on the Safety, Environment, and Safeguards Department and division health and safety representatives.
- See Concerns TS.2-1, QV.5-2, FR.4-1, and FR.4-2.
- This concern was not addressed in the ANL-W self-assessment.

CONCERN: Effective programs are not in place to identify, evaluate, monitor, and control credible chemical, physical, and safety hazards, as required by DOE 5480.10, DOE 5480.1B, DOE 5480.4, and Occupational Safety and Health Administration regulations.
 (PP.4-1)
 (H1/C1)

FINDINGS:

- ES&H Manual, Section VI, Chapter 4, "Construction Contractor Safety" was recently revised on May 1, 1991. It defines subcontractor safety requirements and safety oversight responsibilities. This procedure can be effective if properly implemented; however, complete implementation is not yet achieved.
- Work control procedures applied to subcontractors are lacking. Construction Safe Work Permits are not always prepared. (See Concern PP.3-2.)

- Walkthrough inspections of subcontractor operations have not been effective in identifying obvious safety concerns. For instance, during this assessment, defective electrical cord sets were noted as well as defective welding leads.
- Subcontractor personnel are not informed of hazards existing at the facility where they work. (See Concern WS.6-1 and Section 4.5.2.15.2, PP.5.)
- Construction supervisors have recently been provided OSHA-related training, but are not yet experienced in the OSHA inspection process.
- See Concerns WS.4-4 and OA.8-2.
- This concern was addressed in the ANL-W self-assessment.

CONCERN:
(PP.4-2)
(H1/C1)

The Construction Contractor Safety Program is not fully implemented into work controls to enforce safety requirements and to identify and control hazards, as required by DOE 5480.9 and DOE 5480.19.

PP.5 PERSONNEL PROTECTION

PERFORMANCE OBJECTIVE: Site/facility personnel should be adequately informed of chemical, physical, and biological stresses that may be encountered in their work environment. Written programs are available, and are of sufficient quality to comply with all DOE-prescribed occupational safety and health standards.

- FINDINGS:**
- ES&H Manual, Section V, Chapter 2, "OSHA Hazard Communication and Emergency Response Program," represents the ANL-W Hazard Communication Program. This program does not identify facility specific or division specific hazard communication.
 - Other than generic Environment, Safety, and Health and Emergency Response Training, subcontractors and ANL-W employees are not provided with formal training. In addition, hazards are not communicated relative to specific chemicals or safety issues which they may encounter. (See Concern PP.5-1.)
 - Hazard Communication relative to subcontractors is particularly deficient. Examples include,
 - ANL-W supplies paint to subcontractors for use. Paints were found to include such hazards as lead chromate. This information is not communicated and exposure controls are not applied.
 - Subcontractor personnel were tasked to clean around and under a diesel generator with an improperly guarded rotating shaft. The generator could start in the event of a power failure. This hazard was not communicated, signage was not in place to warn of automatic start, and controls were not applied to deal with the hazard. (See Concern PP.3-2.)
 - Labeling of chemical containers and signage deficiencies are widespread throughout ANL-W and include the following examples.
 - Numerous chemical containers at all facilities assessed do not have hazard warnings. (See Concern WS.6-1.)
 - Carcinogens are not labeled as such (for example, spray paint containing methylene chloride in the boiler building and benzene in Zero Power Physics Reactor and the Analytical Laboratory).
 - Chemicals awaiting disposal as waste are not clearly marked and are stored in general chemical storage

areas; therefore, they must be considered still available for use. These include benzene (for example, in the Zero Power Physics Reactor warehouse area).

- Personal protective equipment requirements are not posted.
- Signs for laser areas are not in place, as specified by ANSI Z 136.1-1986.
- Signs for automatically starting equipment are not in place.
- Confined spaces are not posted.
- Asbestos materials are not labeled.
- Alcohol storage tanks are not labeled for all components such as methyl alcohol, methyl isobutyl ketone, isopropyl alcohol, ethyl alcohol, and its denaturant (possibly benzene).
- Signs are, at times, ignored. For instance, in the Transient Reactor Test Facility basement auxiliary room, a sign reads, "No Combustibles," yet a flammable storage cabinet with oils and solvents is kept in the area. Flammable aerosol spray cans are stored in a cabinet marked "no flammables" in the Fuel Manufacturing Facility.
- This concern was partially addressed in the ANL-W self-assessment.

CONCERN: See Concerns WS.4-1 and WS.6-1.

- FINDINGS:**
- Environment, Safety, and Health and Emergency Response Training is generic and does not constitute effective hazard communication training for operations involving chemical hazards at specific facilities. Division specific training does not fulfill all requirements of hazard communication. (See Concern WS.6-1.)
 - Health and safety training to prepare workers to deal with many specific hazards is not provided in any formal manner for such areas as confined space entry, lead, benzene, emergency egress from areas of potential oxygen deficiency, lockout/tagout, lasers, use of personnel protective equipment, and others.
 - Health and safety training requirements have not been established for workers by job classification.

- See Concerns TC.1-1 and TC.4-1.
- This concern was addressed in the ANL-W self-assessment.

CONCERN:
(PP.5-1)
(H2/C1)

Argonne National Laboratory-West does not have a program to provide employees with safety and health training, including confined space entry, use of personal protective equipment, use of lasers, and others, as required by DOE 5480.4, DOE 5480.20, and various Occupational Safety and Health Administration regulations.

4.5.2.16 Worker Safety and Health (OSHA) Compliance

4.5.2.16.1 Overview

A comprehensive safety and health compliance appraisal (OSHA regulated) covering general industry and construction standards was conducted at ANL-W to determine compliance with existing OSHA regulations as adopted by DOE. Noncompliances and hazards were documented and discussed with management at the end of each day. Repeated noncompliances of the same standard in a department were noted only once on the inspection report form (see Appendix F). All performance objectives for the Worker Safety and Health (OSHA) Compliance technical area were evaluated.

Buildings were inspected for compliance with OSHA regulations. Evaluation criteria were based, in part, on OSHA general industry and construction standards, 29 CFR 1910 and 29 CFR 1926, respectively.

The inspection covered major process, service, laboratory, and maintenance buildings. The appraisal focused primarily on areas selected according to where the majority of the employees worked, where hazardous materials were present, type of activity, size of the activity, and size of the building. Facilities satisfying these criteria are the maintenance shops, hazardous materials storage areas, materials storage areas, hazardous waste disposal and decontamination areas, laboratories, and process buildings. These buildings encompass a majority of the hazardous workplaces. A less comprehensive sample of office buildings and other low-hazard areas was also inspected.

A total of 142 noncompliance issues were identified. Of these, 135 were considered serious (95 percent), 4 were classified willful (3 percent) and 3 were classified as other than serious (2 percent). OSHA defines a serious hazard as a condition that subjects employees to the risk of death or serious physical harm. A willful violation exists where the findings show either an intentional violation of OSHA regulations, or clear indifference to comply with mandatory safety and health requirements. The high percentage of serious noncompliance issues may be misleading because the appraisal Team spent most of its effort in identifying this type of issue. Table 4.5.2 WS-1 provides a summary of the buildings that were inspected, the number of noncompliance issues noted and the OSHA noncompliance classification of each. Appendix F is a tabulation, by building, of all noncompliances of OSHA standards and the classification of each. (See Figure 4.5.2-1.)

Collectively, the findings indicate serious deficiencies in the following:

- In Bldg. 765, employees performing maintenance activities near the power transmission shaft of the General Motors backup power generator were not informed of the potential hazards or protected against unexpected startup of the equipment. This finding resulted in a Category I concern.
- Numerous noncompliances with electrical standards were noted at the ANL-W facility.

Table 4.5.2 WS.1 OSHA NONCOMPLIANCE ISSUES

BUILDING	CLASSIFICATION		
	SERIOUS	WILLFUL	OTHER THAN SERIOUS
Bldg. 704	20	1	
Bldg. 720	2		
Bldg. 752	8		
Bldg. 753	7		
Bldg. 757	1		
Bldg. 765	10		
Bldg. 766	3		
Bldg. 768	6		
Bldg. 769	3		
Bldg. 772	1		
Bldg. 774	2		
Bldg. 781	10		1
Bldg. 782	13	1	
Bldg. 785	16		
Bldg. 787	2		
Bldg. 788	9		2
Bldg. 789	3		
Bldg. 791	5	1	
Bldg. 793	5	1	
Bldg. 796	6		
ANL-W Sitewide	3		
TOTALS	135	4	3

INEL/ANL-W WORKER SAFETY VIOLATIONS OSHA 29 CFR 1910 & 1926 STANDARDS

OTHERS: LESS THAN 2.0% OF TOTAL VIOLATIONS

- Machine guarding is deficient in many locations at the ANL-W facility.
- Deficiencies in the ANL-W Hazard Communication Program related to training, labeling, and written programs were noted.
- Significant deficiencies were noted regarding the ANL-W Asbestos Abatement Program.

It was not necessary to conduct air sampling during this appraisal because no employees were observed to be involved in jobs that were subject to excessive levels of airborne contamination.

The majority of the concerns noted by this TSA Team were partially addressed by the ANL-W self-assessment.

ANL-W management has not adopted a coordinated effort aimed at development and implementation of an effective sitewide Safety and Health Compliance Program. Decisions to comply with mandatory safety and health requirements are based in part on the probability of an accident occurring rather than taking an aggressive preventative approach to compliance.

4.5.2.16.2 Findings and Concerns

WS.3 COMPLIANCE WITH OCCUPATIONAL HEALTH STANDARDS FOR GENERAL INDUSTRY

PERFORMANCE OBJECTIVE: Site/facility operations should comply with DOE-prescribed standards for the evaluation and control of occupational health hazards.

NOTE: Noncompliances with this performance objective will be documented using the OSHA Form 1B format. A compilation of these completed forms will be provided as an Appendix to the Tiger Team Assessment report, and to the TSA.

- FINDINGS:**
- Asbestos-containing materials found in pipe insulation were reported to be removed using glove bag procedures.
 - Records of personal sampling of employees and area sampling indicate that airborne concentrations of asbestos fiber have exceeded both the time weighted average and excursion limit(s) outside the glove bag(s).
 - Areas where airborne concentrations of asbestos fibers could reasonably be expected to exceed the time weighted average and/or excursion limit are not regulated.
 - Negative pressure enclosures are not required before commencing removal of asbestos containing materials.
 - A "competent" person does not supervise all employee exposure monitoring. For example, workers perform their own exposure monitoring, using sampling equipment from the industrial hygiene department. Further, the "competent" person does not ensure that engineering controls are functioning properly. For example, engineering controls (glove bags) do not consistently maintain airborne concentrations of asbestos fibers below the time weighted average or excursion level.
 - See Concern PP.3-3.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(WS.3-1)
(H1/C1)

Argonne National Laboratory-West does not fully comply with 29 CFR 1926.58, Asbestos, Tremolite, Anthophyllite, and Actinolite.

- FINDINGS:**
- Not all respiratory protection devices are covered by the ANL-W Respirator Program. For example, in the assembly area of Bldg. 782 and the paint shop located in Bldg. 753, 3M 9920 and 3M 9908 single-use disposable respirators are

provided for employees use and are not included in the written ANL-W Respiratory Program.

- Respiratory protective devices are not stored properly. For example, a 3M 9920 single-use disposable respirator was observed hanging from a nail in the spray paint booth. A MSA Comfo II respirator, equipped with chemical cartridges, was also stored in the paint booth. This practice will result in solvent vapor loading of the cartridges and a reduction in their serviceable life.
- Some respirators are not maintained properly. For example, in Bldg. 753, a MSA Comfo II respirator was inspected and found to have a warped inhalation valve.
- This concern was not addressed in the ANL-W self-assessment.

CONCERN: See Concern PP.2-2.

WS.4 COMPLIANCE WITH OCCUPATIONAL SAFETY STANDARDS FOR GENERAL INDUSTRY

PERFORMANCE OBJECTIVE: Workplaces should be free of uncontrolled physical hazards and be in compliance with DOE-prescribed occupational safety standards.

- FINDINGS:**
- Not all confined spaces have been identified and labeled. For example, the main cooling tower valve pits, located east of Bldg. 757, have not been identified and labeled as confined spaces. These pits are approximately 15 feet deep, unventilated, and allow access through a topside opening 2-feet wide by 2-feet long. In Bldg. 768, employees enter boilers to perform routine maintenance. The boilers have not been labeled as confined spaces. (See Concern PP.2-3.)
 - A backup power diesel generator, located in the basement of Bldg. 765, is not provided with a warning sign to inform employees working in the area that the unit could start without warning.
 - Rather than performing immediate repairs on defective equipment or removing it from service, caution tags are used to inform employees that equipment is defective.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(WS.4-1)
(H1/C1)

Argonne National Laboratory-West does not fully comply with 29 CFR 1910.145, Specifications for Accident Prevention Signs and Tags, in that tags are incorrectly used and safety signs are not posted as required.

- FINDINGS:**
- Vertical and horizontal power transmission shafts are not completely guarded. For example, in Bldg. 782, the vertical spindle shaft of the G & L horizontal boring mill is not guarded. In the basement of Bldg. 765 emergency diesel generator area, the horizontal power transmission shaft is not completely guarded.
 - In several locations, chuck guarding is not provided for drill presses and milling machines. For example, in Bldg. 782, the Cincinnati Bickford 24-inch drill press does not have a chuck guard. The milling machine located in the Tree subassembly area of Bldg. 704 does not have a chuck guard.
 - Guarding of nip points and points of operation is deficient for several pieces of equipment. For example, point of operation guarding for the Pexto shear located in Bldg. 796 is inadequate. Guarding of nip points is deficient for the

power hacksaws located in Bldgs. 796 and 788, as well as the belt sanding machines located in Bldgs. 788 and 791.

- The unused portions of bandsaw blades are not effectively guarded. The DoAll bandsaw located in Bldg. 788 is an example of this.
- CH was aware of these machine guarding noncompliances.
- This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(WS.4-2)
(H1/C1)

Argonne National Laboratory-West does not fully comply with 29 CFR 1910, Subpart O, Machinery and Machine Guarding.

FINDINGS:

- Electrical noncompliances were noted in every building inspected. Examples of these noncompliances include the following:
 - Flexible cord is used as a substitute for fixed wiring or run through holes in wall (Bldgs. 793, 720, 766, 768, 772, 782, and 785).
 - Electrical appliances and equipment are not properly grounded (Bldgs. 782 and 704).
 - Electrical boxes and fittings have openings, allowing access to energized wiring (Bldgs. 752, 758, and 781).
 - Access to electrical disconnects are blocked or not identified. In two cases, 480-volt electrical disconnects, located in Bldgs. 782 and 785, are padlocked in the "on" position (Bldgs. 789, 788, 785, 795, 793, 791, 768, 765, 758, and 752).
 - Several electrical attachment plugs are not dead-fronted (Bldgs. 704 and 796).
 - Ground fault circuit interrupters are not provided in several locations where required (Bldgs. 796 and 782).
- This concern was addressed in the ANL-W self-assessment.

CONCERN:
(WS.4-3)
(H1/C1)

Argonne National Laboratory-West does not fully comply with 29 CFR 1910, Subpart S, Electrical.

FINDINGS:

- Subcontractor maintenance employees were observed cleaning the floor area and surrounding frame directly under the horizontal power transmission shaft of the General Motors backup power generator located in the Emergency Diesel Generator area of Bldg. 765.
- The horizontal power shaft is partially guarded. However, the underside of the guard is open, exposing the shaft coupling.
- There are no signs in the area to alert employees that the generator could start without warning.
- The subcontractor employees were not instructed in lockout procedures and were unaware of the potential danger.
- The generator was not locked out or rendered inoperative before maintenance activities began.
- The operation was immediately shutdown by ANL-W personnel when the hazard was observed.
- See Concern PP.3-2.
- This concern was partially addressed in the ANL-W self-assessment.

CONCERN:
(WS.4-4)
(H1/C1)
CAT. I

Argonne National Laboratory-West does not fully comply with 29 CFR 1910.147, Control of Hazardous Energy (Lockout/Tagout). Employees were exposed to imminent danger in the event of a startup of the diesel generator.

WS.5 COMPLIANCE WITH OCCUPATIONAL SAFETY STANDARDS FOR GENERAL INDUSTRY

PERFORMANCE OBJECTIVE: Construction activities should be free of uncontrolled physical and health hazards, and should be in compliance with DOE-prescribed occupational safety and health standards relating to construction.

- FINDINGS:**
- Cord sets available for use in the basement area of Bldg. 765 have loose ground pins, indicating possible internal damage.
 - This concern was partially addressed in the ANL-W self-assessment.

CONCERN: Argonne National Laboratory-West does not fully comply with
(WS.5-1) 29 CFR 1926, Subpart K, Electrical.
(H1/C1)

WS.6 PERSONNEL COMMUNICATION PROGRAM

PERFORMANCE OBJECTIVE: Site/facility personnel should be adequately informed of chemical, physical, and biological stresses that may be encountered in their work environment.

NOTE: Noncompliances with this performance objective will be documented using the OSHA Form 1B format. A compilation of these completed forms will be provided as an Appendix to the Tiger Team Assessment Report, and to the TSA.

- FINDINGS:**
- There is no written hazard communication program specific for each worksite at ANL-W.
 - The ANL-W written generic hazard communication program does not address methods to provide onsite employer(s) copies or information regarding Material Safety Data Sheets for each hazardous chemical the other employer(s)' employees may be exposed to while working. Other deficiencies in the written generic program include the following:
 - Designation of the person or persons responsible for ensuring labeling of in-plant containers is not addressed.
 - Descriptions of the in-plant labeling system(s) in use have not been developed.
 - Person(s) responsible for obtaining and maintaining the MSDSs collection have not been designated.
 - Person(s) responsible for conducting training have not been identified.
 - The format of the training program to be used (audiovisuals, classroom instruction, etc.) have not been determined.
 - ANL-W uses the Hazardous Material Information System, which does not identify target organ effects.
 - The Hazard Communication Training Program does not explicitly instruct employees on how to use and understand the facility's alternative labeling systems to ensure that employees are aware of the effects (including target organ effects) of the hazardous chemicals to which they are potentially exposed.
 - Employees working in the paint shop, located in Bldg. 753, were interviewed concerning the health effects of solvents used for paint. For example, toluene is used and is labeled using the Hazardous Material Information System.

The employees are not knowledgeable in target organ effects from toluene exposure.

- In Bldg. 781, incompatible chemicals are stored close to one another. For example, organic and inorganic acids were stored together in a cabinet. The storage of incompatible chemicals together demonstrates a flaw in basic hazard communication training.
- Labeling of hazardous chemicals used by ANL-W is deficient. For example, in Bldg. 769, 55-gallon drums of kerosene are not labeled with a hazard warning. In Bldg. 782, the coolant reservoirs of lathes are not labeled as to their contents or related hazards.
- See Section 4.5.2.15, PP.5.
- This concern was addressed in the ANL-W self-assessment.

CONCERN:
(WS.6-1)
(H1/C1)

Argonne National Laboratory-West does not fully comply with 29 CFR 1910.1200, Hazard Communication.

4.5.2.17 Fire Protection

4.5.2.17.1 Overview

This appraisal reviewed all seven performance objectives in the Fire Protection technical area. Appraisals were made from the standpoint of requirements in DOE 5480.1B, DOE 5480.7, and DOE 6430.1A. A total of six concerns were expressed, in the technical areas in Organization and Administration, Public Protection, Impairment of Operations, Fire Department Operations, and Program Implementation. All accessible areas of major buildings were appraised. All buildings worth over \$50,000 or with more than ordinary hazards were appraised. The appraisal included interviews with various site and program directors; safety, health, and plant services personnel; and the Plant Fire Protection Engineer.

Actual fire protection engineering capability of ANL-W is excellent. Fire hazard surveys for all facilities and buildings are made as required by DOE 5480.7. All concerns found during this appraisal were previously addressed by the plant Fire Protection Engineer. Resolution of concerns is in progress, but are hampered by budgetary considerations, difficulties in direct communication between ANL-W (still under CH), and the ID, and limitations in Fire Department staff.

As a whole, ANL-W meets the requirements of the two major U.S. insurance pools (American Nuclear Insurers and MAERP Reinsurance Association) for highly protected risk. ANL-W, if insured, would pay the lowest insurance premiums for this class of risk.

4.5.2.17.2 Findings and Concerns

FP.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Fire Protection organization and administration should ensure the effective implementation and control of fire protection equipment and activities.

- FINDINGS:**
- Hands on training of ANL-W personnel in the use of fire extinguishers and small hoses is not provided.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: See Concern TC.4-1.

- FINDINGS:**
- The onsite fire department is not under the control of either ANL-W or CH, resulting in lack of communication between the ANL-W Safety, Environment, and Safeguards Department and the ID Fire Department.
 - There is no formal program or documentation for the ID Fire Department to conduct necessary walkthroughs to become familiar with the ANL-W facilities.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: Formal communication and interaction mechanisms are not established between Argonne National Laboratory-West and the DOE Field Office, Idaho, Fire Department.
(FP.1-2)
(H2/C2)

FP.3 PUBLIC PROTECTION

PERFORMANCE OBJECTIVE: All facilities on site should provide adequate protection to prevent any added threat to the public as the result of an onsite fire causing the release of hazardous materials beyond the site (or facility) boundary.

- FINDINGS:**
- Fire hazard analysis reports have been performed for various areas of ANL-W, but no overall up-to-date copy for ANL-W exists.
 - There is no formal documented program demonstrating that liquid runoffs from a credible onsite fire are controlled.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: A formal fire hazard analysis report does not exist for Argonne
(FP.3-1) National Laboratory-West.
(H3/C2)

FP.4 IMPAIRMENT OF OPERATIONS

PERFORMANCE OBJECTIVE: The site should not be vulnerable to being shut down for an unacceptable period as the result of a credible fire.

- FINDINGS:**
- A maximum credible fire in the cooling tower at Experimental Breeder Reactor-II is capable of shutting down the reactor for a period of 6 months or more. This would impair the Integral Fast Reactor Program. There is only one primary water supply source (a 400,000-gallon water tank and 4,000 gallon per minute diesel fire pump).
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: There are no backup water supply and pump system to minimize
(FP.4-1) damage to the Integral Fast Reactor Program, as required by
(H2/C1) DOE 5480.7 and DOE 6430.1A.

FP.5 FIRE PROTECTION

PERFORMANCE OBJECTIVE: The Fire Department should have the capacity to promptly terminate and mitigate the effects of a fire in a safe and effective manner.

- FINDINGS:**
- The NFPA Standard on Fire Department Occupational Safety and Health Program (NFPA 1500), 1987 Edition Addendum A-6-2.1 requires a minimum of five firefighters to conduct structural fire fighting operations.
 - The onsite fire department at ANL-W is staffed by employees of DOE. A Memorandum of Understanding was signed on June 24, 1991 defining the relationship between ANL-W and the Fire Chief of the ID Fire Department under which the Fire Department is required to "provide an adequate staff." There are normally three or four firefighters on duty with one serving as an ambulance driver. This does not meet the requirements of NFPA 1500 as interpreted by DOE 5480.7.
 - The nearest backup is the Central Facility Area Fire Department located within 15 miles and 20 minutes travel distance.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN:
(FP.6-1)
(H1/C2)

The DOE Field Office, Idaho, Fire Department Station 2 does not have the ability to promptly terminate and mitigate the effects of a structural fire at Argonne National Laboratory-West, as recommended by DOE 5480.7.

FP.6 PROGRAM IMPLEMENTATION

PERFORMANCE OBJECTIVE: A Fire Protection Engineering Program should be in place to effectively provide and maintain an "improved risk" level of fire protection.

- FINDINGS:**
- A periodic external independent inspection of ANL-W as a whole has not been conducted since 1975. DOE 5480.7 requires inspections sitewide every 5 years.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: Fire inspections of the entire Argonne National Laboratory-West facility do not meet requirements of DOE 5480.7.
(FP.7-1)
(H2/C1)

- FINDINGS:**
- Water supplies for fire fighting are not adequate for the entire ANL-W, such as the Transient Reactor Test Facility (long length of 4- and 6-inch mains) and the Experimental Breeder Reactor-II cooling tower, as defined in DOE 6430.1A, "General Design Criteria for Water Storage and Distribution."
 - Also see Concern FP.4-1.
 - This concern was addressed in the ANL-W self-assessment.

CONCERN: Argonne National Laboratory-West fire fighting water supply distribution systems do not meet requirements of DOE 6430.1A.
(FP.7-2)
(H2/C1)

**SAFETY AND HEALTH ASSESSMENT
FINDINGS AND CONCERNS
SELECTED CONTRACTORS**

4.5.3 Selected Contractors, INEL

4.5.3.1 Organization and Administration

4.5.3.1.1 Overview

Morrison Knudsen-Ferguson of Idaho Company

This appraisal addressed all eight performance objectives in the Organization and Administration technical area. The review was based on interviewing personnel ranging from senior executives through middle management and field oversight personnel to subcontractor supervision and workforce personnel. The top level organizational manual, selected functional manuals, and a sampling of procedures were reviewed. The construction site of the Fuel Processing Recovery project, where the offices of Morrison Knudsen-Ferguson of Idaho Company (MK-FIC) are located, was visited and several construction activities were inspected. An introductory briefing was provided by MK-FIC.

MK-FIC is a wholly owned subsidiary of Morrison Knudsen-Ferguson of Boise, Idaho, but its operation is essentially autonomous. Its purpose is to manage construction activities at the INEL site for the DOE. Most of the actual construction activity is accomplished by subcontracting, but MK-FIC has a small number of construction workers to perform miscellaneous construction, principally, for Rockwell-INEL and the Radioactive Waste Management Complex (RWMC).

The company is organized along functional lines. Projects can be added as necessary. The company has the necessary structural features to enable it to perform its function with proper attention to quality and safety. Safety oversight of the widespread construction activity is the responsibility of the Environmental, Safety and Health (ES&H) Department. Two individuals are assigned overview activities for a large volume of construction work spread over a large portion of the INEL site, supporting a concern that the oversight activity is significantly understaffed. Observations of the construction activity confirmed that oversight was being conducted under undue time constraints. A related concern deals with the definition of oversight responsibilities. The ES&H Manager is held accountable for accident prevention and environmental control. These are actually line organization functions, but the role of ES&H should be limited to providing advice and oversight. Also, a conflict of interest is apparent in the case of numerous small subcontractors who are permitted to assign internal oversight responsibilities to the foreman or supervisor of the job; a clear compromise of independence.

Another concern is related to duplication in the tracking of deficiencies, which can lead to difficulties in establishing priorities. Deficiencies uncovered in internal ES&H audits are tracked in a system separate from the company-wide system used to track deficiencies from all other MK-FIC management assessment activities.

MK-FIC uses weekly meetings of labor force personnel to communicate safety-related matters. However, full advantage is not being taken of this

communication channel since there is no systematic effort made to ensure that all groups cover relevant topics in a timely way.

Management and ES&H safety objectives are listed in the Construction Management Services Manual, but these are not specific, measurable, or assignable and, therefore, cannot be used to achieve and document safety improvements.

A number of shortcomings are found in systems for personnel planning and qualification. There are no formal long-range staffing plans or management development plans; MK-FIC managers are expected to use their own initiative to encourage and guide career development of subordinates. Annual employee performance appraisals are conducted, but attention to safety attitudes and performance is deficient. There is no provision to ensure that hiring is based on merit, and while Morrison Knudsen-Ferguson of Boise has a policy addressing nepotism, it has not been formally adopted by MK-FIC.

Document control procedures do not ensure that obsolete information will not be available to persons performing work because of a deficiency in the audit approach. Also, while ASME NQA-1-1989 drawing control provisions are contractually imposed on subcontractors, they are not a requirement for miscellaneous projects constructed by MK-FIC craftspersons, leading to the possibility that invalid documents may be used to control the work.

Finally, although Morrison Knudsen-Ferguson of Boise has developed a fitness-for-duty program, it has not been formally adopted by MK-FIC. The major shortcoming of the MK-FIC program is that it is not imposed on subcontractors. Other deficiencies include: there are no requirements for requalification of supervisors in substance abuse recognition, personnel are not encouraged to report suspected substance abusers, and there is little effort to publicize the INEL Employee Assistance Program for substance abusers.

It should be noted that DOE has not established substance abuse program requirements for contractor facilities and personnel.

The MK-FIC self-assessment documented a very large number of OSHA-compliance safety violations, indicating that the construction line supervision and the safety oversight activity are not functioning as they should and confirming remarks made earlier concerning understaffing. Two of the self-assessment findings partially addressed concerns identified in the organization and administration area of the appraisal.

Protection Technology of Idaho, Inc.

This appraisal addressed all eight performance objectives in the Organization and Administration technical area. The review was based on interviewing personnel ranging from the general manager through functional managers down to individual members of the guard force. Documentation embodying policies and procedures were reviewed. Interviews were conducted in Bldg. CF-609 and observations of the conduct of guard force activities were performed at the Test Reactor Area (TRA) guard post, including unannounced simulations of

security challenges. Followup interviews with the guard post staff were also held.

Protection Technology of Idaho, Inc. (PTI) is a wholly owned subsidiary of Day and Zimmerman, which also owns Protection Technology Inc. (Protection Technology Inc. provides a broad range of protection services). The operation of PTI is nearly autonomous. The General Manager has only informal contact with Day and Zimmerman except for an annual fiscal audit. PTI provides security protection services for all of INEL except for Argonne National Laboratory-West (ANL-W) and the Naval Reactors Facility.

The company is suitably organized to discharge its responsibilities safely and efficiently, given the fundamental nature of security protection. Most of the personnel are in guard force operations. Auxiliary support functions such as ES&H, Quality Assurance (QA), training, and administrative support are provided.

INEL is divided into areas; area managers are responsible for guard post operations and other security protection activities in their areas. Because of the geographical extent of its responsibilities and the small size of individual post crews, safety meetings at the guard force level are considered impractical. As a substitute, area managers communicate safety-related matters to a safety representative, chosen on a rotating basis from the guard post crew. The safety representative communicates individually with the other crew members; group meetings are not held. The efficacy of this means of communicating on safety matters has not been evaluated.

The ES&H Manager has been assigned the responsibility of reviewing, assessing, and applying the myriad of requirements imposed by Federal regulations on security force activities and incorporating these requirements as appropriate in summary operating procedures for the various guard force operating departments. These summary procedures are incorporated into the ES&H Manual, even if there is no ES&H oversight involvement. In this way, the ES&H Department is defining operating procedures for which it has performance oversight responsibilities; thus, to some extent it conducts its activities with a conflict of interest. Usually, one would expect operating groups to be less dependent on their overviews. This excessively broad role for the ES&H Department (a staff function) dilutes line management responsibility for operations.

PTI has addressed overall safety goals in broad generic terms, which makes them impossible to measure or assign as specific accomplishment responsibilities. Efforts to establish measurable goals that can be used as a basis for measuring and improving safety need more management attention. PTI does formulate goals for security test exercises, but these do not include safety. However, safety is considered in establishing the conditions of an exercise.

PTI has not formally established a policy that gives safety a priority over programmatic accomplishment; however, interviews with guard force personnel and middle management indicate that this philosophy has had considerable exposure to the employees. For security force actions, it is understandable

that from time-to-time, circumstances can dictate a reversal of these priorities. However, it should be possible to craft a statement of policy that would reflect the spirit of safety first, properly recognizing such unusual circumstances.

The PTI document control system is deficient in that some controlled documents are not authorized and dated; thus their currency and validity is uncertain. In addition, PTI does not conform to ASME NQA-1-1989 with respect to identification and storage of vital records.

Human Resources programs also need further management attention. In the personnel planning and qualification area, management development programs are not in place, and performance appraisals should address safety attitudes and performance in a more consistent manner. Plans are underway to remedy these weaknesses. A fitness-for-duty policy exists, but it does not specifically forbid substance abuse. Rather, it addresses action to be taken when substance abuse situations are recognized. In addition, the INEL Employee Assistance Program for substance abusers is not well publicized to employees.

None of the PTI self-assessment findings addressed the nine concerns developed by the S&H Subteam in the organization and administration area.

Radiological and Environmental Sciences Laboratory.

This appraisal addressed all eight performance objectives in the Organization and Administration technical area. The review was based on interviews with the Laboratory management and some of the working level personnel. At the Radiological and Environmental Sciences Laboratory (RESL), top-level procedures governing the general organization of the Laboratory, job descriptions, and procedures for specific operations which were observed in progress were reviewed. The Laboratory, located in Bldg. CF-690 was briefly inspected and actual operations were observed in detail in that building and in Bldg. CF-638, the irradiation facility.

RESL is directly operated by DOE employees who manage the facility and perform technical work in it, and as such, is a unique activity at a site where all other operations are performed by contractors. The RESL reports to the Assistant Manager for Energy Programs in the DOE Field Office, Idaho (ID), and its employees are governed by Orders and regulations which apply to Federal employees, as well as the pertinent operating requirements that apply to all program elements including contractors. The Laboratory performs chemical and radiological analytical services to support ES&H programs at INEL. RESL is organized into functional branches managed by the Director and his Branch Chiefs. Safety is defined (by general and detailed procedures, and position descriptions) as a line responsibility. Other than a fully challenged industrial hygienist, there is no safety overview capability reporting to the Director. Safety overview has an excessively low profile at the Laboratory and a doubtful capacity for its proper accomplishment.

Safety meetings of working level employees are supposed to take place following the Director's weekly meeting with his Branch Chiefs. However, the employee meetings frequently address administrative and programmatic matters,

and the focus on safety is light. In addition, the meetings are not held regularly; there is considerable competition for the time from other activities. These considerations lead to the concern that RESL is not taking advantage of the safety meetings as a means to communicate with working level employees on safety matters.

The RESL Manual contains general management instructions for the conduct of work. These are not used to control work by branch personnel who have developed more detailed and technically appropriate procedures; however, these branch procedures are not controlled and may not be current or valid. An example was noted where a procedure revision was not available to the persons performing work in progress.

Fitness-for-duty at RESL is prescribed by DOE 3792.3, which only addresses provisions for drug testing. As noted previously, comprehensive DOE substance abuse program requirements, which could be applicable to RESL operations, have not been issued. Thus a number of deficiencies in the RESL approach compared to accepted industry practice can be noted. These include no screening prior to assignment of work for new employees, a lack of information for employees about substance abuse in general and about the INEL Employee Assistance Program in particular, and the absence of a training program for supervisors in substance abuse recognition and handling.

Of the five concerns identified in the organization and administration area of the appraisal, one was partly addressed in the ID self-assessment.

Rockwell-INEL

This appraisal addressed all eight performance objectives in the Organization and Administration technical area. The review was based on interviewing Rockwell-INEL personnel from the General Manager through selected middle management persons and working engineers, down to operating level persons and their supervisors. Document review included appropriate Policy Directives, Technical Procedures, and Operating Procedures. Manufacturing operations were observed in connection with interviews with operating personnel.

Rockwell-INEL is a wholly owned, but relatively autonomous subsidiary of Rocketdyne Inc., which, in turn, is a wholly owned subsidiary of Rockwell International. The company is organized as a straightforward line organization structured to perform a manufacturing function with suitable staff ES&H and QA departments. No organizational or structural aspects of the company were noted that would be expected to prevent it from performing its manufacturing function with a high degree of safety and quality. Because of the classified nature of its products, special attention is given to security matters. The company also performs supporting development work to improve the products and to increase the efficiency of production.

Despite the straightforward line structure for manufacturing, there are some aspects of it that lead to questions about Rockwell-INEL's understanding of the concept of line management responsibility for safety, as described in DOE 5480.5. These considerations include the assignment of what should properly be a line safety responsibility to a staff organization, both in

functional statements and in the manager's position description. Also, a narrow emphasis on compliance with requirements leads to a concern that many valid safety problems that are related to accepted practice or safety improvement may be neglected.

Rockwell-INEL management-employee information flow systems do not make optimum use of these opportunities to communicate and emphasize safety matters. A Systematic Participative Management Program does not emphasize safety, and safety meetings, which are held monthly, are not structured to assure that all cognizant employees are exposed to an appropriate curriculum of safety topics.

An Independent Safety Review Committee (ISRC) has been established to provide an additional channel of safety performance information to management. The independence of the committee is compromised by the lack of a provision to preclude a member of the committee from reviewing his own work or work in which he has a direct interest.

Other than as low as reasonably achievable (ALARA) goals, Rockwell-INEL has not established safety objectives that are specific, measurable, and assignable within the organization for attention and accomplishments. Thus, Rockwell-INEL is not implementing a mechanism that can be used effectively to improve safety performance.

Auditing of controlled documents and key drawing files to ensure that obsolete materials do not get into the hands of persons performing work is not in current document control plans. Out of 1,600 key drawings, about 700 have not been addressed in an updating effort.

The Rockwell-INEL Fitness-for-Duty Program does not properly cover subcontractor personnel. The only subcontractor personnel permitted on the site unescorted are MK-FIC force account workers for the performance of miscellaneous construction tasks. Rockwell-INEL assumes that those personnel are covered by an acceptable Fitness-for-Duty Program by their employer. This is not a valid assumption.

Of seven concerns documented by the S&H Subteam in the organization and administration area, two were partly addressed by the Rockwell-INEL self-assessment. In general, the Rockwell-INEL self-assessment was reasonably comparable to the TSA; a good effort was made to raise the level of the assessment above the numerous individual deficiencies that are the symptoms of more generic problems.

4.5.3.1.2 Findings and Concerns

OA.1 SITE/FACILITY ORGANIZATION

PERFORMANCE OBJECTIVE: Management should organize and manage the site/facility's work, programs, and resources so that safety and health are an integral part of the personnel duties and requirements are consistently implemented.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- According to CMSM.5-1, MK-FIC Construction Management Services Manual, the ES&H Manager is charged with responsibility for accident prevention and environmental control. This is inappropriate, since these responsibilities are line functions and the ES&H Manager occupies a staff position. This statement of his responsibilities weakens line responsibility for safety, which is required by DOE 5480.19.
 - A conflict of interest is created in connection with sub-contracts for miscellaneous projects for which a foreman or the supervisor of the work is charged with safety oversight responsibilities. This conflict was observed in operation in a safety walkdown of construction activities by a S&H Subteam member.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN:
(OA.1-1)
(H2/C1) Responsibilities for safety oversight positions at Morrison Knudsen-Ferguson of Idaho Company and subcontractors are not defined, as required by DOE 5480.19.

- FINDINGS:**
- MK-FIC provides only two individuals to perform safety overviews of construction activities. These individuals perform numerous other duties as well. In view of the volume and dispersed nature of the construction activity at INEL, this level of oversight is considered insufficient. Observations during a safety walkdown confirmed that safety overviews were being conducted under severe time constraints.
 - The number of violations noted by the worker safety portion of this appraisal (174) indicates a lack of effective oversight.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company safety oversight of
(OA.1-2) construction work is not effective.
(H2/C2)

FINDINGS:

- Discussion with labor force personnel showed that, while weekly safety meetings are regularly held for construction personnel and that suitable relevant topics are discussed, there is a lack of a systematic approach that would ensure that all groups cover all relevant topics in a timely way.
- This concern was partially addressed in the MK-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company Management is not
(OA.1-3) taking advantage of safety meetings to communicate information on
(H2/C2) safe practices and safety concerns to workers.

Protection Technology of Idaho, Inc.

FINDINGS:

- Because of the geographically widespread guard post crews, which are usually four person crews (or less), safety meetings to assist management communication with the work force are considered impractical.
- PTI has established an alternative means of communicating with guard force personnel, which is of questionable efficiency. Area Managers communicate with a safety representative chosen on a rotating basis from the guard post crew, who is charged with passing on any relevant safety information to the rest of the crew. Since the crew does not meet as a group, and formal assessment of the process is not conducted, there is no assurance that this communication system is effective.
- PTI does not conduct preshift "guard-mount" or roll calls to relay safety information to protective force members.
- The current plan to measure the effectiveness of communication with crew personnel is to informally analyze the record of performance; however, it is difficult to see how other variables will be taken into account.
- This concern was not addressed in the PTI self-assessment.

CONCERN: The method of safety communications between Protection Technology
(OA.1-4) of Idaho, Inc. management and the guard force at posts has not
(H2/C2) been evaluated.

FINDINGS:

- A number of concerns were identified by the S&H Subteam that were addressed to the user/site service contractor interface, which was created because EG&G Idaho had site service responsibilities for buildings and facilities

occupied by other contractors as users at INEL. (See Concerns AX.1-1, AX.5-1, AS.1-1, FP.7-1, TS.3-1, and FS.7-2.)

- PTI has no authority to enforce prompt and effective responses to facility problems from EG&G Idaho.
- This concern was not addressed in the ID self-assessment.

CONCERN: The DOE Field Office, Idaho, is not ensuring that Protection
(OA.1-5) Technology of Idaho, Inc. contractor's facility concerns are
(H2/C2) promptly and effectively addressed by EG&G Idaho, Inc.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- A system to help provide information flowdown on safety concerns, consisting of meetings, of the Director with his Branch Chiefs followed by branch meetings has been established at RESL; however, based on interviews with line personnel, the weekly meetings also extensively address administrative and programmatic matters, but do not consistently address safety concerns.
 - "Weekly" branch meetings are not held regularly. Personnel interviewed stated that there was significant competition from other activities for the time for safety meetings.
 - RESL does not use a system to ensure that safety meetings cover an appropriate curriculum of relevant safety topics over a period of time.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: Safety meetings, as a means of communicating safety concerns from
(OA.1-6) management to the working levels, are not being implemented at
(H2/C2) the Radiological and Environmental Sciences Laboratory.

- FINDINGS:**
- A number of concerns were identified by the S&H Subteam that were addressed to the user/site service contractor interface, which is created because EG&G Idaho had site service responsibilities for buildings and facilities occupied by other contractors as users at INEL. (See Concerns AX.1-2, TS.3-3, FP.7-2, MA.2-1, and RP.1-4.)
 - RESL has no authority to enforce prompt and effective responses to facility problems from EG&G Idaho.
 - This concern was not addressed in the ID self-assessment.

CONCERN: The DOE Field Office, Idaho, is not ensuring that Radiological
(OA.1-7) and Environmental Sciences Laboratory facility concerns are
(H2/C2) promptly and effectively addressed by EG&G Idaho, Inc.

Rockwell-INEL

- FINDINGS:**
- Contrary to DOE 5480.5, which establishes line responsibility for safety, Rockwell-INEL Policy Directive 01 charges the Health Safety and Waste Management (HS&WM) Department, a staff organization, with maintaining a safe workplace for all employees, a line responsibility. The HS&WM Department's proper role of providing guidance on how to meet safety requirements and assessing performance is not addressed.
 - Contrary to the requirement that safety be a line responsibility, the Health and Safety Manager's position description requires him to protect personnel from exposure to radiation.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(OA.1-8)
(H2/C1)

Rockwell-INEL has assigned some safety responsibility to a staff person in violation of DOE 5480.5.

- FINDINGS:**
- Rockwell-INEL Technical Procedure 8.001 establishes audits "to assure compliance with DOE Orders and Federal and State Regulations"; however, many safety topics are not defined in regulations but are questions of accepted industry practice and are aimed at improving safety.
 - Audits have evaluated the Industrial Hygiene Program only relative to Rockwell-INEL internal requirements.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(OA.1-9)
(H2/C2)

The scope of internal audits at Rockwell-INEL is not broad enough to include all valid safety concerns.

- FINDINGS:**
- A Systematic Participative Management Program provides opportunities for employees to participate in problem solving; however, the program stresses communications, quality of life, and productivity and not safety.
 - While safety meetings are held monthly, and each employee must attend at least eight meetings per year, there is no system to ensure that all employees are exposed to a curriculum of important topics. Persons who miss meetings are not required to compensate by reading the documentation, for instance.
 - See Concern PP.4-10.

- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(OA.1-10)
(H2/C2)

Rockwell-INEL does not make optimum use of opportunities to communicate and emphasize safety-related matters with employees.

OA.2 ADMINISTRATION

PERFORMANCE OBJECTIVE: Administrative programs and controls should be in place to ensure policies concerning health and safety are administered throughout the facility.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- The ES&H Manual includes, in addition to descriptions of ES&H functions and procedures, essentially all PTI operating procedures in summary form whether or not ES&H has a significant role in them. This approach tends to inflate the ES&H roles and responsibilities for safety in appearance, if not in fact.
 - The S&H Subteam was informed that this approach was taken to relieve each operating department from the onerous task of individually reviewing, assessing, and appropriately applying the multitude of DOE Orders and Government regulations that can impact guard force operations. However, the result is that ES&H is now the source of regulatory wisdom and must be called upon to resolve operating procedural issues, which the operating departments would normally do if they were more familiar with the regulatory bases of their operations. In this way, the ES&H Department is defining operating procedures and in its normal role assessing their performance; thus, it is compromising its independent overview capability.
 - Centering appraisals in the ES&H Department to ensure compliance, as noted in Section II-1 of the PTI Policy and Resources Manual, tends to weaken line management responsibility for compliance. The definition of the roles and responsibilities of the ES&H Department for compliance (advice and overview) is not sufficiently and clearly differentiated from line management's responsibility (achieving compliance), indicating a possible lack of understanding on the part of PTI concerning line management responsibility.
 - The excessively broad role of the ES&H Department dilutes line management responsibility for safety required by DOE 5480.1A, and compromises its independent safety overview.
 - This concern was not addressed in the PTI self-assessment.

CONCERN:
(OA.2-1)
(H2/C1)

Protection Technology of Idaho, Inc. does not have an independent safety overview system, as required by DOE 5480.1A.

Rockwell-INEL

- FINDINGS:**
- The Independent Safety Review Committee established by QP 4.2.1, "Independent Safety Review Program," July 12, 1991, does not require that members be precluded from assessing the safety of work for which they are directly responsible or in which they have a substantial interest. This leads to a conflict of interest that can compromise safety overview and is contrary to the provisions of DOE 5480.5.
 - See Concern RP.2-2.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(OA.2-2)
(H2/C2)

There is a potential at Rockwell-INEL for Independent Safety Review Committee members to act on matters for which they have a line responsibility, which is a conflict of interest.

OA.3 MANAGEMENT OBJECTIVES

PERFORMANCE OBJECTIVE: Site/facility management objectives should ensure commitment to safe operation, including enforcement of approved work practices.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- Management safety objectives listed in the introduction to the Construction Management Services Manual are merely statements of good intention with respect to safety, and are insufficiently specific and measurable to be apportioned as tasks or responsibilities to departments or individuals. Objectives in this form do not lend themselves to supporting the achievement of safety improvements and progress towards their achievement is difficult, if not impossible to measure.
 - A similar set of safety objectives is contained in the ES&H section of the Construction Management Services Manual as ES&H safety objectives.
 - This concern has not been addressed in the MK-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company has not established specific measurable safety objectives that can be used by management to improve safety performance.
(OA.3-1)
(H2/C2)

Protection Technology of Idaho, Inc.

- FINDINGS:**
- According to the Policy and Resources (P&R) Manual, PTI's stated objective is to "operate at a zero lost time accident frequency," which is measurable but unrealistic.
 - A further goal, stated in the ES&H section of the P&R Manual, "to operate at a loss of performance level that is acceptable to management and the customer," is vague and incapable of measurement in the absence of additional criteria.
 - PTI documents performance objectives for each security test exercise; however, safety goals are not included. Safety is considered in establishing the conditions of the test exercise and its operation.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: Protection Technology of Idaho, Inc. has not established realistic measurable safety goals nor assigned them to organizational units to be used for the improvement of safety performance.
(OA.3-2)
(H2/C2)

Rockwell-INEL

- FINDINGS:**
- ALARA goals are established for organizational units at Rockwell-INEL.
 - An overall injury reduction goal has also been established, but not assigned to organizational units.
 - Specific, measurable safety goals other than the above are not established or used to encourage or measure progress in safety improvements.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(OA.3-3)
(H2/C2)

Specific measurable safety objectives are not established and used to improve safety performance at Rockwell-INEL.

OA.4 CORPORATE SUPPORT

PERFORMANCE OBJECTIVE: Corporate interest and support for safe operation should be evident.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- The Policy and Resources Manual does not address the question of the priority of safety over programmatic considerations. There appears to be no reason why PTI could not commit to such a policy.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: Protection Technology of Idaho, Inc. has not published a formal policy statement that safety has priority over programmatic considerations.
(OA.4-1)
(H2/C2)

OA.5 MANAGEMENT ASSESSMENT

PERFORMANCE OBJECTIVE: Management and supervisory personnel should monitor and assess facility activities to improve performance in all aspects of the operation.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- Deficiencies originating in internal audits performed by ES&H at MK-FIC are not incorporated into the Commitment/Deficiency Management system, which is used to document the results of all other management assessment activities. Instead, they are managed in a separate duplicative system that is internal to the ES&H Department (See Procedure CSM 5.A-2, "Internal Audits").
 - This concern was partially addressed in the MK-FIC self-assessment.

CONCERN: Duplication of deficiency tracking systems at Morrison Knudsen-Ferguson of Idaho Company can lead to difficulties in establishing priorities.
(OA.5-1)
(H2/C2)

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- A potential conflict of interest can compromise the independence and objectivity of the RESL Safety Committee, since individual members are not precluded by the charter from reviewing areas and topics for which they have functional responsibility or direct interests.
 - Independent safety overview is understaffed, since this important function is a collateral duty for the industrial hygienist, whose regular assignments are sufficient to fully challenge the capabilities of a single individual. This collateral assignment also does not provide sufficient visibility for the independent safety review function.
 - Trending and analysis of safety data is not being performed at RESL, nor are they required by the RESL Manual.
 - This concern was partially addressed in the RESL self-assessment.

CONCERN: Monitoring and assessment of the safety of Radiological and Environmental Sciences Laboratory operation is not effective.
(OA.5-2)
(H2/C2)

OA.6 PERSONNEL PLANNING AND QUALIFICATION

PERFORMANCE OBJECTIVE: Personnel programs should ensure that appropriate job qualification requirements or position descriptions are established for all positions that affect safe and reliable operation.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- Personnel procedures do not require that hiring be based on merit and ability, although this is believed to generally occur. An MK-Ferguson corporate policy statement addresses nepotism, but the S&H Subteam could not be assured that it applies to MK-FIC.
 - There is no formal overall management development program at MK-FIC. Managers use their own initiative in this regard for their subordinates.
 - A management development plan is in place for the Fuel Restoration project.
 - Long-range personnel staff planning is not performed by MK-FIC, except as noted above.
 - Personnel performance appraisals currently do not address safety performance or safety attitudes of employees. Development of new appraisal guidelines is planned.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: Personnel planning and qualification activities at Morrison Knudsen-Ferguson of Idaho Company are deficient.
(OA.6-1)
(H2/C2)

Protection Technology of Idaho, Inc.

- FINDINGS:**
- Job descriptions and performance evaluations do not consistently address safety performance and safety attitudes. A new system that will do so is being developed.
 - A management development program is not in place but will be a part of the new system.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: Protection Technology of Idaho, Inc. personnel planning and qualification activities are deficient.
(OA.6-2)
(H2/C2)

OA.7 DOCUMENT CONTROL

PERFORMANCE OBJECTIVE: Document control systems should provide correct, readily accessible information to support site/facility operations.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- The document control procedure at MK-FIC requires auditing of controlled documents; however, the planned audit program does not address the removal of obsolete pages or documents.
 - Although the drawing control provisions of ASME NQA-1-1989 are imposed contractually on subcontractors by MK-FIC, these requirements are not imposed on themselves for miscellaneous projects performed by MK-FIC craftspersons.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company document control procedures do not ensure that valid documents are used to control work, as required by ASME NQA-1-1989.
(OA.7-1)
(H2/C1)

Protection Technology of Idaho, Inc.

- FINDINGS:**
- A number of controlled manuals and documents (e.g., organization charts, self-assessment program, ES&H Manual) were observed to be undated and/or not approved.
 - Planned audits of controlled documents do not include verification of removal of obsolete material from controlled documents.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: The Protection Technology of Idaho, Inc. document control system is deficient with regard to dating and approval of controlled documents and verification of removal of obsolete material from controlled documents, as required by ASME NQA-1-1989.
(OA.7-2)
(H2/C1)

- FINDINGS:**
- Vital records identification is incomplete, and no provisions have been made for their storage.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: Protection Technology of Idaho, Inc. does not comply with ASME NQA-1-1989 with respect to identification and storage of vital records.
(OA.7-3)
(H2/C1)

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Branch procedures that were observed to be used for controlling work are detailed, reasonably complete, and accurately represent the work observed; however, these procedures are not controlled documents, thus their validity and currency are subject to question.
 - A set of branch procedures provided to the S&H Subteam (to follow the performance of work) contained revisions that were not in the possession of the performers of the work, confirming concerns about the validity and currency of the branch procedures.
 - This concern was not addressed in the RESL self-assessment.

CONCERN:
(OA.7-4)
(H2/C2)

Radiological and Environmental Sciences Laboratory management has little assurance that work is being performed in accordance with valid procedures.

Rockwell-INEL

- FINDINGS:**
- While controlled document status is planned to be periodically audited by the Information, Physical, and Personnel Security Division, the plan does not include ensuring that obsolete material will be removed from controlled documents.
 - There is no requirement to audit drawing files for completeness and currency.
 - About 1,600 drawings are in the Key Drawing category; currently, about 900 have been updated.
 - See Concern TS.3-4.
 - This concern was partially addressed in the Rockwell-INEL self-assessment.

CONCERN:
(OA.7-5)
(H2/C2)

Auditing to ensure currency and validity of controlled documents and key drawings at Rockwell-INEL is deficient.

0A.8 FITNESS FOR DUTY

PERFORMANCE OBJECTIVE: A Fitness-for-Duty Program should be capable of identifying persons who are unfit for their assigned duties as a result of drug or alcohol use, or other physical or psychological conditions, and should provide procedures to remove them from such duty and from access to vital areas of the site or facility pending rehabilitation or remedial actions.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- While some elements of a substance abuse program are in place at MK-FIC (pre-employment screening, random testing, and initial training of supervisors in substance abuse recognition and handling), an overall policy and program is not in place.
 - MK-Ferguson has developed a broad Fitness-for-Duty Program including a substance abuse policy, but its adoption by MK-FIC could not be confirmed by MK-FIC management.
 - The MK-FIC substance abuse program elements noted above are not imposed on subcontractors.
 - There is no requalification requirement for supervisors in substance abuse recognition and handling.
 - Personnel are not encouraged to report other employees suspected of substance abuse to their supervisors.
 - There appears to be little effort to publicize the availability of the INEL Employee Assistance Program.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN:
(0A.8-1)
(H2/C2) **A Fitness-For-Duty Program conforming to accepted industry practice is not in place at Morrison Knudsen-Ferguson of Idaho Company.**

- FINDINGS:**
- Based on interviews with ID Industrial Relations personnel, DOE has not yet issued the long-awaited Order addressing substance abuse at contractor facilities.
 - This concern has not been addressed in the ID self-assessment.

CONCERN:
(0A.8-2)
(H2/C2) **There are no DOE requirements prohibiting substance abuse by DOE and contractor employees.**

Protection Technology of Idaho, Inc.

- FINDINGS:**
- The PTI fitness-for-duty policy addresses the actions to be taken when substance abuse is recognized; however, the policy does not explicitly forbid drug and alcohol abuse.
 - The INEL Employee Assistance Program is not widely publicized at PTI.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: A Fitness-For-Duty Program conforming to accepted industry practice is not completely in place at Protection Technology of Idaho, Inc.
(OA.8-3)
(H2/C2)

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Fitness-for-duty at RESL is, in part, prescribed by DOE 3792.3, which narrowly addresses provisions for drug use testing for Federal employees. No other DOE policy covering substance abuse or fitness-for-duty has been issued.
 - Prospective employees are not screened for drug use prior to assignment to work.
 - Information on drug and alcohol abuse is not regularly available to employees except at the EG&G Idaho-operated dispensary.
 - Supervisors are not trained to recognize and deal with symptoms of substance abuse.
 - Information about the INEL Employee Assistance Program is not widely disseminated at RESL.
 - Based on interviews with branch level personnel, substance abuse is not significantly discussed at employee safety meetings.
 - This concern was not addressed in the ID self-assessment.

CONCERN: A Fitness-For-Duty Program meeting accepted industry practices does not exist at the Radiological and Environmental Sciences Laboratory.
(OA.8-4)
(H2/C2)

Rockwell-INEL

- FINDINGS:**
- Rockwell-INEL fitness-for-duty provisions do not cover visitors or subcontractors. The only subcontractor personnel or visitors permitted on the site without escorts are account force workers assigned to the Rockwell-INEL

facilities by MK-FIC. Rockwell-INEL assumes that the personnel are covered by an acceptable Fitness-for-Duty Program under MK-FIC, but this is not a valid assumption. (See Concern OA.8-1.)

- DOE has not established substance abuse program requirements for contractor facilities. (See Concern OA.8-3.)
- This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(OA.8-5)
(H2/C2)

Rockwell-INEL assumes that Morrison Knudsen-Ferguson of Idaho Company personnel assigned to their facility are covered by a Fitness-For-Duty Program meeting accepted industry practices; however, they are not.

4.5.3.2 Quality Verification

4.5.3.2.1 Overview

Morrison Knudsen-Ferguson of Idaho Company

This appraisal addressed two of the seven performance objectives in this technical area. The five performance objectives that did not apply were: Procurement and Supplier Control, Receiving and Pre-Installation Inspections, Calibration Program, Identification and Control of Hardware/Materials, and Inspections. These activities are performed by EG&G Idaho or other site operating contractors under contractual agreement. This appraisal consisted of interviews with selected personnel at various levels in the organization and reviewing a wide variety of documents. Interviews were conducted in Bldgs. CPP-629 and CPP-698.

There were seven concerns identified for MK-FIC and one concern identified for ID.

MK-FIC is an operating contractor responsible for performing construction and construction management at the INEL site. The construction management activity includes obtaining the labor resources required, either through MK-FIC or through subcontractors, and administering the funding resources to complete projects on a predetermined schedule. The work performed includes construction and modifications/additions (including renovations and rehabilitation), to a wide range of facilities such as nuclear reactors, radiochemical processing plants, electrical systems, utilities, laboratories, and other major projects such as the Fuel Processing Restoration (FPR).

The prime operating contractor, for whom the construction work is being performed is responsible for providing the design specifications, procuring and verifying the materials, material control, and verifying conformance to design requirements through inspections and surveillances. MK-FIC is responsible for resolving problems resulting from subcontractor performance.

MK-FIC has a formal, comprehensive Quality Program covering most of the 18 elements of ASME NQA-1-1989. However, the program and supporting documentation was written to accommodate the technical requirements of the MK-FIC construction mission; it does not specifically address the compliance requirements for safety and health. The existing independent Quality Assurance (QA) Verification Program does not address safety and health requirements in the regularly scheduled or random audits/surveillances performed on MK-FIC and its subcontractors. There is no formal performance-based training program; therefore, training, especially on safety and health compliance requirements, has been lacking. The large number of OSHA findings in the MK-FIC self-assessment may relate to a lack of training and verification. A training person has recently been hired to improve the effort in this area. The miscellaneous projects area has only two people to provide independent oversight. This includes reviews of administrative paperwork and contractual/ construction compliance requirements for many projects and subcontractors distributed throughout the INEL site. Some existing programs that support the Quality Program have been revised and some new programs have

been implemented; many of the programs reviewed are behind schedule. MK-FIC appears to have a staffing problem in these areas.

The MK-FIC self-assessment consisted of a list of specific deficiencies identified by various forms of audits or surveillances; many were OSHA - compliance deficiencies.

In conclusion, the Quality Program needs to be revised to accommodate the safety and health compliance requirements; additional manpower resources need to be applied, or other approaches need to be developed to assure implementation of the required programs on schedule and to strengthen the oversight activity in the miscellaneous projects area.

Protection Technology of Idaho, Inc.

This appraisal addressed two of the seven performance objectives in the Quality Verification technical area. The five performance objectives that did not apply were: Procurement and Supplier Control, Receiving and Pre-Installation Inspections, Calibration Program, Identification and Control of Hardware/Materials, and Inspections. Quality verification was not reviewed for the areas of aviation, firearms, and the firing range. The appraisal consisted of interviews with selected personnel at various levels in the organization in Bldg. CF-600 and reviewing a wide variety of documents. The PTI mission is very similar to the military; therefore, the organization operates under a very formal, well defined, regimented environment.

There were three concerns identified for PTI and one concern for ID.

PTI is responsible for providing a protective force of well-trained and qualified personnel for protection of special nuclear material, information, employees, and government property from theft, diversion, sabotage, and malicious destruction at the INEL and at other DOE facilities as directed by ID.

The QA Program, although written, has not been approved by ID. Additional supporting documentation needs to be completed, and some supporting programs need to be implemented. PTI has addressed the safety and health compliance requirements in their QA Program.

The PTI self-assessment addressed the lack of approval of the QA Program by ID, but did not identify the fact that the program has not been fully implemented.

In conclusion, the new QA Program appears to be appropriate, and when fully implemented should assist with the required cultural change that is currently taking place at PTI.

Radiological and Environmental Sciences Laboratory

This appraisal addressed three of the seven performance objectives in the technical area. The four performance objectives that did not apply were: Procurement and Supplier Control, Receiving and Pre-Installation Inspection,

Identification and Control of Hardware/Materials, and Inspections. The appraisal consisted of interviews with selected personnel at various levels in the organization in Bldg. CF-690 and review of a wide variety of documents.

There were four concerns identified.

RESL is responsible for developing and applying original methods and procedures in the support of measurements related to worker and environmental protection for both DOE and the Nuclear Regulatory Commission (NRC). RESL administers the audit and performance evaluation function of DOE's Environmental Restoration and Waste Management Program. They also administer and conduct QA programs in the areas of personnel dosimetry, bioassay, and whole-body counting for mandatory Department of Energy Laboratory Accreditation Programs (DOELAPs). RESL is designated as the official reference laboratory for the NRC, and as such, prepares reference standards to test the capabilities of NRC Regional Laboratories and NRC licensees. RESL has been recognized for their scientific and innovative capabilities throughout the DOE complex and the world.

RESL has a Quality Program Plan that has been reviewed by ID; however, Part 2 (which consists of procedures defining the program elements of the plan) is in draft form and is in varying degrees of implementation in the four Branches. Each Branch is required to develop and implement a QA plan to support the Quality Program Plan; only one Branch has complied. The plans being developed by the Branches are not consistent in their format and approach. The same inconsistency applies to operating procedures; many of the documents reviewed were not signed, reviewed, dated, or controlled. The QA Program and supporting documentation is written primarily to accommodate the technical requirements of the RESL mission. It does not specifically address the safety and health compliance requirements.

The responsibility for developing and implementing the Quality Program has been placed with the Senior Scientist whose background is in science and technology. With the scope of responsibilities identified for the Senior Scientist position, the QA responsibilities are not appropriately addressed. There are no experienced QA personnel on staff.

The RESL self-assessment partially addressed these issues, although more emphasis was given to specific technical deficiencies.

In conclusion, the Quality Program needs to be revised to accommodate the safety and health compliance requirements. In addition, the program needs to be reviewed and modified so that it can be applied in a consistent manner throughout the Laboratory and provide a benefit to the operation of the facility. Applicable elements of the program must be implemented with full management support, including appropriate resources. Although there is recognition that a cultural change must occur, there is still considerable change required for full implementation of a Quality Program that includes safety and health compliance requirements.

Rockwell-INEL

This appraisal addressed six of the seven performance objectives in the Quality Verification technical area. The one performance objective that did not apply was Procurement and Supplier Control. The appraisal consisted of interviews with selected personnel at various levels in the organization and reviewing a wide variety of documents. Facilities visited were: Bldgs. TAN-629, TAN-628, TAN-679, TAN-607, and TAN-602.

There were four concerns identified.

The Special Manufacturing Capability (SMC) Program is operated by Rockwell-INEL as a DOE contract funded by the U.S. Army. The program manufactures armor for the Abrams M1A1 tank using depleted uranium.

Rockwell-INEL has recently incorporated the safety and health compliance requirements into their QA Program and updated the format for the hierarchy of documentation. The conversion is almost complete. However, there are improper references, errors, some redundancies, and overlap of requirements in the procedures. The procedures, training, and implementation of the safety and health program to support the QA Program is in the formative stages. The charter for the training organization has recently been changed to incorporate safety and health training. The training required to properly implement all the recent program changes and incorporate a culture change for safety and health compliance will be significant.

The Rockwell-INEL self-assessment focused primarily on the ES&H functional activities and not the programmatic problems.

In conclusion, Rockwell-INEL has addressed the requirement to implement the safety and health compliance requirements into their quality program. It will take time and continuing determination to effectively implement the revised Quality Program Plan and the desired cultural change.

Department of Energy Field Office, Idaho

ID has not been responsive in reviewing and approving QA plans for the operating contractors.

General, Idaho National Engineering Laboratory Site

The facilities visited did not have a quality element in their quality program that specifically addressed processes/equipment that potentially present a hazard to safety or health. A graded approach for identifying processes or equipment that could present a hazard (such as pumps in acid tanks, and components in exhaust systems carrying toxic fumes) needs to be developed. Procurement of spare parts and maintenance activities should be done with additional quality controls and verifications. The user-site service contractor contractual relationship amplifies the need for a special projects program on potentially hazardous processes/equipment.

4.5.3.2.2 Findings and Concerns

QV.1 QUALITY PROGRAMS

PERFORMANCE OBJECTIVE: Administrative programs and controls should be in place to ensure policies concerning quality are administered for each facility throughout the site.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- A significant portion of the QA program for construction projects is complete and much of it has been implemented. The program was submitted to ID on March 2, 1990, for review and approval. MK-FIC did not receive a response from ID until 10 months later.
 - This concern was addressed in the MK-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company does not have a Quality Assurance Program that has been approved by DOE Field Office, Idaho, as required by ID 5700.6C and ID 4700.1.
(QV.1-1)
(H3/C1)

- FINDING:**
- This concern was not addressed in the ID self-assessment.

CONCERN: DOE Field Office, Idaho, was not responsive in reviewing the Morrison Knudsen-Ferguson of Idaho Company Quality Assurance Program, as required by ID 5700.6C and ID 4700.1.
(QV.1-2)
(H3/C1)

- FINDINGS:**
- Although MK-FIC has developed a very comprehensive QA Program for construction activities, some supporting documentation requires completion, and additional parts of the program need to be implemented. Some site quality procedures need to be revised.
 - Site Quality Procedure SQP 2.1.1 "Miscellaneous Projects Quality Plan," has not been issued.
 - The supporting documentation for the QA Program is not identified in a singular index or matrix. Therefore, it is not evident what elements of ASME NQA-1-1989 are formally addressed in MK-FIC procedures.
 - See Concern OA.7-1.
 - The trend analysis procedure does not address safety and health issues.
 - There have not been any trend analysis reports generated for calendar year 1991, as required by SQP 16.2, "Quality Trending," March 12, 1990.

- This concern was partially addressed in the MK-FIC self-assessment.

CONCERN:
(QV.1-3)
(H2/C1)

Morrison Knudsen-Ferguson of Idaho Company has not fully developed and implemented a Quality Program that meets the requirements of DOE 5700.6B.

FINDINGS:

- The QA Program and supporting documentation was written to accommodate the technical requirements of the MK-FIC mission; it does not specifically address the compliance requirements for safety and health.
- SQP 6.1, "Document Control Procedure," February 15, 1991, identifies control documents as those that govern the performance of construction work or provide quality affecting requirements. There is no reference to safety and health compliance documents.
- The job description for the Quality Manager does not specifically address safety and health compliance.
- This concern was not addressed in the MK-FIC self-assessment.

CONCERN:
(QV.1-4)
(H2/C1)

Morrison Knudsen-Ferguson of Idaho Company does not have a Quality Program in place to ensure the implementation of the environmental, safety, and health compliance requirements of DOE 5700.6B.

FINDINGS:

- Safety and health requirements identified as compliance requirements by ID are assigned and tracked for implementation by the document control system. However, at this time, there is no independent verification of the compliance procedures, except through the annual audit conducted by Quality Assurance.
- All document control functions are not identified in the SQP Manual Section 6, Document Control.
- The existing QA Verification Program does not address safety and health compliance requirements in the regularly scheduled or random audits/surveillance performed on MK-FIC and subcontractors.
- Internal surveillance schedules are based on what is predetermined to be appropriate, however implementation of the schedule is based on resources.
- This concern was partially addressed in the MC-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company does not have a
(QV.1-5) Quality Assurance Program to ensure independent verification of
(H2/C1) safety and health requirements of DOE 5700.6B and ID 5700.6c.

FINDINGS:

- MK-FIC has recently hired an individual who will be responsible for training; however, at the present time, there is no formal training program.
- There is no documented training program for lockout/tagout procedures.
- This concern was partially addressed in the MK-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company has not addressed the
(QV.1-6) formal quality assurance training requirements of DOE 5700.6B and
(H2/C1) DOE 5480.20.

FINDINGS:

- Implementation schedules for projects in the document control tracking system are behind schedule.
- Corrective action schedules identified in the assessment findings report are behind schedule.
- Personnel resources in the miscellaneous projects area are very limited. Two people are assigned to oversee and review all administrative, contractual documentation, and construction compliance for approximately 30 subcontractors distributed throughout the INEL site.
- See Concern QV.1-3.
- Internal surveillance schedules are based on what is predetermined to be appropriate; however, implementation of the schedule is based on resources.
- This concern was partially addressed in the MC-FIC self-assessment.

CONCERN: Many of the elements required to support the Quality Assurance
(QV.1-7) Program are not being completed on schedule, as required by
(H2/C2) Morrison Knudsen-Ferguson of Idaho Company procedures.

Protection Technology of Idaho, Inc.,

- FINDINGS:**
- The QA Program has been written and was submitted to DOE Field Office, Idaho for review and approval on April 4, 1991. It has not been approved.
 - This concern was addressed in the PTI self-assessment.
 - This concern was not addressed in the ID self-assessment.

CONCERN:
(QV.1-8)
(H3/C1) Protection Technology of Idaho, Inc. does not have a Quality Assurance Plan that has been reviewed and approved by the DOE Field Office, Idaho, as required by DOE 5700.6B, and ID 5700.6C.

CONCERN:
(QV.1-9)
(H3/C1) The DOE Field Office, Idaho, has not reviewed and approved the Protection Technology of Idaho, Inc. Quality Assurance Program, as required by ID 5700.6C and ID 4700.1.

- FINDINGS:**
- A formal program for performing the annual audit has not been implemented, as required by ID 5700.6C.
 - Although duty officers responsibilities are documented, the requirements for the management walkthroughs are not specifically addressed.
 - There is no formal system in place for trend or root cause analysis.
 - See Concerns OA.7-2 and OA.7-3.
 - This concern was partially addressed in the PTI self-assessment.

CONCERN:
(QV.1-10)
(H3/C1) The Protection Technology of Idaho, Inc. Quality Program is not fully defined and implemented, as required by DOE 5700.6B.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- The RESL QA Plan has been written and approved; however, Part 2 of the manual is in draft form.
 - Each of the four branches at RESL are required to have a QA plan. One branch has complied and that plan needs to be reviewed to assure that it complements the recently issued "Quality Assurance Program," dated June 5, 1991.
 - The branch QA plans reviewed in draft or final form are inconsistent in format and approach.
 - The operating procedures in the different branches vary significantly in formality and format.

- See Concern OP.3-1.
- The Senior Scientist is responsible for defining, implementing, and verifying the QA program for RESL. The training and background of the incumbent is in science and technology, with very little experience in the QA disciplines. With the scope of responsibilities identified for the Senior Scientist position, the QA responsibilities are not appropriately addressed.
- There are no experienced QA personnel on staff.
- There is no formal document control system in place.
- See findings related to Concern RP.3-1.
- There is no formal system in place for trend or root cause analysis.
- The verification program for safety and health activities is not effectively established.
- See findings related to Concern OA.5-2.
- This concern was partially addressed in the RESL self-assessment.

CONCERN: Radiological and Environmental Sciences Laboratory has not
(QV.1-11) developed and implemented a Quality Program that meets the
(H2/C1) requirements of DOE 5700.6B.

FINDINGS:

- The QA Plan and supporting documentation is written primarily to accommodate the technical requirements of the RESL mission. It does not specifically address the requirements for safety and health.
- This concern was not addressed in the RESL self-assessment.

CONCERN: Radiological and Environmental Sciences Laboratory does not have
(QV.1-12) a Quality Program in place to ensure the implementation of Safety
(H2/C1) and Health compliance requirements of DOE 5700.6B.

Rockwell-INEL

FINDINGS:

- Rockwell-INEL has recently done a complete rewrite of their QA Plan. All documents have been revised to address the safety and health compliance requirements and to change the format to the new Technical Procedure Format. Although ID approved the previous plan in March 1990, the revised plan has not been resubmitted to ID for approval.

- This was not addressed in the Rockwell-INEL self assessment.

CONCERN:
(QV.1-13)
(H3/C1)

Rockwell-INEL does not have a Quality Assurance Plan that has been reviewed and approved by DOE Field Office, Idaho, as required by ID 5700.6C and ID 4700.1.

FINDINGS:

- Twelve of the 99 procedures identified in the Quality Assurance Program Manual have not been issued. The 87 procedures issued were reviewed in this assessment.
- The manual was recently revised to address the safety and health compliance requirements and to change the format to the new Technical Procedure Format. All of the procedures have been issued or revised in the last 7 months.
- There were several references to Rockwell Policy Procedures that no longer exist, typographical errors, and a reference to a nonexistent organization title.
- The verification program for safety and health activities is not effectively established.
- See Concerns TS.4-1, PT.11-3, and PP.4-7.
- This is no formal program in place for trend or root cause analysis.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(QV.1-14)
(H2/C1)

The Rockwell-INEL Quality Program is not fully defined and implemented, as required by DOE 5700.6B.

QV.4 CALIBRATION PROGRAM

PERFORMANCE OBJECTIVE: Provisions should be made to ensure that tools, gauges, instruments, and other measuring and testing devices are properly identified, controlled, calibrated, and adjusted at specific intervals.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Procedures for calibration have varying degrees of formality and control. The following procedures were not signed, reviewed, or controlled by revision:
 - Daily startup procedure for whole-body count.
 - Calibration for whole-body count.
 - Calibration procedure for teletherapy 10,000 Curries Cobalt-60 source.
 - See Concern RP.8-1.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: The calibration programs are not consistently implemented or controlled at Radiological and Environmental Sciences Laboratory, as required by DOE 5700.6B and ASME NQA-1-1989.
(QV.4-1)
(H2/C1)

QV.5 IDENTIFICATION AND CONTROL OF HARDWARE/EQUIPMENT

PERFORMANCE OBJECTIVE: Provisions should be established to identify and control the use or disposition of hardware, materials, parts, and components as well as to ensure that incorrect/defective items are not used.

Rockwell-INEL

- FINDINGS:**
- Nonconforming material is being controlled in practice at the implementation level by SP.003, "Control of Non-Conforming Materials and Conditions Procedure"; January 30, 1989; however, the program documents QP-15.1.1, "Documentating and Dispositioning of Non-Conforming Conditions," and QP-8.1.1, "Identification and Control of Items," have not been issued.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN: Rockwell-INEL has not fully implemented the documents to define
(QV.5-1) the control of nonconforming materials, as required in
(H2/C1) DOE 5700.6B and ASME NQA-1-1989.

QV.7 CONTROL OF SPECIAL PROCESSES

PERFORMANCE OBJECTIVE: Provisions should be established to ensure the acceptability of special processes such as welding, heat treating, non-destructive testing, and chemical cleaning, and that special processes are performed by qualified procedures and equipment.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- MK-FIC does not have an element in their Quality Program that specifically addresses processes/equipment that potentially present a hazard to safety or health.
 - Potentially hazardous processes/equipment are not specifically identified using a graded approach.
 - Procurement and verification of spare parts for potentially hazardous processes/equipment is not done using a graded approach.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company does not have a formal program for controlling special processes that relate to safety and health, as required by ASME NQA-1-1989.
(QV.7-1)
(H2/C1)

Protection Technology of Idaho, Inc.

- FINDINGS:**
- PTI does not have an element in their Quality Program that specifically addresses processes/equipment that potentially present a hazard to safety or health.
 - Potentially hazardous processes/equipment are not specifically identified using a graded approach.
 - Procurement and verification of spare parts for potentially hazardous processes/equipment is not done using a graded approach.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: Protection Technology of Idaho, Inc. does not have a formal program for controlling special processes that relate to safety and health, as required by ASME NQA-1-1989.
(QV.7-2)
(H2/C1)

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- RESL does not have an element in their Quality Program that specifically addresses processes/equipment that potentially present a hazard to safety or health.

- Potentially hazardous processes/equipment are not specifically identified using a graded approach.
- Procurement and verification of spare parts for potentially hazardous processes/equipment is not done using a graded approach.
- This concern was not addressed in the RESL self-assessment.

CONCERN:
(QV.7-3)
(H2/C1)

Radiological and Environmental Sciences Laboratory does not have a formal program for controlling special processes that relate to safety and health, as required by ASME NQA-1-1989.

Rockwell-INEL

FINDINGS:

- RESL does not have an element in their Quality Program that specifically addresses processes/equipment that potentially present a hazard to safety or health.
- Potentially hazardous processes/equipment are not specifically identified using a graded approach.
- Procurement and verification of spare parts for potentially hazardous processes/equipment is not done using a graded approach.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(QV.7-4)
(H2/C1)

Rockwell-INEL does not have a formal program for controlling special processes that relate to safety and health, as required by ASME NQA-1-1989.

4.5.3.3 Operations

4.5.3.3.1 Overview

Morrison Knudsen-Ferguson of Idaho Company

Following introductory discussions with MK-FIC managers, it was determined by the S&H Subteam that the performance objectives in this technical area were not sufficiently applicable to this contractor's activities to warrant a detailed appraisal, and none was performed.

Protection Technology of Idaho, Inc.

This appraisal addressed all eight of the performance objectives in the Operations technical area. This appraisal included interviews with managers, supervisors, security lieutenants, and security inspectors. Facilities visited and functions reviewed were the PTI operational activities in Bldg. CF-609, including the armory and helicopter hangar; the range activities at Bldg. CF-B21-608; and several security duty stations at Test Area North and on INEL entrance roads. More detailed appraisals of aviation safety were conducted and are reported separately in Section 4.5.3.16 of this report. Also, a separate, detailed appraisal of firearms safety was conducted, which is covered in Section 4.5.3.17 of this report.

PTI operations are conducted in a disciplined manner with detailed documentation of all duty station requirements and orders. Documented job descriptions are maintained for all operational positions. Methods are in place to respond to changing requirements as they occur, and these are also well documented even if that must be done belatedly due to the urgent nature of the change. Significant interaction with other operating contractors is necessary, especially at such duty stations as those at TAN, TRA, and Idaho Falls, and this interaction is effectively conducted.

Both indoor and outdoor range operations are conducted in a very disciplined manner at Bldg. CF-B21-608, and appropriate safety measures are employed. Appropriate up-to-date written procedures are employed for all range activities.

Shift turnover activities are rigorous and thorough, and for security inspectors and others who carry weapons, they include rigorous accountability and storage of these weapons when not in use.

A concern is expressed concerning the lack of an effective lockout/tagout system for PTI operations; however, one was being prepared at the time of this appraisal.

Radiological and Environmental Sciences Laboratory

Seven of the eight performance objectives for the Operations technical area were addressed during this appraisal. RESL does not employ shift operations, so the performance objective on shift turnover was not addressed. Interviews

were held with the Laboratory Director, Branch Chiefs, coordinators, scientists, and technicians. Facilities visited and reviewed were Bldg. CF-690 and the Radiation Calibration Laboratory at Bldg. CF-638.

For years, RESL operations emphasized scientific excellence and lacked rigorous documentation and actions necessary to assure the health and safety of the operations. In the past year or two, significant steps have been taken to introduce rigorous documentation and new required actions. Much progress has been made, and much remains to be done; the associated necessary cultural changes are only partially achieved among RESL personnel.

A completely revised RESL Manual was prepared and issued in June 1991 that contains RESL policy statements, management instructions on Conduct of Operations and Management by Walkdown, a lockout/tagout system, and overall management instructions for the four RESL Branches. The format and nature of these management instructions was reviewed and found to be generally in compliance with DOE Orders and of good quality. However, three concerns are expressed regarding omission of important necessary elements, and there may be others that were not detected. The manual requires annual review of each of the contained Management Instructions, and it is desirable that the first such review be especially thorough in view of the many new items contained in them. The operation of the Radiation Calibration Laboratory at Bldg. CF-638 employs many safety features, including interlocks, which appear to provide significant safety for employees. However, control of keys for entry to the facility probably lacks the necessary rigor since they are merely hung on an office wall in Bldg. CF-690.

Many operational activities in Bldg. CF-690 involve fume hoods. Operation and control of these hoods have been recently upgraded, but more safety features could be provided and a concern is expressed in this area.

Housekeeping was generally satisfactory throughout RESL facilities, but there is noticeable room for improvement in Bldg. CF-638.

In summary, RESL is staffed with highly qualified employees who are scientifically very knowledgeable and who are making a sincere effort towards a more disciplined, well documented conduct of operations. Much progress has been made. Much remains to be done. Resolution of the five concerns expressed in this appraisal should help in this effort.

Rockwell-INEL

This appraisal addressed all eight of the performance objectives in this technical area. This appraisal included interviews with all operations managers, all facility managers, and several technicians or operators in each operating area. Facilities visited during this appraisal included Bldgs. TAN-607A, TAN-629, TAN-677, TAN-679, and TAN-681.

Operations at Rockwell-INEL are conducted in a disciplined manner, and the responsibilities of each position are well defined and understood. Operating personnel appear well qualified to perform assigned duties, but a rigorous

documented training and certification program is lacking, as discussed in Section 4.5.3.5 of this report.

Implementation of DOE 5480.19 on Conduct of Operations is underway at Rockwell-INEL. Many procedures written earlier in the year embody implementing practices. Compliance Action Plan CAP 8.2.8, "Conduct of Operations" had been drafted and was being reviewed at the time of this appraisal. Both the draft procedure and manager's responses to questions during interviews reflect a good understanding by Rockwell-INEL management of what is required. When questioned during interviews, operators and technicians at duty stations appeared to be only vaguely familiar with the subject and generally noncommittal as to the value. Clearly, the associated culture changes recognized to be necessary for successful implementation of this Order are not yet in place. Although off to a good start on implementing improved Conduct of Operations, much remains to be done.

The lockout/tagout system in place at Rockwell-INEL appears to meet all DOE and OSHA requirements, and is being effectively administered.

Although shift operations are routinely conducted at Rockwell-INEL only by the utilities crew, very commendable changes in organization and practices were made earlier in 1991 to assure that facility responsibilities are clearly delineated and understood at all times. Three Facility Managers were named and were assigned exclusive facility management responsibilities during the Monday through Thursday day shifts. Those responsibilities are transferred to the Utility Shift Manager at all other times. Effective shift turnover practices are employed between the three Facility Managers and the Shift Utility Managers at 7:00 a.m. and 5:30 p.m., Mondays through Thursdays. This unique system appears to be working effectively and undoubtedly has improved the rigor of facility status control.

Housekeeping was very good in all Rockwell-INEL facilities visited.

Four concerns are expressed for this technical area of the appraisal.

4.5.3.3.2 Findings and Concerns

OP.2 CONDUCT OF OPERATIONS

PERFORMANCE OBJECTIVE: Operational activities should be conducted in a manner that achieves safe and reliable operations.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- A management instruction "Conduct of Operations" was issued on June 3, 1991, which deals largely with management responsibilities for conduct of operations and represents a graded approach to implementation of DOE 5480.19.
 - Detailed implementation of such elements of DOE 5480.19 as Control of Systems Status, Logkeeping, and Operations Procedures has not been performed.
 - This concern was addressed in the RESL self-assessment.

CONCERN: Implementation of conduct of operations at the Radiological and Environmental Sciences Laboratory has not been extended to the working level, as required by DOE 5480.19.
(OP.2-1)
(H2/C1)

OP.3 OPERATIONS PROCEDURES AND DOCUMENTATION

PERFORMANCE OBJECTIVE: Approved written procedures, procedure policies, and data sheets should provide effective guidance for normal and abnormal operation of each facility on a site.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Each of the four branches of RESL, employs a different format and approval system for internal branch procedures.
 - No required review and reissue system exists for internal branch procedures, as required by DOE 5480.19.
 - The Chemistry Branch had been using an external topical report which summarized analytical methods of analysis in lieu of more conventional detailed procedures.
 - The RESL Manual does not have an overall management instruction specifying format, approval, review, and other aspects of internal branch procedures.
 - This concern was addressed in the RESL self-assessment.

CONCERN:
(OP.3-1)
(H2/C1) A uniform system for issuing and reviewing operating procedures is not employed at the Radiological and Environmental Sciences Laboratory, as required by DOE 5480.19.

- FINDINGS:**
- An "Interim Change Notice" is used within the Radiological Sciences Branch to effect prompt or temporary changes to internal branch procedures.
 - No system exists at RESL to effect prompt or temporary changes to procedures in other branches of RESL, as required by DOE 5480.19.
 - No system exists for effecting prompt or temporary changes to RESL management instructions, as required by DOE 5480.19.
 - This concern was not addressed in the RESL self-assessment.

CONCERN:
(OP.3-2)
(H2/C1) No laboratory-wide system for effecting prompt or temporary changes to management instructions or operating procedures exists at the Radiological Environmental Sciences Laboratory, as required by DOE 5480.19.

Rockwell-INEL

- FINDINGS:**
- Procedure QP 2.5.1, "Managers Self Assessment and Walkdown," April 1991, includes a requirement for an annual manager walkdown of operating procedures.

- Procedure QP 6.1.1, Rev. 1, "Document Control," June 12, 1991, does not require a periodic review of Technical Procedures, as required by DOE 5480.19.
- Two Rockwell-INEL document coordinators interviewed during this assessment believed that no periodic review of Technical Procedures was required, based on omission of the topic in Procedure QP 6.1.1.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(OP.3-3)
(H2/C1)

Existing Rockwell-INEL documentation does not clearly require periodic review of all Technical Procedures, as required by DOE 5480.19.

FINDINGS:

- Over 75 percent of the Rockwell-INEL operating procedures had Document Change Requests (DCRs) associated with them at the time of this assessment; they were attached to all controlled copies of the procedures reviewed during this assessment. None of these DCRs were over 1 year old.
- Many of the operating procedures had been reformatted in draft form to the new Technical Procedure format and the DCR aspects were incorporated in these drafts.
- Procedure QP 6.1.1, Rev. 1, "Document Control," June 12, 1991, requires that procedures be revised before an associated DCR is 1 year old. No requirement currently exists concerning required reissue if more than one DCR is associated with a procedure, as called for in DOE 5480.19 guidelines.
- This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(OP.3-4)
(H2/C2)

Document Change Requests are not incorporated into Rockwell-INEL revised technical procedures promptly to meet the needs of the users.

FINDINGS:

- Operational Safety Requirements (OSRs) are not incorporated into Rockwell-INEL operating procedures.
- Current OSRs are believed to be inadequate by Rockwell-INEL personnel.
- Improved OSRs are expected to result from issuance of a new Safety Analysis Report in the fall of 1991.
- See Concern TS.2-4.

- This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(OP.3-5)
(H2/C2)

Operational Safety Requirements are not incorporated into the Rockwell-INEL operating procedures.

OP.4 FACILITY STATUS CONTROLS

PERFORMANCE OBJECTIVE: Operations personnel should know the status of the systems and equipment under their control, should know the effect of non-operational systems and equipment on continued operations. They should ensure that systems and equipment are controlled in a manner that supports safe and reliable operation.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- An overall complete lockout/tagout system was not in place at the time of this appraisal, as required by DOE 5480.19.
 - Effective tagout of defective firearms was being practiced.
 - PTI is currently drafting procedures and purchasing equipment in order to implement an overall lockout/tagout system.
 - This concern was addressed in the PTI self-assessment.

CONCERN: A complete lockout/tagout system is not in place for Protection Technology of Idaho, Inc. facilities, as required by DOE 5480.19.
(OP.4-1)
(H2/C1)

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- The RESL Lockout/Tagout system does not clearly differentiate between Danger and Caution tags.
 - During interviews, each Lockout/Tagout Coordinator responded differently when asked when to use a caution tag.
 - Five pieces of obsolete equipment in the Environmental Sciences Branch had yellow caution tags attached, even though DOE 5480.19 says, in part, "use of caution tags should be restricted to those situations in which a component is functional but some precaution is necessary prior to operation."
 - This concern was not addressed in the RESL self-assessment.

CONCERN: Caution tags are not used appropriately at the Radiological and Environmental Sciences Laboratory, as required by DOE 5480.19.
(OP.4-2)
(H2/C1)

- FINDINGS:**
- Fume hoods in Bldg. CF-690 are not equipped with positive sash stops to prevent opening beyond the height that gives a safe face velocity.

- No alarms, lights, or even fluttering ribbons are in place on fume hoods in Bldg. CF-690 to assure workers that the hood fans are operating.
- Some workers interviewed said that they rely on noise to assure them that the fan was running, but that method would fail if the motor and fan became disconnected due to a fan belt failure or other mechanical problem.
- This concern was not addressed in the RESL self-assessment.

CONCERN: Practices associated with operation of fume hoods at the
(OP.4-3) Radiological and Environmental Sciences Laboratory do not provide
(H2/C2) maximum available protection to workers.

Rockwell-INEL

- FINDINGS:**
- Only one of 13 fume hoods in the Analytical Laboratory in Bldg. TAN-607A was equipped with positive stops to limit sash openings to the maximum height that provides adequate face velocity for protection of workers. (Those stops were applied because that particular sash moves exceptionally easily.)
 - Good labels were in place stating that sashes should be opened to positions at or under the maximum allowable opening.
 - No alarms, lights, or fluttering ribbons are in place on hoods in Bldg. TAN-607A to assure workers that hood fans are operating.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN: Practices associated with the operation of fume hoods by
(OP.4-4) Rockwell-INEL do not provide maximum available protection to
(H2/C2) workers.

4.5.3.4 Maintenance

4.5.3.4.1 Overview

Morrison Knudsen - Ferguson of Idaho Company

Following introductory discussions with MK-FIC managers, it was determined by the S&H Subteam that the performance objectives in the Maintenance technical area were not sufficiently applicable to this contractor's activities to warrant a detailed appraisal, and none was performed.

Protection Technology of Idaho, Inc.

This appraisal addressed all eight of the performance objectives in the Maintenance technical area. However, most PTI maintenance is performed by EG&G Idaho under Site Work Releases, so most criteria in the performance objectives related to the performing organization were not addressed. Maintenance at PTI associated with aviation safety was addressed separately and is covered in Section 4.5.3.16 of this report. Similarly, maintenance at PTI associated with weapons safety is covered separately in Section 4.5.3.17 of this report.

This appraisal included interviews with managers and coordinators responsible for maintenance, a review of maintenance records, and tours of Bldg. CF-609 and the range activities at Bldg. CF-B21-608. Special attention was given the interface between PTI and EG&G Idaho in this area.

PTI managers stated that, as the site services contractor, EG&G Idaho provides adequate and timely maintenance for Bldgs. CF-609 and CF-B21-608. Also, according to PTI managers, the EG&G Idaho vehicle maintenance organization provides satisfactory maintenance on over 75 government vehicles assigned to PTI, but vehicle maintenance downtime is longer than desirable for effective use of vehicles.

Although housekeeping was generally satisfactory in PTI facilities during this appraisal, the aircraft maintenance shop was cluttered and untidy. This was stated to be a temporary situation caused by the need to vacate the hangar in preparation for construction activities involving replacement of flammable insulation and repair of floor cracks.

Before maintenance begins on a given Site Work Release in PTI facilities, EG&G Idaho maintenance workers contact PTI maintenance coordinators or the Facility Manager. This contact is effectively assured by the locked doors on both PTI buildings.

Hazardous Work Permits are employed where applicable. These can be required on a given job by either EG&G Idaho maintenance personnel or by PTI personnel.

Maintenance on PTI-operated equipment at plant entrance duty stations is handled by the resident contractor's maintenance organization, and PTI managers stated that this is working satisfactorily.

One concern is expressed concerning the PTI lockout/tagout system, which is not in place but is being implemented through preparation of procedures and purchase of equipment.

Radiological and Environmental Sciences Laboratory

This appraisal addressed all eight of the performance objectives in the Maintenance technical area. However, most RESL maintenance is performed by EG&G Idaho Central Facilities maintenance organizations based upon Site Work Releases prepared by RESL personnel. Therefore, most criteria in the performance objectives related to the performing organization were not addressed. This appraisal included interviews with the RESL maintenance coordinator, RESL machine shop personnel, and RESL Branch Chiefs and tours of Bldgs. CF-638 and CF-690, which are operated by RESL.

Maintenance services provided by EG&G Idaho include recurring preventive maintenance prompted by a computer-controlled schedule as well as various repair requests. Programmatic maintenance is performed by a different part of the EG&G Idaho Central Facilities maintenance organization based upon Site Work Releases prepared by RESL personnel. The interfaces between RESL and EG&G Idaho maintenance personnel appear to be effective, although, a concern is expressed because the required contact at the initiation of work does not appear to be completely and effectively assured. RESL Branch Chiefs did not indicate any significant problems related to delays in obtaining necessary maintenance work.

The RESL maintenance coordinator keeps records of all maintenance requested and performed and is in the process of improving some features of this record-keeping system for more rapid and convenient data retrieval.

EG&G Idaho maintenance employs its lockout/tagout system in connection with maintenance performed in RESL facilities, superimposing them on RESL locks and tags as appropriate. No such locks or tags were being employed during this appraisal, so that system was not appraised.

RESL has no system for required inspection of completed EG&G Idaho maintenance work, relying instead on the EG&G Idaho completion inspections. No problems were observed to be caused by this arrangement, but RESL is considering superimposing its own system, which would be desirable.

RESL has a "Radiological Source Maintenance Plan" for Bldg. CF-638 that was most recently revised on April 29, 1991. This plan incorporates requirements and procedures for daily, monthly, quarterly, and 5-year maintenance of sources and their associated safety systems. This plan appears thorough and technically proper, and meaningful records are kept of these maintenance activities, which are performed by RESL personnel.

Rockwell-INEL

All eight of the performance objectives for the Maintenance Technical area were addressed during this appraisal. Interviews were conducted with the Maintenance Manager, the managers of the five maintenance organizations

reporting to him, and with several senior maintenance technicians. Maintenance facilities and activities were visited and reviewed in Bldgs. TAN-607A, TAN-629, TAN-677, and TAN-679.

The Rockwell-INEL maintenance organization had performed a very detailed self-assessment prior to this appraisal. For every criterion under each of the eight TSA performance objectives, a self-assessment had been performed indicating the degree of compliance, present status, and desirable future actions. A summary of this document was contained in the official Rockwell-INEL self-assessment, and the detailed document provides a good basis for continual improvements in Rockwell-INEL maintenance practices.

The Rockwell-INEL maintenance organization is staffed by competent personnel in all areas reviewed; many of the senior maintenance technicians were involved in facility construction and are very well acquainted with the equipment and the facilities. Despite this, formal, documented training records are scarce, and documented assurance of craftsmen's qualifications is rarely possible. This is covered further in Section 4.5.3.5 of this report.

Voluminous maintenance records are kept, in a readily retrievable manner, including all completed work packages. In addition, much information on maintenance activities is contained in a computerized data base from which an effective predictive maintenance program could be prepared. A concern is expressed that this has not been done.

On the other hand, both corrective and preventive maintenance programs are in existence at Rockwell-INEL and are being executed in accordance with most of the TSA criteria under these two performance objectives.

A total of five concerns are expressed concerning Rockwell-INEL maintenance activities, four of which were also addressed in the Rockwell-INEL self-assessment.

4.5.3.4.2 Findings and Concerns

MA.2 CONDUCT OF MAINTENANCE

PERFORMANCE OBJECTIVE: Maintenance should be conducted in a safe and effective manner to support each facility condition and operation on the site.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- A complete lockout/tagout system was not in place at the time of this appraisal, as required by DOE 5480.19.
 - PTI is currently drafting procedures and purchasing equipment to implement a lockout/tagout system.
 - This concern was addressed in the PTI self-assessment.

CONCERN: See Concern OP.4-1.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Maintenance work orders written by EG&G Idaho for work at RESL have a blank for the user's signature before work is to begin.
 - Work orders for programmatic maintenance by EG&G Idaho also have such a blank.
 - No sign near the entrance exists that requires maintenance personnel to check with the coordinator before undertaking the work.
 - During an interview with the RESL Maintenance Coordinator, three EG&G Idaho maintenance personnel came in and stated that they had started to work on a job on the roof when they noticed a sign stating that Hazardous Work Permits were required for work in the area. They were then, belatedly, beginning the required job-start interaction with RESL.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: An effective system is not in place at the Radiological and Environmental Sciences Laboratory to ensure that maintenance personnel check with the user before undertaking work.
(MA.2-1)
(H2/C2)

Rockwell-INEL

- FINDINGS:**
- OSRs are not incorporated into Rockwell-INEL maintenance procedures.
 - See Concerns OP.3-5 and TS.2-4.

- This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(MA.2-2)
(H2/C2)

Operational Safety Requirements are not incorporated into the Rockwell-INEL maintenance documentation.

MA.4 PLANNING, SCHEDULING, AND WORK CONTROL

PERFORMANCE OBJECTIVE: The planning, scheduling, and control of work should ensure that identified maintenance actions are properly completed in a safe, timely, and effective manner.

Rockwell-INEL

- FINDINGS:**
- For maintenance activities performed on operating lines, post maintenance testing is appropriately accomplished by test operations. However, these are done by operating personnel with little or no involvement of maintenance personnel.
 - For other maintenance activities, no formal post-maintenance testing program exists.
 - This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN: Post-maintenance testing performed by Rockwell-INEL does not meet the requirements of DOE 4330.4A.
(MA.4-1)
(H2/C1)

MA.5 CORRECTIVE MAINTENANCE

PERFORMANCE OBJECTIVE: The material condition of components and equipment should be maintained to support safe and effective operation of all facilities on the site.

Rockwell-INEL

- FINDINGS:**
- Bldg. TAN-677 contains many heavy items on the floor such as cylinders and boxes of metal plate adjacent to maintenance machines; these items are not tied down.
 - Bldg. TAN-677 also contains an extensive array of stored items in four-tier storage, with many heavy items on the top tier.
 - No portable maintenance equipment in storage was observed to be tied down.
 - Initial SMC design included a seismic analysis for buildings and tied down operating equipment, and portions of this analysis are being updated.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(MA.5-1)
(H2/C2)

No seismic analysis has been performed to determine the need to tie down heavy items at Rockwell-INEL facilities.

MA.7 PREDICTIVE MAINTENANCE

PERFORMANCE OBJECTIVE: Maintenance history evaluation and systematic root cause analyses should be used to support maintenance activities and optimize equipment performance.

Rockwell-INEL

- FINDINGS:**
- Predictive maintenance was not initially undertaken at Rockwell-INEL because of the unknown duration of the project.
 - Much information is contained in the computerized maintenance data base that could be employed in a Predictive Maintenance Program at Rockwell-INEL.
 - This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(MA.7-1)
(H2/C1)

There is no formalized Predictive Maintenance Program for the Rockwell-INEL facilities, as required by DOE 4430.4A.

MA.8 PROCEDURES AND DOCUMENTATION

PERFORMANCE OBJECTIVE: Maintenance procedures and related documents should provide appropriate directions and guidance for work and should be used to ensure that maintenance is performed safely and effectively.

Rockwell-INEL

- FINDINGS:**
- Many complex recurring maintenance activities are performed only under Hazardous Work Permits rather than under standard procedures and pre-approved work packages. Examples include the periodic preventive maintenance and refurbishing of rolling mill rollers, and laser maintenance.
 - In lieu of maintenance procedures, effective maintenance relies heavily on specific knowledge and special training of workers assigned to jobs.
 - This concern was partially addressed in the Rockwell-INEL self-assessment.

CONCERN: Pre-approved maintenance procedures are not employed by Rockwell-INEL for complex recurring maintenance activities.
(MA.8-1)
(H2/C2)

4.5.3.5 Training and Certification

4.5.3.5.1 Overview

Morrison Knudsen-Ferguson of Idaho Company

Seven of 11 performance objectives in the Training and Certification technical area were addressed in this appraisal. Reactor Operations, Nuclear Facilities Other Than Reactor, Criticality Safety, and Radiological Protection Personnel were not applicable. The appraisal was conducted through interviews with key training managers and supervisors, evaluation of selected procedures, assessment of training program manuals, review of lesson plans, monitoring of in-progress training, and evaluation of training records. Training facilities were assessed to evaluate the adequacy of the training aids, training environment, and accessibility of training reference material.

MK-FIC is the INEL construction contractor responsible for onsite construction and modification. Training has not received significant attention or priority within the organization in the past. MK-FIC has moved the training responsibilities from the Quality Assurance (QA) Department to the Engineering Department and hired a full-time Training Coordinator in May 1991. During the initial interview, it was stated that DOE Orders regarding training were not applicable to the MK-FIC construction activities. DOE 5480.20 was not used as guidance during development of the MK-FIC training program. Subcontractor training conducted by MK-FIC is minimal. Training requirements are passed to the subcontractors via contracts. General Employee Training (GET) consists of a few hours of information before a site access badge is issued. An arrangement for radiation worker, respirator, 40-hour Superfund Amendments and Reauthorization Act/OSHA, and confined space training for subcontractors requiring this training is established with the local college or contracted to a consultant.

The Training Department is developing job descriptions and training needs analyses for MK-FIC staff personnel. Lesson plans will be developed from the needs analyses. The Training Department plans to write simple, one page lesson plans for the required subjects and rely on the assigned class instructor to provide the needed information. The one lesson plan available for review was considered weak. The lesson plan detail was insufficient to ensure consistent training from class-to-class. The Training Coordinator is developing a lesson plan writers guide.

Based on this assessment, MK-FIC is judged to be lagging in the development of a performance-based Training Program. Considering the present Training Department staffing level, development progress is expected to be slow.

Protection Technology of Idaho, Inc.

Five of 11 performance objectives in the Training and Certification technical area were addressed in this appraisal. Reactor Operations, Nuclear Facilities Other Than Reactor, Maintenance Personnel, Criticality Safety, Quality Control and Nondestructive Examination Technician, and Radiological Protection Personnel were not applicable. The appraisal was conducted through interviews

with key training managers and supervisors, evaluation of selected procedures, assessment of training program manuals, review of lesson plans, monitoring of in-progress training, and evaluation of training records. Training facilities were assessed to evaluate the adequacy of the training aids, training environment, and accessibility of training reference material.

PTI is the INEL protective force. PTI's responsibilities include protection of DOE security interests from theft, sabotage, and other hostile acts. The training provided to PTI personnel is prescribed in DOE 5632.7, "Protective Forces." Training is a major element of the security program. Procedures and policy directives define initial and recurring training requirements for PTI staff, including managers and supervisors. Training is performance based with evaluations that assure professional qualifications and certifications are maintained to established standards. Lesson plans and performance-based training requirements are supported by task analysis and job descriptions. Training requirements are promulgated in the PTI Annual Training Plan. Special exercises and field operations, with required approved safety plans, are conducted on a systematic basis. Training facilities include classrooms, exercise workout rooms, and a weapons firing range. The training staff is sufficient and qualified to perform required instructional activities.

Based on this appraisal, PTI's Training Program is a quality program.

Radiological and Environmental Sciences Laboratory

Six of 11 performance objectives in the Training and Certification technical area were addressed in this appraisal. Reactor Operations, Nuclear Facilities Other Than Reactor, Maintenance Personnel, Criticality Safety, and Quality Control and Nondestructive Examination Technician were not applicable. (See Section 4.5.3.12 of the report for radiation protection personnel training.) The appraisal was conducted by means of interviews with key training managers and supervisors, evaluation of selected procedures, assessment of training program manuals, review of lesson plans, monitoring of in-progress training, and evaluation of training records. Training facilities were assessed to evaluate the adequacy of the training aids, training environment, and accessibility of training reference material.

RESL operates under the ID and performs INEL environmental monitoring, audit activities at other DOE laboratories, and management responsibilities for radiation dosimetry programs. The staff consists of professional chemists, radiological sciences personnel, environmental sciences personnel, and laboratory technicians. RESL employed an industrial hygienist in February 1991 to improve the safety awareness of the Laboratory staff. One facet of the job is to conduct industrial safety classes for the laboratory personnel. Currently, this training is not mandatory; although, attendance is encouraged by management. ID is developing job descriptions and task analyses for the RESL and all of the ID staff. Determination of training needs will be based on the completed analyses. The RESL Training Program is presently unstructured. The requirements for RESL training were promulgated in the June 1991 ID Training Program Manual, but full implementation of the Training Program elements has not been accomplished. Training records are maintained in a central file by the ID. The records in the ID data base do not match the

records held at the Laboratory. ID is in the process of consolidating and updating training records for all employees; however, data entry is backlogged for several months. RESL uses an annual individual development plan for each employee; however, the individual plan does not include required health and safety training. Entry-level educational requirements for employment at the Laboratory are high and assume knowledge of normal laboratory safety practices; however, RESL should ensure that its employees are trained to DOE standards. Assumption of knowledge does not assure safety. A formal training program will ensure worker safety awareness during day-to-day operations.

ID has established a training branch that will develop and administer the RESL and ID training. A Training and Development Branch Chief has been hired and is currently staffing the department; however, the staffing level appears to be low in relation to the total number of ID staff. A training matrix has been developed that details required training as specified in various DOE Orders; however, the implementation of the required Training Program is not yet accomplished. Based on this appraisal the RESL training is acceptable to protect the workers health and safety. The improvements in progress and planned will strengthen the Training Program by developing formal performance based training for the ID.

Rockwell-INEL

Nine of 11 performance objectives in the Training and Certification technical area were addressed in this appraisal. Reactor Operations, and Criticality Safety were not applicable. The appraisal was conducted through interviews with key training managers and supervisors, evaluation of selected procedures, assessment of Training Program manuals, review of lesson plans, monitoring of in-progress training, and evaluation of training records. Training facilities were assessed to evaluate the adequacy of the training aids, training environment, and accessibility of training reference material.

Rockwell-INEL operates the Standard Manufacturing Capability (SMC) Project for the DOE. Training of operators and staff personnel is provided by the Training and Organizational Development (T&OD) Department. T&OD has increased the department staff level by seven since late 1990 to support the company's training commitments. The added Training Department resources indicate that management is solidly supporting training. Performance-based training is being established. Training needs analysis, task analysis, and job descriptions are being created to provide the foundation for the performance-based training. Rockwell-INEL has identified training requirements for high risk tasks as priority items. Management tracks the development of priority identified training requirements with a computer-based Task Management System. Training records are being consolidated in the T&OD Department and record consolidation is estimated to be about 70 percent complete. T&OD develops an annual training program for each employee that details required classes, requalification courses, and any special training needs. First line supervisors and management are involved in the development of the employee annual training plan.

Based on this assessment, Rockwell-INEL has placed a high priority on the development of a performance-based Training Program and has provided the resources to achieve the training goals. The T&OD Department has focused the training staff to meet these goals. Rockwell-INEL development of a performance-based Training Program is headed in the right direction.

4.5.3.5.2 Findings and Concerns

TC.1 ORGANIZATION AND ADMINISTRATION

Performance Objective: The training organization and administration should ensure effective implementation and control of training activities.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- Job descriptions and training needs analysis have not been established for all positions.
 - Job descriptions and training needs analysis are not accomplished for subcontractors.
 - The Training Department consists of only one person.
 - No program has been established to train instructors.
 - The progress toward development of a performance-based Training Program is insufficient to complete the development process in a timely manner.
 - This concern was partially addressed in the MK-FIC self-assessment.

CONCERN: Health and safety training for Morrison Knudsen-Ferguson of Idaho Company workers is not based on a training needs analysis.
(TC.1-1)
(H2/C2)

- FINDINGS:**
- The one lesson plan available for assessment was judged to be weak.
 - The lesson plan detail was insufficient to ensure consistent training from class-to-class or when used by separate instructors.
 - The lesson plan writers guide (drafted during this appraisals period) has not been reviewed and approved by management, and is not required to be used for the development of lesson plans by upper-tier procedures.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: The detail contained in Morrison Knudsen-Ferguson of Idaho Company lesson plans is insufficient to ensure quality training on a consistent basis.
(TC.1-2)
(H2/C2)

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- There is not an effective performance-based Training Program established at the RESL.
 - The Administrative Officer coordinates the training and training records for the RESL.
 - ID has recently assigned a Training Coordinator to develop a Training Program for RESL.
 - ID has recently established a Training and Development Branch and employed a Branch Chief.
 - ID is in the process of staffing the Training and Development Branch. The present staffing level is three.
 - This concern was addressed in the ID self-assessment.

CONCERN:
(TC.1-3)
(H2/C2)

The present staffing level for the DOE Field Office, Idaho, Training and Development Branch does not support the development of a quality Training Program for the Radiological and Environmental Sciences Laboratory and other branches.

- FINDINGS:**
- The training records maintained for the RESL by ID are not effective.
 - The ID training records are not consistent with the training conducted for the RESL staff.
 - Entry of training records to the ID database is backlogged by several months.
 - This concern was addressed in the ID self-assessment.

CONCERN:
(TC.1-4)
(H2/C2)

The DOE Field Office, Idaho, training record system is out of date and not being used as an effective management tool for assessing training needs or documenting training conducted for the Radiological and Environmental Sciences Laboratory.

TC.3 NUCLEAR FACILITIES OPERATIONS OTHER THAN REACTORS

PERFORMANCE OBJECTIVE: The nuclear facility Operator and Supervisor Training and Certification Programs should be based on DOE 5480.20, as applicable, and should develop and improve the knowledge and skills necessary to perform assigned job functions.

Rockwell-INEL

- FINDINGS:**
- Operator training is currently being conducted by on-the-job training methods; however, no formal training program for performance-based training is implemented.
 - Rockwell-INEL is in the process of developing a formal Operator Training Program, and is currently writing job descriptions and task analyses to prepare instruction guides and lesson plans; however, they are not conducting operator training in accordance with DOE 5480.20 at this time.
 - Rockwell-INEL has employed additional T & OD Department staff within the last year to support the development of a quality training program.
 - Rockwell-INEL has identified high risk tasks and has established a priority for the development of performance-based training for these tasks.
 - Operator response drills to abnormal conditions and off-normal events are not conducted in the facility.
 - This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN: The Rockwell-INEL Operator Training Program does not meet the criteria of DOE 5480.20.
(TC.3-1)
(H2/C1)

TC.4 GENERAL EMPLOYEE/PERSONNEL PROTECTION TRAINING

PERFORMANCE OBJECTIVE: General Employee and Personnel Protection Training Programs should ensure that site/facility personnel, subcontractors and visitors have an understanding of their responsibilities and expected safe work practices, and have the knowledge and practical abilities necessary to effectively implement personnel protection practices associated with their work.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- MK-FIC GET Program for employees and subcontractors consists of 2 to 3 hours of video presentation, followed by an examination.
 - The training does not provide any definition or awareness recognition of a confined space.
 - The purpose of danger and caution tags is not covered in the GET Program.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: The scope of the Morrison Knudsen-Ferguson of Idaho Company General Employee Training Program is insufficient for workers and others to recognize hazardous conditions or protective safety tags.
(TC.4-1)
(H2/C2)

- FINDINGS:**
- The GET examination only covers the security aspects of the training.
 - Other areas such as emergency signal recognition, radiation signs and their meaning, and proper use of hazardous material satellite accumulation areas are not tested.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: Worker understanding of all safety and health information presented in the Morrison Knudsen-Ferguson of Idaho Company General Employee Training is not evaluated, as required by DOE 5480.20.
(TC.4-2)
(H2/C1)

Rockwell-INEL

- FINDINGS:**
- The GET Program is provided to all employees.
 - The examination to test the trainees' knowledge does not address all elements of the provided training.

- The Training Department has recognized the examination's lack of scope and is in the process of preparing a comprehensive examination.
- This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(TC.4-3)
(H2/C1)

Rockwell-INEL does not evaluate the degree of trainee understanding of General Employee Training material, as required by DOE 5480.20.

TC.5 MAINTENANCE PERSONNEL

PERFORMANCE OBJECTIVE: The Maintenance Personnel Training Qualification Program should develop and improve the knowledge and skills necessary to perform job functions.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- MK-FIC personnel perform very limited maintenance activities at the INEL. They do some preventive maintenance on equipment stored in the Fuel Reprocessing Plant warehouse, warehouse ventilation systems, and routine maintenance on loaders and fork lifts. Most maintenance is performed by subcontractors.
 - Subcontractor occupational safety practices and industrial hygiene training requirements are passed through to the subcontractor from MK-FIC via contract requirements.
 - MK-FIC does not assess specific training requirements, by task analysis, for subcontractor maintenance workers.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: See Concern WS.5-6

Rockwell-INEL

- FINDINGS:**
- Maintenance worker training is conducted by on-the-job training and vendor training, both onsite and offsite.
 - A maintenance worker performance-based training program has not been implemented.
 - Rockwell-INEL has recognized the lack of a formal Maintenance Worker Training Program and has employed a Maintenance Training Specialist to develop the maintenance training program.
 - Job descriptions and task analyses are being performed for the development of instructional guides and lesson plans.
 - This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN: Rockwell-INEL has not implemented a performance-based Maintenance Training Program for maintenance workers, as required by DOE 5480.20.
(TC.5-1)
(H2/C1)

TC.7 TRAINING FACILITIES

PERFORMANCE OBJECTIVE: The technical support organization and administration should ensure effective implementation and control of technical support activities.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- There are no dedicated training classrooms in the MK-FIC facilities.
 - Training is accomplished in conference rooms or in a weld/fabrication shop located in the lower level of the main office building.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN:
(TC.7-1)
(H3/C2)

Morrison Knudsen-Ferguson of Idaho Company's lack of dedicated training classroom space inhibits the ability to conduct quality training.

TC.9 RADIOLOGICAL PROTECTION PERSONNEL

PERFORMANCE OBJECTIVE: The Radiological Protection Personnel Training and Qualification Program should develop and improve the knowledge and skills necessary to perform assigned job functions.

Rockwell-INEL

- FINDINGS:**
- The training program for Health Physics personnel is not a formal program, as required by DOE 5480.11.
 - The training program for Health Physics personnel consists of on-the-job training, which is accomplished by other qualified technicians, Training and Organizational Development (T&OD) training specialists, or the Health Physics supervisor. A qualification card is checked off when the trainee demonstrates knowledge of the subject.
 - Rockwell-INEL has determined that the Health Physics Training Program can be significantly improved. A performance-based Health Physics training program is being developed by the T&OD staff.
 - This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN: The Rockwell-INEL Health Physics Training Program does not include classroom training, as required by DOE 5480.11.
(TC.9-1)
(H2/C1)

- FINDINGS:**
- A training program is established for radiation workers at the facility.
 - This assessment of the Radiation Worker Training Program indicated that training is sufficient in detail and topic matter.
 - When interviewed, the instructor demonstrated excellent knowledge of the subject.
 - During a walkdown of the facility, two out of two workers were observed to demonstrate poor frisking techniques. Both workers moved the frisker probe too fast and one maintained the probe in direct contact with his skin, clothing, and shoes.
 - Frisker alarm setpoints are set at 500 counts per minute. The industry normal is to set the alarm point at 100 counts per minute above background.

- Some frisking probes were left in a face down position that requires handling of the probes before frisking of the hands can be accomplished. Normal practice is to leave the probe with the probe face in the up position.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(TC.9-2)
(H2/C2)

Observed frisking practices do not demonstrate that the Rockwell-INEL Radiation Workers Training is effective.

TC.10 TRAINING FOR SUPERVISORS, MANAGERS AND TECHNICAL STAFF

PERFORMANCE OBJECTIVE: Training programs for supervisors, managers, and the technical staff should broaden overall knowledge of processes and equipment and develop supervisory and management skills.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- No training program is in place for managers, supervisors, and the technical staff.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company does not provide training for managers, supervisors, and technical staff to broaden their knowledge and supervisory and management skills, as required by DOE 5480.19.

- FINDINGS:**
- No training program exists for training the emergency preparedness response team.
 - Job descriptions for area wardens have not been established.
 - No training exercises or drills are conducted by MK-FIC in the MK-FIC facilities or construction sites.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: See Concern EP.3-1.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- A training program for emergency preparedness has not been implemented.
 - PTI has recently established an Emergency Preparedness Coordinator position.
 - PTI is developing an Emergency Preparedness Training Program.
 - This concern was addressed in the PTI self-assessment.

CONCERN: See Concern EP.3-2.

TC.11 SIMULATOR TRAINING/FACILITIES EXERCISES

PERFORMANCE OBJECTIVE: Simulator training and/or facility exercises should be conducted utilizing methods and techniques that are effective in developing and maintaining team and individual knowledge and skills in responding to abnormal and emergency events, and in integrated operations.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- No training exercises or drills are conducted by the RESL facility personnel.
 - Personnel response to facility incidents such as failure of hood ventilation, loss of control of radioactive material, chemical spills in the laboratory, or fire in the facility are not evaluated.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: Radiological and Environmental Sciences Laboratory personnel may not be capable of performing required tasks during off-normal situations due to a lack of training and drills.
(TC.11-1)
(H2/C2)

4.5.3.6 Auxiliary Systems

4.5.3.6.1 Overview

Morrison Knudsen-Ferguson of Idaho Company

No appraisal was conducted at MK-FIC because the nine performance objectives did not apply to the types of facilities at MK-FIC.

Protection Technology of Idaho, Inc.

Four of the nine performance objectives in the Auxiliary Systems technical area were addressed in this appraisal. The performance objectives for Effluent Holdup and Treatment, Storage and Handling of Fissile Material, Heat Removal Systems, Engineered Safety Systems, and Coolant Cleanup Systems did not apply because PTI did not have such systems. The appraisal was conducted through interviews with management and safety personnel, and review of documents including the PTI self-assessment. Facilities visited included Bldg. CF-609 and the Firing Range.

PTI appeared to operate efficiently in those areas where it has identified responsibilities. However, there are areas where it has operating responsibilities that it has left to another organization, namely EG&G Idaho. This splitting of responsibility often results in confusion as to who is really responsible and leaves the operating organization without effective status control or communication with the second, or service, organization. The self-assessment in the auxiliary systems area was mostly an audit of compliance with waste management and waste minimization. These two areas of the program, while incomplete, appear to be progressing satisfactorily.

The ventilation system at the firing range contains certified high-efficiency particulate air (HEPA) filters, which are installed by EG&G Idaho. However, PTI personnel were not aware of what tests were required or what tests were performed, if any. Unless the HEPA filters are tested after installation, large leaks may exist due to poor sealing around the gaskets. Leaks around the HEPA filters would pollute the recirculated air. No information was available on the safety analysis or the required efficiency of the system.

The diesel generator at Bldg. CF-690 is required to provide auxiliary power for the Central Alarm System and for communication. PTI personnel did not know whether it was of "emergency" or "standby" class or how it was tested. PTI has never assumed its responsibilities to know whether the diesel is being maintained and tested properly.

Two concerns were identified at PTI; neither had been addressed in the PTI self-assessment.

Radiological and Environmental Sciences Laboratory

Four of the nine performance objectives in the Auxiliary Systems area were addressed in this appraisal. Five performance objectives, Effluent Holdup and Treatment, Vital Supply Systems, Heat Removal Systems, Engineered Safety

Systems, and Coolant Cleanup Systems did not apply because such systems were not installed at RESL. The appraisal was conducted through interviews with management and technical personnel, and review of documents including the RESL Manual, Unusual Occurrence Reports, and the RESL self-assessment. The visits and reviews were conducted at the Radiological and Environmental Sciences Laboratory (Bldg. CF-690).

The RESL has a number of problems in the radiological and hazardous waste area, but these are generally recognized and corrective measures and programs are underway or planned. One of these problems is that the need for monitoring of the gaseous effluent from laboratory fume hoods (which may contain hazardous chemicals) has yet to be determined.

The lack of operational responsibility toward the hood ventilation system is a concern. Since EG&G Idaho provides the maintenance for the hood ventilation system, it is understandable for personnel to have the attitude that EG&G Idaho will take care of everything. Such a split responsibility usually results in the operating organization having poor communication with maintenance and in the interests of the operating organization not being fully represented. Without an active, hands-on ownership attitude, the operating organization cannot have its safety requirements fully appreciated and observed by the maintenance organization. Such a situation was observed where the procedures for washdown of the hood ventilation ductwork does not prevent the buildup of explosive, shock-sensitive perchlorates in the ductwork.

Another concern relates to the possibility of toxic substances diffusing out of the hoods into the laboratory in the event of fan failure.

Of three concerns identified in the auxiliary system area, one was not addressed, one was partially addressed, and one was addressed in the RESL self-assessment.

Rockwell-INEL

Five of nine performance objectives were addressed in the Auxiliary Systems technical area of the appraisal. Four performance objectives, Storage and Handling of Fissile Material, Heat Removal Systems, Engineered Safety Systems, and Coolant Cleanup Systems were not addressed because such systems were not required in the facility. The appraisal was accomplished by interviewing senior management and staff members, reviewing documents, visiting various facilities, and attending briefings by Rockwell-INEL personnel. Facilities visited included Bldgs. TAN-629, TAN-679, TAN-607A, TAN-628, TAN-681, and TAN-675.

In general, Rockwell-INEL is doing a satisfactory job in the area of auxiliary systems; however, their self-assessment process was mostly an audit of compliance against current standards, and this did not go into enough detail to reveal many basic problems. An omission of an SAR requirement in two of the OSRs and failure to perform the required surveillance for the past 4 years is particularly serious.

Procedures exist in most cases; however, some are out of date, and in many cases contain language that divides responsibility for a system. It is important to avoid splitting responsibilities and to ensure that responsibility for a system remains squarely in one organization.

Serious incidents are reported as Unusual Occurrence Reports and as Critiques; however, less serious incidents are not reported in a manner that brings them to the attention of management. Such incidents often give indication of a serious problem.

The process ventilation and utilities appeared to be operated efficiently; however, the SARs which relate to these processes are classified and the operators are deprived of information on their safety obligations. Language in OSRs and procedures that splits responsibility also reduces the clarity and definition of responsibilities.

A poster illustrating the procedures for segregating waste was considered a Noteworthy Practice.

The accuracy of HEPA filter tests is suspect, and documentation could not be found to prove that the designs meet the applicable standard.

The two diesel generators, which supply auxiliary power, are attenuately referred to as "emergency" and "standby". The present testing procedures do not qualify the diesels as "emergency" and the SARs do not clearly state or justify which classification applies.

A concern also arose from the design of the process ventilation stack sampling system, which is necessary to measure the amount of radioactivity being released under normal conditions and also to alert personnel to any sudden release of radioactivity that might occur under abnormal conditions such as an explosion in the ducts or a filter rupture. Due to the length and numerous bends of the sampling lines there is a potential for any particulates to settle out before reaching the detector.

Temporary procedures must sometimes be used, but no standard format was found in the auxiliary systems area. Log book entries and Special Work Permits were some of the methods used; neither of these methods provide positive control and frequent review, while retaining the ready access needed.

Of the 10 concerns identified in the auxiliary systems area, 8 were not addressed, 1 was partially addressed, and 1 was addressed in the Rockwell-INEL self-assessment.

4.5.3.6.2 Findings and Concerns

AX.1 SYSTEMS REQUIREMENTS

PERFORMANCE OBJECTIVE: Auxiliary systems should be considered under the same functional criteria for design, engineering, operations, maintenance, and modifications as the structural, confinement, and primary process system of the facility.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- The ventilation system at the firing range and the diesel generator for auxiliary power are tested and maintained by EG&G Idaho personnel who have site service responsibilities; PTI personnel did not have any knowledge of the tests performed by EG&G Idaho or the requirements to keep these systems in a safe status.
 - The attitude toward the auxiliary systems was that PTI had no responsibility for them; however, these systems provide safety-related services to PTI operations.
 - PTI does not recognize its operating responsibility for its systems.
 - Housekeeping at the diesel generator was poor.
 - The responsibility for auxiliary systems at PTI is not clearly defined, as required by DOE 5480.5, Section 8b.
 - See Concerns TS.3-1 and FP.7-1.
 - This concern was not addressed in the PTI self-assessment.

CONCERN:
(AX.1-1)
(H2/C2)

Protection Technology of Idaho, Inc. has no one with operating responsibility for their auxiliary systems to deal with EG&G Idaho, Inc. to ensure that the required tests are performed, that problems which arise are properly communicated and investigated, and that the safety status is known by the operating group.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- The major auxiliary system, hood ventilation, is maintained by EG&G Idaho, which has been assigned site service responsibility; however, the operation of this system affects the safety of RESL operations.
 - Interviews with personnel at Bldg. CF-690 gave the impression that no one had an operating responsibility for the ventilation system.

- EG&G Idaho reports on tests and maintenance are sent to an administrator at RESL.
- RESL exercises insufficient operating and safety responsibility for the ventilation system. This lack of responsibility produces gaps and misunderstandings in equipment system safety.
- Maintenance procedures for the RESL perchloric acid ductwork do not prevent the buildup of shock-sensitive perchlorates. (See Concern PP.4-4.)
- This concern was not addressed in the RESL self-assessment.

CONCERN:
(AX.1-2)
(H2/C2)

Radiological and Environmental Sciences Laboratory Management does not recognize its operating responsibilities for the process ventilation system to ensure that the safety status of the system is known, and that safety problems are communicated to EG&G Idaho, Inc.

Rockwell-INEL

FINDINGS:

- The OSRs do not contain all requirements of the SARs. For example, an annual inspection mandated in two SARs was not included in the corresponding OSRs.
- All SAR requirements should be included in the OSRs. These are the vehicle by which SAR requirements are defined with appropriate frequency of surveillance requirements.
- See Concern TS.2-2.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN: See Concern AX.5-3.

FINDINGS:

- A procedure exists for reporting serious incidents under DOE 5000.3A and for lesser incidents as critiques, but no procedure exists for reporting incidents below this level of severity.
- Minor incidents now may be recorded in logs or are unreported.
- Failure to maintain a record of this type of information deprives management of valuable information that may indicate trends and other warnings, which otherwise are lost.
- See Concerns TS.4-1 and PT.5-1.

- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(AX.1-3)
(H2/C2)

Rockwell-INEL does not have a system to report and evaluate minor events.

FINDINGS:

- There were no standard methods for preparing temporary procedures for auxiliary systems such as ventilation, utilities, and waste management.
- Various methods were in use for developing temporary procedures including log book entries and special work permits.
- Neither of these methods are suitable since temporary procedures may sometimes need to be in effect for several days or longer.
- It was stated that a convenient method for developing temporary procedures was available for the production line, but this had apparently not been provided to other groups.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(AX.1-4)
(H2/C2)

Rockwell-INEL does not have a method of developing temporary procedures for auxiliary systems.

AX.2 EFFLUENT HOLDUP AND TREATMENT

PERFORMANCE OBJECTIVE: Effluent holdup and treatment should ensure that the amount of hazardous substances released to the environment as escaping emissions and/or as effluent gaseous or liquid releases are less than DOE and EPA standards and are ALARA.

Rockwell-INEL

- FINDINGS:**
- The sampling systems for the process ventilation stacks at Bldgs. TAN-629, TAN-679, and TAN-607A consist of sampling lines leading from the stack to a Continuous Air Monitor (CAM).

The sampling lines are long, in some cases over 40 feet, and contain numerous sharp bends.
 - Design features such as long lines and numerous sharp bends do not meet recommendation of ANSI 13.1.
 - No data could be found to ensure that the design would reliably deliver a sample of the exhaust gas to the CAM under accident conditions where the filters had been breached.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(AX.2-1)
(H2/C2)
The monitoring systems for Buildings TAN-629, TAN-679, and TAN-607A process ventilation stacks at Rockwell-INEL have features that inhibit reliable sampling, and no test has demonstrated that they will deliver a representative sample.

- FINDINGS:**
- A number of tanks and associated piping contain corrosive materials; occasional leaks and failures have resulted.
 - Corrosion cannot be completely eliminated in most systems.
 - It is good practice to provide surveillance procedures designed to detect and measure age-related degradation of systems.
 - See Concern TS.4-1.
 - This concern was addressed in the Rockwell self-assessment.

CONCERN:
(AX.2-2)
(H2/C2)
No surveillance program is in effect to detect and measure age-related degradation of auxiliary systems at Rockwell-INEL.

AX.3 SOLID WASTES

PERFORMANCE OBJECTIVE: Solid hazardous wastes (including radioactive wastes) should be controlled to minimize the volume generated, and handled in a manner that provides safe storage and transportation.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- A small amount of radioactive waste is being stored until it can be shipped.
 - Internal problems with the disposal of hazardous waste are holding up both radioactive and hazardous waste disposal.
 - Procedures for storage, minimization, characterization, and handling of radioactive and hazardous wastes need to be updated.
 - An assessment of waste streams and a characterization procedure are needed to quantify releases to determine if these are below Environmental Protection Agency and DOE standards.
 - This concern was addressed in the RESL self-assessment.

CONCERN:
(AX.3-1)
(H2/C2) The Radiological and Environmental Sciences Laboratory has not implemented programs to minimize waste and to ship accumulated waste.

Rockwell-INEL

- FINDINGS:**
- Procedures exist for waste management but do not reflect current requirements; some procedures pertain to discontinued operations.
 - There did not appear to be a method of making simple changes in procedures without long delays.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(AX.3-2)
(H3/C2) Auxiliary system procedures at Rockwell-INEL contain sections for operations that have long been discontinued.

- FINDINGS:**
- Procedures for the Rockwell-INEL waste management organization specified certain actions to be the responsibility of other Rockwell-INEL organizations.
 - An operating organization should have a clear and total responsibility for the system being operated, as required in DOE 5480.5, Section 8.b. Splitting responsibility among

several organizations reduces the responsibility of the operating organization and leaves questions about the responsibilities of each organization.

- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(AX.3-3)
(H2/C1)

The Rockwell-INEL waste management organization is not assigned complete responsibility for the waste system, as required by DOE 5480.5, Section 8.b.

AX.5 VENTILATION SYSTEMS

PERFORMANCE OBJECTIVE: Ventilation systems should reliably direct all airborne effluents from contaminated zones or potentially contaminated zones through cleanup systems to ensure that the effluent reaching the environment is below the maximum permissible concentration and is ALARA.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- An elaborate ventilation system at the firing range is provided to remove lead with electrostatic, roughing, and HEPA filtration.
 - PTI personnel did not have information as to the system requirements, testing, or safety status of the system.
 - EG&G Idaho maintains the system and installs the filters.
 - PTI personnel reported that EG&G Idaho stated that it does not test the installed filters, but that it does ensure that the HEPA filters had been tested and certified at Rocky Flats.
 - PTI has no documentation on the requirements of the installed filter system.
 - Since leaks can occur around the edges of filter frames, the present method of testing does not guarantee that the system is free of leaks.
 - This concern was not addressed in the PTI self-assessment.

CONCERN:
(AX.5-1)
(H2/C2)

Protection Technology of Idaho, Inc. personnel do not have sufficient understanding of the firing range ventilation system or its testing requirements and cannot ensure that it is operating in a manner that will keep airborne pollutants below permissible limits.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- No monitoring of any kind is provided on the Bldg. CF-690 fume hood ventilation exhaust systems.
 - A study done for National Emissions Standard for Hazardous Air Pollutants indicated that radioactive emissions did not justify monitoring.
 - A study of hazardous chemicals emissions has not yet been conducted. The State of Idaho was reported to be planning to make a determination of the need for monitoring.

- Only two hazardous chemicals were reportedly used in the hoods (xylene and perchloric acid). A program to reduce the usage or replace these with less dangerous materials may eliminate the need for monitoring.
- This concern was partially addressed in the RESL self-assessment.

CONCERN:
(AX.5-2)
(H2/C2)

The need for gaseous effluent monitoring of fume hood ventilation systems at the Radiological and Environmental Sciences Laboratory has not been determined.

FINDINGS:

- The fume hood window sashes are kept at or below the marked point at which the quarterly calibration has demonstrated sufficient velocity for Class A (125 feet per minute) or Class B (100 feet per minute).
- It was reported that the most toxic substance used in the hoods was xylene.
- This material would diffuse into the laboratory atmosphere if the hood ventilation were lost due to power or mechanical failure, and this might not be recognized immediately.
- Other than the noise of air moving through the hood, there is no indication of the loss of flow.
- This concern was not addressed in the RESL self-assessment.

CONCERN:

See Concern OP.4-3.

Rockwell-INEL

FINDINGS:

- The SARs for Bldgs. TAN-629 and TAN-607A require that an annual inspection be made of the process ventilation ducts to verify that no dust buildup has occurred.
- This requirement was not listed in the OSRs.
- No record of annual inspections of the ducts (as required by the SARs) could be found.
- Personnel interviewed were generally unfamiliar with this requirement.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(AX.5-3)
(H2/C1)

Rockwell-INEL Operational Safety Requirements for Buildings TAN-629 and TAN-607-A do not contain all of the surveillances specified by the Safety Analysis Reports, as required by DOE 5480.5, and the surveillances are not being performed.

FINDINGS:

- The HEPA filters in the process ventilation system are installed in banks with arrays as large as 12 (3 x 4).
- Each bank consists of a prefilter, followed by a noncertified HEPA, followed by a certified HEPA.
- The installation has injection and sampling nozzles located only a few inches from the face of the filter being tested.
- Although the system has detected leaks in the past, data could not be found to assure that this design could detect leaks around the edges of the filter as efficiently as leaks closer to the sampling nozzles.
- This concern was partially addressed in the Rockwell-INEL self-assessment.

CONCERN:
(AX.5-4)
(H2/C2)

Rockwell-INEL does not have documentation to demonstrate that high-efficiency particulate air filter tests provide accurate results.

AX.6 VITAL SUPPLY SYSTEMS

PERFORMANCE OBJECTIVE: The electric, water, and emergency power systems should reliably provide vital services as required by all facilities on the site.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- A diesel generator provides auxiliary power for the Central Alarm System and for communications at Bldg. CF-609.
 - The personnel interviewed did not know whether the generator was a "standby" or "emergency" class generator.
 - No information could be obtained as to the method of testing.
 - The safety significance of the generator was not known.

CONCERN: See Concern AX.1-1.

Rockwell - INEL

- FINDINGS:**
- Diesel generators are located at Bldgs. TAN-629 and TAN-679 to supply a number of loads if the normal power fails. The reliability requirements of these generators is uncertain. For example,
 - The SAR for one building refers to "standby" power and "emergency" power; the other refers to "standby" power.
 - Most Rockwell-INEL documents refer to "emergency" power.
 - The SARs for these buildings do not justify making the generators "standby" (which refers to a lower grade of reliability). If the diesels are classified as "standby" they do not have to be tested under NFPA 110.
 - The diesels are tested quarterly under load, but the installed load is less than one-half the capacity of the generators, and no resistive load is available to fully load the generators, as required by NFPA 110, if they are "emergency" class.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(AX.6-1)
(H2/C2)

The testing of the diesel generators for Building TAN-629 and TAN-679 does not conform to the requirements of NFPA 110 for emergency generators, and Rockwell-INEL documents do not clearly define whether or not these are emergency generators.

FINDINGS:

- The fuel from the diesel generators for Bldgs. TAN-629 and TAN-679 is stored in underground tanks. Since the usage is low, the fuel is stored for long periods (years).
- Although no problem has been observed here, there have been reported instances where such fuel has become thick due to formation of gum-like compounds.
- Some facilities now routinely test for such materials in their fuel.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(AX.6-2)
(H2/C2)

Rockwell-INEL does not test for formation of gum-like compounds in diesel fuel stored for the TAN-629 and TAN-679 diesel generators.

4.5.3.7 Emergency Preparedness

4.5.3.7.1 Overview

Morrison Knudsen-Ferguson of Idaho Company

The appraisal of MK-FIC addressed five of the seven performance objectives in the Emergency Preparedness technical area. The two performance objectives not addressed were Emergency Assessment and Notification, and Personnel Protection. These two objectives were not addressed due to time constraints of appraising three other contractor organizations.

The appraisal consisted of interviews with management representatives and on emergency preparedness point of contact working in fuel processing and restoration. These interviews were also used to determine the actual process on how the Emergency Preparedness Program was being managed, implemented, controlled, and conducted on a day-to-day basis. The appraisal also consisted of emergency plan and procedure review, programmatic administrative documents, and applicable exercise, training, and supporting documents used to validate the program. The emergency preparedness program was evaluated against the DOE 5500 and DOE 5480 Orders Series, ANSI standards, and accepted industry practices.

The appraisal process identified that MK-FIC has a very limited program and the primary focus of the Emergency Preparedness Program is support to the affected facility. It was evident during the appraisal process that the interfaces between MK-FIC and EG&G Idaho was limited to plan exchange. The program is administered by the ES&H Manager with no dedicated resources allocated to emergency preparedness. Program responsibility is clear to MK-FIC because there is a single point of contact for planning.

The MK-FIC Emergency Plan was taken almost entirely from the ID, Idaho Draft Emergency Plan. The emergency plan has several technical problems such as not containing guidance provided by DOE Orders and needs to be reviewed by affected organizations. The plan that was reviewed was a new document dated June 1, 1991.

Implementing procedures were not available and not developed in accordance with the applicable DOE 5500 Orders series. Guidance from ID, Idaho indicated that the TSA criteria did apply to MK-FIC and implementation has been started.

The training program for emergency preparedness has just begun with little progress in areas of response organization, cadre training being done or documented. The training documented in Emergency Preparedness was for the emergency plan. Also, Area Warden Training was reviewed for those individuals with this responsibility and the documentation was provided. The lesson plan and objectives were not in accordance with DOE Orders or accepted practices, but materials such as presentations were used for training.

The overall concern for MK-FIC's Emergency Preparedness Program is that it does not comply with DOE Orders in any of the performance objectives reviewed.

There are no dedicated resources working to bring the program into compliance, and management has stated that it intends to do the best it can with current staffing levels. MK-FIC serves as a support organization to EG&G Idaho during an emergency with potential for assistance to many sites at once. There are no administrative personnel formally assigned to the program, and this is evidenced by the lack of procedures, assessments, 5-year plan, training, and other requirements/documentation not officially signed and distributed.

The self-assessment did not identify many of the deficiencies within the Emergency Preparedness Program. The self-assessment report is hard to read and does not allow for easy review and audit of program status.

Protection Technology of Idaho, Inc.

The appraisal of PTI addressed four of the seven performance objectives in the Emergency Preparedness technical area. The performance objectives not addressed were Drills and Exercises, Assessment and Notification, and Personnel Protection.

The overall appraisal consisted of interviews with management representatives, the PTI Emergency Preparedness Specialist, and a selected Area Warden for the PTI Bldg. CF-690. The appraisal consisted of reviews of emergency plan and procedures, programmatic administrative documents, and limited training and supporting documents used to validate the program. The Emergency Preparedness Program was evaluated against the DOE 5500 and DOE 5480 Orders Series, ANSI standards, and accepted industry practices.

The PTI force has the responsibility of protecting and securing the INEL facilities. This responsibility is limited to currently identified credible emergencies, as identified by their own hazards assessment. The Emergency Preparedness Program was found to have a solid plans and procedure foundation. The PTI Emergency Action Manual that contains response procedures for guidance was evident that in-depth ES&H and emergency preparedness technical review is needed.

The Manager of Program Analysis, and Evaluation (PA&E) has the responsibility to implement the Emergency Preparedness Program. Currently, one temporary full-time employee is assigned responsibility for implementing the requirements of DOE 5500 Orders series. The Emergency Preparedness Specialist does not have dedicated administrative support, but does receive support from the PA&E Division. During the review it was evident that a lot of time and effort had been focused on the Emergency Preparedness Program. This was reflected in the completion and initial development of emergency readiness assurance plans, baseline hazards assessment, Superfund Amendments and Reauthorization Act (SARA) Title III reporting, air support for medical emergencies, and initiatives in transient population notification.

Although training is ongoing within PTI, increased emphasis needs to be placed on documentation and tracking of personnel training. Specifically, Area Warden Training needs to be enhanced to include fire and staging to better prepare Area Wardens for their responsibilities. Scheduling of PTI resources

through a single point of contact, for exercise purposes, may assist in effective utilization of resources.

PTI Bldg. CF-690 is equipped with appropriate support equipment to assist PTI in its security and emergency response mission. PTI is required by procedure to respond to the EG&G Idaho Central Facilities Area (CFA) Emergency Operation Center (EOC). The EG&G CFA EOC's existing and available communications equipment is inadequate. The PTI Emergency Preparedness Program continues to grow; however, areas requiring improvement should be addressed for full compliance. The self-assessment did not identify many of the deficiencies within the Emergency Preparedness program.

Radiological and Environmental Sciences Laboratory

The appraisal of the RESL addressed all seven performance objectives in the Emergency Preparedness technical area. The overall appraisal consisted of interviews with management representatives, administrative assistants, EG&G Idaho supervisors as well as the EG&G Idaho emergency planner, RESL Building/Area Warden, the RESL Emergency Preparedness Coordinator/Contact, and other members of the EG&G Idaho Emergency Response Organization. These interviews were used to determine the actual process on how the Emergency Preparedness Program was being managed, implemented, controlled, and conducted on a day-to-day basis. The appraisal consisted of reviews of emergency plan and procedures, programmatic administrative documents and applicable exercise, training, and supporting documents used to validate the program. The Emergency Preparedness Program was evaluated against the DOE 5500 and 5480 Orders series, ANSI standards, and accepted industry practices.

The RESL Emergency Preparedness Program is a support program for ID and EG&G Idaho at the INEL site. The RESL resources were very limited and the expectations identified within the draft ID INEL Emergency Plan and the EG&G Idaho CFA/INEL Emergency Plan and the Radiological and Environmental Sciences Laboratory Manual were far beyond the capabilities that currently exists. The RESL Emergency Preparedness Coordinator was recently hired and emergency preparedness was assigned as a collateral duty. The Administrative Assistant has been delegated as the RESL Area Warden. Branch Chiefs within the current structure of RESL have limited procedural responsibilities.

RESL utilizes the RESL Manual to identify policy and set forth procedural guidance in the day-to-day operations of the Laboratory. The mission and function statements have assigned responsibilities for emergency response to all three branches. The primary responsibility for emergency preparedness currently resides in the Environmental Sciences branch. The Emergency Preparedness Program for RESL was contained within two RESL procedures, RESL-4 and RESL-5. RESL-4 was titled "RESL Emergency Plan" and RESL-5 was titled "RESL Response to Site Radiological Emergencies," both dated June 5, 1991. These procedures do not accurately address response requirements or comply with DOE Orders or accepted industry practices.

The confusion of the RESL role (i.e., support versus. response) during an emergency can be related to the lack of clear guidance provided by ID. Several memoranda were issued in September 1990 relieving RESL of their

emergency response requirements. Further guidance was to be provided from ID in the form of Duty Officer responsibilities. These were not provided to RESL and were not available during the appraisal. The RESL Emergency Preparedness Coordinator does participate on the EG&G Idaho CFA/INEL Emergency Planning group and is knowledgeable of the CFA Emergency Plan. The EG&G Idaho CFA/INEL emergency plan only references RESL as having an Operational Liaison function. This is not consistent with the draft ID INEL Emergency Plan and is not consistent with ID 5500.2, dated September 14, 1982.

The RESL Training, Drill, and Exercise Program is not in compliance with DOE Orders. Training is provided by various sources and no central location has training records that provide an accurate review of overall or comprehensive training for RESL personnel. Drills and exercises are conducted on a random and ad hoc basis with no plan or program in place to develop skills or identify potential problems. Personnel protection for RESL personnel consisted of four Radiological Assistance Kits that were stored in Bldg. CF-690.

Overall, the RESL Emergency Preparedness Program is not in compliance with requirements of the TSA performance objectives and the DOE 5500 Orders series. Resources are insufficient and responsibilities are assigned to individuals as collateral duties. Emergency preparedness documentation was not available. The RESL self-assessment partially addressed many of the Emergency Preparedness Program deficiencies.

Rockwell-INEL

The appraisal of Rockwell addressed six of the seven performance objectives in the Emergency Preparedness technical area.

The overall appraisal consisted of interviews with management representatives, supervisors, Building Managers, the Rockwell-INEL Emergency Preparedness Coordinator, and other members of the Rockwell-INEL Emergency Response organization. The appraisal consisted reviews of emergency plan and procedures, programmatic administrative documents and applicable exercise, training, and supporting documents used to validate the program. The Emergency Preparedness Program was evaluated against the DOE 5500 and DOE 5480 Orders series, ANSI standards, and accepted industry practices.

The Rockwell Emergency Preparedness Program has the capability to detect, respond, mitigate, and report emergency incidents. The program is limited to Rockwell emergencies and does not apply to those situations in which Rockwell-INEL may be impacted by other colocated contractors. It was evident during the appraisal process that the interfaces between Rockwell-INEL and EG&G Idaho were very limited. The Rockwell-INEL program has been identified as a low-hazard facility. As a low-hazard facility the impact or probability of adverse impacts to the offsite population is negligible. However, there is a potential impact to the onsite population. Contractor communication to discuss and plan for each other's emergencies and to develop the necessary interfaces is lacking.

Rockwell-INEL has developed their Plant Protection/Emergency Action Plan and Procedures Manual, but this document is not consistent with applicable SARs and is not technically accurate in many areas. The plan does address all of the elements required by DOE 5500 Orders series; however, sufficient detail and technical rigor is not provided.

Rockwell-INEL does not have emergency implementing procedures. Currently, 16 implementing procedures are in draft or development stages. Lack of plan rigor and implementing procedures has had an effect on training. Training for Area Wardens was tracked through the Training Department and the lesson plan reviewed was well developed. The overall training program needs to be further developed to include all areas of emergency training and for compliance with the DOE 5500 Orders series and DOE 1324.2. The drill and exercise plan has little documentation; however, the schedule provided was ambitious and if adhered to will strengthen the overall Emergency Preparedness Program.

The emergency preparedness exercise, conducted for the S&H Subteam was very challenging for the Emergency Response organization and was well organized and controlled. The exercise scenario was designed to test Rockwell-INEL's ability to handle two separate emergency situations, hazardous materials spill with personnel injury, and fire with personnel injury. Overall, the exercise was favorable and response was adequate with several critique items noted. The critiques were well run and senior Rockwell-INEL management participated and allowed players to openly express their concerns.

The Emergency Preparedness Program currently has one coordinator, recently placed into this position, and two technical support personnel formally assigned to the program. There are no administrative personnel formally assigned to the program, and this is evidenced by the lack of procedures, assessments, 5-year plan, training, and other requirements/documentation not officially signed and distributed. Lack of program administration reduces the effectiveness of the program in policy, planning, and implementation.

The self-assessment did not identify all of the deficiencies within the Emergency Preparedness Program.

The overall Emergency Preparedness Program at Rockwell-INEL was recently formalized to address DOE Order requirements. Rockwell-INEL has made very good progress in the identification and development of required program elements; however, other areas needing improvement are listed but should not be limited to communications, program administration, and management participation.

4.5.3.7.2 Findings and Concerns

EP.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Emergency preparedness organization and administration should ensure effective planning for, and implementation and control of, site/facility emergency response.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- The program is administered by the ES&H Manager as a collateral duty.
 - The Emergency Preparedness Program started at MK-FIC with guidance provided from ID around January 1991 and currently is not established in accordance with DOE 5500.1B and DOE 5500.3A.
 - DOE Orders are very late in getting to MK-FIC, and this has lead to noncompliance with Orders such as identification of clear roles and responsibilities, lack of technical operation, and support personnel identified to assist in emergency preparedness activities.
 - MK-FIC has not met the criteria established in DOE 5500.1B.
 - This concern was not addressed by the MK-FIC self-assessment.

CONCERN:
(EP.1-1)
(H2/C1) **The Morrison Knudsen-Ferguson of Idaho Company Emergency Preparedness Program is not in accordance with DOE 5500.1B, DOE 5500.3A, and DOE 5500.10.**

- FINDINGS:**
- ID has not performed an annual emergency preparedness appraisal of the MK-FIC program.
 - Guidance from ID to begin emergency preparedness planning was provided around January 1991 and currently is not established and maintained in accordance with DOE Orders.
 - This concern was not addressed in the ID self-assessment.

CONCERN:
(EP.1-2)
(H2/C1) **The DOE Field Office, Idaho, does not perform the required annual appraisal of the Morrison Knudsen-Ferguson of Idaho Company Emergency Preparedness Program, as required by DOE 5500.1B and DOE 5500.3A.**

Protection Technology of Idaho, Inc.

- FINDINGS:**
- One temporary full-time Emergency Preparedness Specialist is assigned to emergency preparedness; however, interfaces with other contractors is insufficient.
 - No dedicated administrative support personnel are allocated and assigned to accomplish many of the routine and emergency duties.
 - The Emergency Preparedness Specialist reports to the PA&E manager; however, technical, operations, and other support personnel need to be identified to assist in emergency preparedness duties.
 - PTI has not performed the periodic review of the Emergency Preparedness Program as required by DOE 5500.3A.
 - This concern was partially addressed in the PTI self-assessment.

CONCERN: The Protection Technology of Idaho, Inc., Emergency Preparedness Program is not fully compliant and established in accordance with DOE 5500.1B, DOE 5500.3A, and DOE 5500.10.
(EP.1-3)
(H2/C1)

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- The RESL Emergency Preparedness Program did not meet the criteria established in the DOE 5500 Orders series for planning and response purposes.
 - The RESL Emergency Preparedness Program does not address planning, documentation, notifications, and assessment requirements such as, up-to-date plans, procedures, job task analysis, and applicable assessments.
 - The self-assessment and periodic review of the Emergency Management Program has not been performed.
 - The RESL support function does not have the capability to properly respond and initiate corrective action during an emergency situation. They are notified to support EG&G Idaho or ID on an as needed basis, and roles and responsibilities are not clearly defined or supported.
 - Two individuals are assigned emergency preparedness responsibilities and these are collateral duties.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: The Radiological and Environmental Sciences Laboratory Emergency Preparedness Program is not in accordance with DOE 5500.1B, DOE 5500.3A, and DOE 5500.10.
(EP.1-4)
(H2/C1)

FINDINGS:

- ID has not performed an annual emergency preparedness appraisal of the RESL program.
- This concern was not addressed in the ID self-assessment.

CONCERN: DOE Field Office, Idaho, has not performed the required annual appraisal of the Radiological and Environmental Sciences Laboratory Emergency Preparedness Program, as required by DOE 5500.3A.
(EP.1-5)
(H2/C1)

Rockwell-INEL

FINDINGS:

- The Rockwell-INEL Emergency Preparedness Program does not meet the criteria established in DOE 5500 Orders series for planning and response purposes.
- The Rockwell-INEL Emergency Preparedness Program does not address documentation requirements such as, up-to-date plans, procedures, job task analysis, and applicable assessments.
- The self-assessment and periodic review of the emergency management program is documented and conducted, but is not done in a way that allows an accurate assessment of program status.
- Certain buildings did not have adequate hazard assessments or pre-fire plans to assist the off-shift responders.
- This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN: The Rockwell-INEL Emergency Preparedness Program is not in accordance with DOE 5500.1B, DOE 5500.3A, and DOE 5500.10.
(EP.1-6)
(H2/C1)

FINDINGS:

- Rockwell-INEL has conducted annual reviews of its Emergency Preparedness Program. These reviews did not include all of the requirements set forth in the DOE 5500 Orders series. In each appraisal the requirements and status of each finding was not clearly transmitted.
- Appraisals did not meet ASME NQA-1-1989 requirements.
- Appraisals did not address DOE Order requirements.

- Rockwell-INEL has not developed a useable tracking system that allows the Emergency Preparedness Coordinator to accurately address identified program deficiencies or assess program readiness.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN: Rockwell-INEL has not developed an effective internal Emergency Preparedness Assessment Program that allows timely and effective tracking to ensure compliance with DOE 5500.1B and DOE 5500.3A.
(EP.1-7)
(H2/C1)

FINDINGS:

- ID has not performed an annual emergency preparedness appraisal of the Rockwell-INEL program.
- This concern was not addressed in the ID self-assessment.

CONCERN: DOE Field Office, Idaho, has not performed the annual appraisal of the Rockwell-INEL Emergency Preparedness Program, as required by DOE 5500.3A.
(EP.1-8)
(H2/C1)

EP.2 EMERGENCY PLAN AND IMPLEMENTING PROCEDURES

PERFORMANCE OBJECTIVE: The Emergency Plan, the Emergency Plan Implementing Procedures, and their supporting documentation should provide for the effective response to operational emergencies.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- The MK-FIC Emergency Plan is not technically accurate in many areas.
 - The Emergency Plan does not contain appropriate program elements that are provided in DOE 5500.3A.
 - The Emergency Plan is not based on site-specific information from SARs and prefire plans. Memoranda of Understanding are not included.
 - This concern was partially addressed by the MK-FIC self-assessment.

CONCERN:
(EP.2-1)
(H2/C1) **The Morrison Knudsen-Ferguson of Idaho Company Emergency Plan does not meet requirements established in DOE 5500.1B and DOE 5500.3A.**

- FINDINGS:**
- Implementing procedures have not been developed in accordance with applicable DOE 5500 Orders series.
 - This concern was partially addressed in the MK-FIC self-assessment.

CONCERN:
(EP.2-2)
(H2/C1) **Implementing procedures for the Morrison Knudsen-Ferguson of Idaho Company Emergency Preparedness Program are not in compliance with DOE 5500.1B and DOE 5500.3A.**

- FINDINGS:**
- MK-FIC has not developed an emergency preparedness job task analysis to identify the roles and responsibilities of the Emergency Response organization.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN:
(EP.2-3)
(H2/C1) **Morrison Knudsen-Ferguson of Idaho Company has not performed a job task analysis of their Emergency Response organization to identify roles and responsibilities, as directed by DOE 5500.3A.**

、 Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- The RESL Emergency Plan is not written in accordance with DOE 5500 Orders series.
 - The RESL Emergency Plan has incorrect references.
 - The RESL Emergency Plan does not contain program elements required by DOE 5500 Orders series.
 - The RESL Emergency Plan is not consistent with the draft ID INEL Emergency Plan, as required by DOE 5500.3A, Section 11.d.(1)(c).
 - The RESL Emergency Plan Procedure 4 is not consistent and does not follow the guidance provided in DOE 5500.1B or DOE 5500.3A.
 - This concern was partially addressed in the RESL self-assessment.

CONCERN: The Radiological and Environmental Sciences Laboratory Emergency Plan does not meet requirements established in DOE 5500.1B and DOE 5500.3A.
(EP.2-4)
(H2/C1)

- FINDINGS:**
- Job task analysis for emergency response personnel have not been developed that provide sufficient guidance in procedure development.
 - Listed under the response organization the liaison function is referenced, but no additional specific actions or guidance is provided by procedures.
 - Some positions within RESL procedures have identified actions; however, sufficient detail is lacking.
 - There are no emergency procedures developed or in draft to assign responsibility for facility status, field monitoring, dose assessment, or any other emergency preparedness functions.
 - References within the RESL procedure are incorrect.
 - RESL has no emergency deployment or sampling procedures to use in the event of an emergency.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: The Radiological and Environmental Sciences Laboratory procedures do not meet requirements contained in DOE 5500.1B, DOE 5500.2B, and DOE 5500.3A.
(EP.2-5)
(H2/C1)

Rockwell-INEL

- FINDINGS:**
- The Rockwell-INEL "Plant Protection/Emergency Action Plan and Procedures," does not address all maximum credible and/or credible emergencies in enough detail to identify other plant hazards.
 - The Emergency Action Plan (EAP) does not address unusual initiating events, single/multiple failures, or natural phenomenon, as identified in SAR or DOE 5500 Orders series.
 - The EAP does not contain enough technical rigor to be used as a baseline planning document. The hazard and consequence assessment sections are a methodology, not an assessment.
 - The EAP does not provide guidance in areas such as Emergency Planning Zones (EPZs), Protective Action Guidelines (PAGs), or Emergency Action Limits (EALs). Offsite Assistance deals primarily with INEL resources, not State or local resources. Memoranda of Understanding are not referenced such as Medical Air Support or Local Police/Security Support.
 - Safeguards and Security classifications are referenced but emergencies and associated action levels are not provided.
 - The EAP does not address potential hazards that might affect the Rockwell-INEL site by the colocated contractor EG&G Idaho.
 - The EAP has been signed by Rockwell-INEL management; however, these signatures are not dated and the annual review process could not be assessed. The EAP is currently not a controlled copied document, as required by DOE Orders.
 - The EAP is written on primarily informal paper. There is identification on plan pages indicating ownership of the plan.
 - The EAP has not received ID review or concurrence.
 - This concern was partially addressed in the Rockwell-INEL self-assessment.

CONCERN: The Rockwell-INEL Plant Protection/Emergency Action Plan does not meet the requirements established in DOE 5500.1B and DOE 5500.3A.
(EP.2-6)
(H2/C1)

- FINDINGS:**
- Sixteen technical procedures were either in draft or

development stages; however, none of them have been issued or implemented in final.

- Procedures should be further developed to provide consistency with the EAP and very concisely assist the response personnel in an emergency.
- The technical procedures do not address or identify the responsibilities of all response personnel within the emergency response organization.
- The technical procedures do not have a cover sheet or space provided for the developer, reviewer, and management approval signature requirement. Also, the procedures are on informal paper and ownership of procedures is lacking.
- Technical procedures not provided are:
 - Emergency Action Levels and Criteria,
 - Event Classification and Notification,
 - Hazardous Material Release Assessment,
 - Protective Action Recommendations,
 - Implementation of Onsite and Offsite Resources,
 - Personnel and Equipment Decontamination, and
 - Loss of Communication and/or Primary Emergency Operations Center.
- Job task analyses for all response personnel need to be developed.
- Administrative procedures have not been developed to provide guidance and instructions on the conduct of exercises, surveillance, training, document control, or emergency action tracking.
- There is no evidence of a formal process for procedure review or feedback from drills and exercises to make improvements in procedures.
- This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(EP.2-7)
(H2/C1)

The Rockwell-INEL technical procedures for emergency preparedness do not meet requirements contained in DOE 5500.1B and DOE 5500.3A.

- FINDINGS:**
- The draft ID INEL Emergency Plan is not consistent with DOE and ID Orders and does not meet the requirements set forth in DOE 5500.3A Section 11.d(1)(c).
 - The draft ID INEL Emergency Plan is not consistent with other INEL Emergency Plans and procedures.
 - This concern was addressed in the ID self-assessment.

CONCERN: The DOE Field Office, Idaho, draft Idaho National Engineering Laboratory Emergency Plan is not in compliance with DOE 5500.1B and DOE 5500.3A.
(EP.2-8)
(H2/C1)

EP.3 EMERGENCY RESPONSE TRAINING

PERFORMANCE OBJECTIVE: Emergency response training should develop and maintain the knowledge and skills for emergency personnel to respond to and control an emergency effectively.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- MK-FIC has not developed an Emergency Preparedness Training Program for response personnel.
 - Training on response personnel or Emergency Operations Center (EOC) cadre to include job task analysis is not developed.
 - Due to the lack of job task analysis, technical procedure development and implementation lessons plans have not been developed for the Emergency Preparedness Program for training purposes.
 - Training is not developed for other emergency response organization members.
 - Emergency response training of craft or support personnel who could be called upon to perform emergency functions is not properly addressed in the training program.
 - The Drill and Exercise Program does not address all of the possible emergency situations that support personnel could be called upon to assist.
 - This concern was not addressed by the MK-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company Emergency Preparedness Training Program is not properly documented and maintained in compliance with the requirements in DOE 5500.1B and DOE 5500.3A.
(EP.3-1)
(H2/C1)

Protection Technology of Idaho, Inc.

- FINDINGS:**
- The Emergency Preparedness Training Program is new and does comply with the requirements identified in DOE 5500.3A.
 - Area Warden training needs to be enhanced to include instruction for fire and staging activities.
 - Training documentation needs to be further developed to be performance-based.
 - Lesson plans need to be developed to comply with DOE Orders.

- Job task analyses for all response personnel need to be developed.
- The Emergency Preparedness Specialist needs certified trainer instruction to address all training requirements.
- This concern was not addressed by the PTI self-assessment.

CONCERN: The Protection Technology of Idaho, Inc. Emergency Training Program is not properly documented and maintained in compliance with the requirements of DOE 5500.1B and DOE 5500.3A.
(EP.3-2)
(H2/C1)

Radiological and Environmental Sciences Laboratory

FINDINGS:

- RESL has not developed a documented Emergency Preparedness Training Program, as required by DOE 5500.3A.
- Initial and periodic training for emergency response personnel has not been conducted and required by DOE 5500 Orders series.
- RESL has not developed or addressed requirements for training as it applies to lessons plans, training schedules, subject matter, or roles and responsibilities.
- RESL has not maintained emergency response personnel individual training records in accordance with DOE 1324.2.
- RESL has not developed a training program that consists of the basic elements necessary to review, evaluate, and document program improvements or areas needing improvement.
- ID has not performed periodic reviews of the RESL Training Program to ensure the requirements are being met.
- This concern was partially addressed in the RESL self-assessment.

CONCERN: The Radiological and Environmental Sciences Laboratory Emergency Preparedness Training Program is not properly documented and maintained, as required by DOE 5500.1B and DOE 5500.3A.
(EP.3-3)
(H2/C1)

Rockwell-INEL

FINDINGS:

- The Rockwell-INEL Training Program is identified in the EAP. An exercise and drill plan should augment the overall training program, but no formal document is provided or reviewed that ties all the elements of a training program together, as defined in DOE 5500.3A.
- Training records for all workers, as well as Area Wardens, are kept in the Training Department and records and lessons

plans for Area Warden training were reviewed and found to be in good order.

- Due to the lack of job task analyses, technical procedure implementation and technical rigor within the EAP lessons plans have not been developed by the Emergency Preparedness Coordinator or training staff.
- While training standards are met for the Area Wardens, training is not developed for other emergency response organization members.
- Emergency response training of craft or support personnel who could be called upon to perform emergency functions is not properly addressed in the Training Program.
- The Drill and Exercise Program does not address all of the possible emergency situations that support personnel could be called upon to assist. Lack of testing support personnel such as other contractor resources; i.e., field monitoring teams, dose assessment, security, and damage and repair assessment, could lead to a delay in response or incorrect response.
- This concern was partially addressed by the Rockwell-INEL self-assessment.

CONCERN:
(EP.3-4)
(H2/C1)

The Rockwell-INEL Emergency Preparedness Training Program is not been properly documented and maintained, as required by DOE 5500.1B and DOE 5500.3A.

EP.4 EMERGENCY PREPAREDNESS DRILLS AND EXERCISES

PERFORMANCE OBJECTIVE: Emergency Preparedness Program should include provisions for simulated emergency drills and exercises to develop and maintain the knowledge and skills for emergency personnel to respond to and control an emergency effectively.

NOTE: The drills and exercises referred to in this section are related to tests of, and training on, the Emergency Preparedness Program. In many cases, these drills and exercises are best initiated using an operational situation. If accomplished that way, an additional benefit is gained by exercising the operations personnel and the interface between operations and emergency preparedness. Therefore, for maximum benefit, an operational drill or exercise can be used to lead into the emergency preparedness event, providing a drill or exercise to each program.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- An exercise scenario development committee to include control evaluation has not been organized and documented.
 - MK-FIC has not developed an Exercise and Drill Program to integrate participation with other contractors in a support mode and address other emergency response activities.
 - MK-FIC has not developed an Emergency Preparedness Procedure to address scenario development, format, training for evaluators and controllers, exercise objectives, and/or post-exercise activities (i.e., critiques and written reports).
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: The Morrison Knudsen-Ferguson of Idaho Company Emergency Preparedness Exercise and Drill Program is not in compliance with DOE 5500.1B and DOE 5500.3A.
(EP.4-1)
(H2/C1)

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- An exercise scenario development committee has not been organized.
 - RESL has not developed an Emergency Preparedness Exercise Program that incorporates guidance from DOE 5500 Orders series or accepted industry practices.
 - Emergency drills and exercises are conducted on an ad hoc basis and at the request from other organizations and do not address other emergency response activities.

- Drills and exercise participation is not documented, and training requirements are not being explored or developed.
- Critiques and corrective actions from drills and exercises are not being tracked or followed to assist in procedure, training, or corrective action development.
- This concern was partially addressed in the RESL self-assessment.

CONCERN:
(EP.4-2)
(H2/C1)

Development, conduct, and critique efforts of the Radiological and Environmental Sciences Laboratory Emergency Preparedness Exercise and Drill Program are not in compliance with DOE 5500.1B and DOE 5500.3A.

Rockwell-INEL

FINDINGS:

- An exercise scenario development committee has not been formally organized.
- Rockwell-INEL has not developed an Emergency Preparedness Administrative Procedure to address scenario development, format, training for evaluators and controllers, exercise objectives, and/or post-exercise activities (i.e., critiques and written reports).
- Compared with the drill plan, an insufficient number of drills has been conducted to test other emergency response activities.
- There is no critique database available to allow tracking and resolution of identified problems from the exercises and drills.
- The development of the Tiger Team exercise required extensive technical expertise to develop and implement an effective and challenging exercise. It was not evident that this expertise has been formalized to ensure a successful exercise program.
- Administrative support required to prepare and distribute the exercise packages was not evident. The Emergency Preparedness Coordinator spent a great deal of time developing and organizing the exercise and not developing the overall program.
- Findings listed below are exercise deficiencies identified by members of the S&H Subteam during the exercise. Rockwell-INEL's internal critique was well organized, but action items and tracking are still lacking. The findings of this assessment indicates the strengths of the Rockwell-INEL critique process.

- Personnel were evacuated into a firemen work area and the path of a vehicle.
- Prefire plans in Bldg. TAN-628 were not of sufficient detail to assist fire fighters.
- Communications with fire fighters as to spill characteristics was very poor.
- Planning for and the actual reentry and recovery was not formal and was performed in an ad hoc manner.
- Deficiencies were noted in operations of the EOC, specifically, access control, use of procedures and checklist, roles and responsibilities, status board posting, recordkeeping, press release, and security positions in the field, plume monitoring, and posting of information.
- There was no feedback from the EG&G Idaho INEL EOC on the status of notifications.
- This concern was partially addressed in the Rockwell-INEL self-assessment.

CONCERN:
(EP.4-3)
(H2/C1)

The Rockwell-INEL Emergency Preparedness Exercise and Drill Program is not well documented, tracked, upgraded, and maintained in compliance with DOE 5500.1B and DOE 5500.3A.

EP.5 EMERGENCY FACILITIES, EQUIPMENT, AND RESOURCES

PERFORMANCE OBJECTIVE: Emergency facilities, equipment, and resources should adequately support site/facility emergency operations.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- There are only two phones in the EOC and anywhere from five to six people who respond. No backup communications was identified.
 - Plans were located within the EOC; however, no procedures were available.
 - The EOC does not conform to the DOE Order guidance with respect to maps and supporting documentation, (i.e., checklists, Orders) for emergency purposes.
 - MK-FIC has not developed a surveillance procedure that will ensure all emergency response facilities, communications systems, and other resources are inventoried and tested on a periodic basis, as required in the DOE 5500 Orders series.
 - The EOC is not equipped with photo/video and automated data processing support, as required in the DOE 5500 Orders series.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN:
(EP.5-1)
(H2/C1) The emergency response facilities, equipment, and resources at Morrison Knudsen-Ferguson of Idaho Company are not in compliance with DOE 5500.1B, DOE 5500.2B, and DOE 5500.3A.

- FINDINGS:**
- MK-FIC has not conducted a public address sound pressure level survey to determine complete coverage of the public address system to provide emergency notification, as required by DOE 5500.1B.
 - Warning signals being used that impact MK-FIC or subcontract personnel may not be the same signals being used at other INEL sites. Inconsistencies in emergency warning signals could lead to confusion and not minimize the consequences of the emergency.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN:
(EP.5-2)
(H2/C1) Morrison Knudsen-Ferguson of Idaho Company Emergency Notification System does not comply with DOE 5500.1B.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Plans and procedures, as required by DOE 5500.1B and DOE 5500.3A, were not available in the EG&G Idaho CFA EOC for emergency response personnel to use.
 - No dedicated position (in the CFA EOC) was identified for RESL to assist in clear responsibilities and actions during an emergency.
 - Communications to RESL Field Monitoring Teams were inadequate based on loss of contact with the field team during the exercise.
 - Respiratory equipment was not stored properly.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: Radiological and Environmental Sciences Laboratory emergency
(EP.5-3) response assets are not in compliance with DOE 5500.1B and
(H2/C1) DOE 5500.3A.

Rockwell-INEL

- FINDINGS:**
- The Rockwell-INEL Emergency Operations Center is well developed and provides enough space for the immediate response personnel. The EOC is not designed to handle special support personnel such as the Plant Emergency Response Teams (PERTs), Fire Department Chief, and the Reentry and Recovery Planning Team.
 - The EOC does not have sufficient documentation available to the EOC staff to assist them in performing the emergency response function (i.e., Safety Analysis documents; Material Safety Data Sheets, site and building drawings, listing of stored hazardous materials, DOE Orders, and technical references).
 - There are not enough radios for the PERTs to communicate with the fire and medical services.
 - Recording and disseminating of emergency information are handwritten. There is no single chronological log of all response actions, and notifications are handled by telephone through the EG&G Idaho Warning Communications Center with no verification that all notifications have been made and are within required timelines.
 - Rockwell-INEL has not developed a surveillance procedure that will ensure all emergency response facilities, communications systems, and other resources are inventoried

and tested on a periodic basis, as required in DOE 5500 Orders series.

- The EOC is not equipped with photo/video and automated data processing support, as required in DOE 5500.2B.
- This concern was partially addressed in Rockwell-INEL self-assessment.

CONCERN:
(EP.5-4)
(H2/C1)

The Rockwell-INEL emergency response facilities, equipment, and resources are not in compliance with DOE 5500.1B, DOE 5500.2B, DOE 5500.3A.

FINDINGS:

- Rockwell-INEL has not ensured that all personnel can hear the notification and warning system.
- Warning signals being used at Rockwell-INEL may not be the same signals being used at other INEL sites. Inconsistencies in emergency warning signals could lead to confusion and minimize the consequences of the emergency.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(EP.5-5)
(H2/C1)

Rockwell-INEL's Emergency Notification and Alerting System does not comply with DOE 5500.1B and DOE 5500.3A.

EP.6 EMERGENCY ASSESSMENT AND NOTIFICATION

PERFORMANCE OBJECTIVE: Emergency assessment and notification procedures should enable the Emergency Response organization to correctly classify emergencies, assess the consequences, notify Emergency Response personnel and recommend appropriate actions.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- In the event of notification of an emergency, RESL has not proceduralized their response except for radiological emergencies onsite.
 - RESL does not have procedures, training, and equipment to assist in consequence assessment.
 - RESL has not established and documented a notification and reporting system.
 - This concern was not addressed in the RESL self-assessment.

CONCERN:
(EP.6-1)
(H2/C1)

Radiological and Environmental Sciences Laboratory has not established the appropriate systems, procedures, and/or program to effectively assess, notify, and recommend appropriate emergency actions in accordance with DOE 5500.1B and DOE 5500.3A.

Rockwell-INEL

- FINDINGS:**
- Rockwell-INEL has not developed EALs, as required by 5500.1B.
 - Rockwell-INEL has not developed PAGs consistent with the guidance provided in DOE 5500.3A.
 - Classification of emergency events and definitions used to describe emergencies is not consistent with DOE 5000.3A.
 - Technical procedures have not been implemented in EALs, PAGs, and Event Classification.
 - The concern was addressed in Rockwell-INEL self-assessment.

CONCERN:
(EP.6-2)
(H2/C1)

Rockwell-INEL has not developed Emergency Action Levels, and their emergency classifications are not in accordance with DOE 5500.1B and DOE 5500.3A.

- FINDINGS:**
- Dissemination of emergency instructions to all Rockwell-INEL site personnel was not accomplished due to inadequate coverage of the public address system in Bldg. TAN-682. Rockwell-INEL has not demonstrated effective coverage of the public address system by use of sound pressure level studies.

- Plant Emergency Response Teams were not initially notified because the number of radios currently on hand did not cover Emergency Response personnel.
- The initial assessment of the exercise emergency was appropriate, but communication of the hazard to the Fire Department was not properly handled.
- This concern was partially addressed in the Rockwell-INEL self-assessment.

CONCERN:
(EP.6-3)
(H2/C1)

Rockwell-INEL Emergency Action Plan does not meet the requirements for notifications and reporting of emergencies in accordance with DOE 5500.1B and DOE 5500.3A.

EP.7 PERSONNEL PROTECTION

PERFORMANCE OBJECTIVE: Personnel protection procedures should control and minimize exposure to any hazardous materials during abnormalities, ensure that exposures are accurately determined and recorded, and ensure proper medical support.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- RESL does not have any procedures that deal with personnel protection.
 - RESL does not address any exposure limits, emergency or nonemergency, within either of their technical procedures.
 - RESL does not have, or provide, any guidance on levels to be used for decontamination.
 - Personnel protective equipment maintained in emergency response kits is stored improperly.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: Radiological and Environmental Sciences Laboratory Emergency
(EP.7-1) Preparedness Personnel Protection Procedures do not comply with
(H2/C1) DOE 5500.1B and DOE 5500.3A.

4.5.3.8 Technical Support

4.5.3.8.1 Overview

Morrison Knudsen-Ferguson of Idaho Company

MK-FIC was not appraised in the Technical Support area. In its role as the INEL site construction management contractor, MK-FIC has essentially no technical support function. Designs and design documents are provided by the contractor requesting the construction; that contractor is also responsible for following construction to ensure that it conforms to the design and for acceptance testing. MK-FIC's role is to procure subcontractors to perform the actual construction and to oversee their activities.

Protection Technology of Idaho, Inc.

The appraisal of PTI addressed four of the eight Technical Support performance objectives: Organization and Administration, Procedures and Documents, Facility Modifications, and Equipment Performance Testing and Monitoring. Reactor Engineering and Criticality Safety are not applicable to PTI operations. Environmental impact was considered to be adequately addressed by the Environmental Subteam, and Packaging and Transportation of Hazardous Materials was appraised as a separate category in this appraisal. The appraisal included visits to the PTI headquarters building; review of policies, procedures, and safety analysis documents; and interviews with the PTI Compliance Division Director and ES&H Manager.

PTI does not have a technical support organization, and none is needed. The facilities that PTI occupies are the responsibility of another INEL prime contractor; PTI is merely a user and has no responsibility for facility design or maintenance. PTI's equipment is basically standard commercially purchased items requiring no engineering. Any technical support that PTI might need is contracted with EG&G Idaho or outside consultants. A concern was identified in that PTI has not formalized Tenant Interface Agreements to clearly define specific safety-related physical and activity interfaces with the site service contractor and to maintain awareness of the status and condition of facility systems important to the operations.

PTI has in place a current live-fire range SAR that meets the requirements of DOE 5480.16, and also has in place safety assessments of all of its operations. Written procedures govern all operations.

Facility modifications are the responsibility of the site service contractor, who provides the technical work. For facility modifications desired by PTI, the site service contractor provides the design to meet needs specified by PTI. PTI is involved in reviews throughout the process. PTI is notified of facility modifications initiated by the site service contractor so that it is aware of potential impacts on its operations.

PTI has a trending requirement in its ES&H procedures. Occurrences are reported in accordance with the requirements of DOE 5000.3A. Data on injuries, deficiencies, and occurrences are compiled in a computer data base,

which permits generation of hard copies and/or sorting and retrieval based on key words.

One concern was identified, in the area of PTI-site service contractor interface. This concern was not addressed in the PTI self-assessment.

Radiological and Environmental Sciences Laboratory

The appraisal of the RESL in the Technical Support area addressed four of the eight Technical Support performance objectives: Organization and Administration, Procedures and Documents, Facility Modifications, and Equipment Performance Testing and Monitoring. Reactor Engineering and Criticality Safety are not applicable to RESL operations. Environmental Impact was considered to be adequately addressed by the Environmental Subteam, and Packaging and Transportation of Hazardous Materials was appraised as a separate category in this appraisal. Appraisal activities included visits to Bldgs. CF-638 and CF-690, interviews with RESL management and technical staff, and reviews of documents and records.

RESL conducts operations in two facilities, the Radiological Sciences Branch Calibration Facility (Bldg. CF-638), which contains x-ray generating machines and sealed radioactive sources, and the RESL Laboratory Building (Bldg. CF-690), which contains analytical laboratories and whole-body counters. Both facilities are currently categorized as low-hazard nonnuclear facilities.

The RESL activities are conducted within facilities for which another INEL prime contractor has site service responsibilities; RESL is merely a user. RESL has little need of a technical support organization to support its operations. Technical support activities for the buildings and building systems are the responsibility of the site service contractor. The RESL contracts technical support for programmatic equipment from EG&G Idaho or outside consultants, and is now receiving some support from the recently formed ID Technical Support Division. The RESL does provide technical support to other INEL organizations in the form of analytical services.

The RESL has a safety analysis document in place for Bldg. CF-638, but this report does not accurately reflect the current facility equipment and configuration, and does not meet current requirements for format and content. This has been recognized, and a new safety analysis document has been drafted. There is no safety analysis document for Bldg. CF-690. The RESL staff currently is gathering information and thinking about what kind of document is needed for this facility.

The RESL has a system for reporting occurrences, as required by DOE 5000.3A.

Readiness reviews are performed following significant equipment modifications, but the RESL has neither a written policy nor procedures to define the readiness review requirements and process.

Five concerns were identified, in the areas of timeliness of analytical results, safety analysis documentation, definition of readiness review

requirements and process, and user interface agreements with the site service contractor. The RESL self-assessment addressed two of these five concerns.

Rockwell-INEL

The appraisal of Rockwell-INEL addressed four of the eight Technical Support performance objectives: Organization and Administration, Procedures and Documents, Facility Modifications, and Equipment Performance and Testing. Reactor Engineering and Criticality Safety are not applicable to Rockwell-INEL's operations. Environmental Impact was considered to be adequately addressed by the Environmental Subteam, and Packaging and Transportation of Hazardous Materials was appraised as a separate category in this appraisal. Appraisal activities included: visits to SMC facilities, including Bldgs. TAN-629, TAN-679, and TAN-607A; reviews of policies, procedures, SARs and OSRS, and selected record files; and interviews of several managers and engineers working in the technical support area.

Rockwell-INEL technical support is primarily provided by the Engineering Directorate. Authorities and responsibilities of the Directorate and its component organizations are well defined in Rockwell-INEL policies and procedures. The technical staff is familiar with the facilities, and has most of the range of technical expertise required to support the facilities. Additional capabilities, when required, are contracted from EG&G Idaho or consultants. The staff is generally adequate to keep up with the priority tasks, although some vacant positions exist.

SARs and OSRs are in place for all SMC operations that require them. However, these documents do not meet current requirements for technical content and do not accurately reflect current operations and configurations. Rockwell-INEL has recognized these deficiencies and is in the process of updating and upgrading the documents. Rockwell-INEL currently requires incorporation of OSR requirements in key steps of procedures, and identification of such steps as SAR-related. However, most procedures predate this requirement and do not have the steps so identified.

Facility modifications are designed either by the Rockwell-INEL Engineering staff or by outside organizations. Most of the more complex design analyses are performed by EG&G Idaho. The design changes undergo formal, technical, interdisciplinary reviews, as appropriate to the situation, in accordance with written procedures. Designs produced by Rockwell-INEL engineers are guided by an INEL site standards and criteria manual. However, the engineers do not use DOE 5480.4 and DOE 6430.1A for guidance.

Occurrences are reported in accordance with DOE 5000.3A. The technical staff participates in critiques of occurrences, but plays a role in performance deficiency correction only by working on problems brought to its attention by others.

Five concerns were identified, in the areas of SAR/OSR quality and currency, identification of OSR requirements in operating and other procedures, as-built drawing status, equipment performance monitoring, and use of mandated codes and standards in design. The Rockwell-INEL self-assessment addressed four of these five concerns.

4.5.3.8.2 Findings and Concerns

TS.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: The technical support organization and administration should ensure effective implementation and control of technical support activities.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- The RESL Director stated that there currently are some vacant positions in the technical staff, affecting work schedules.
 - Backlogs are developing in samples awaiting analysis. This is impacting timeliness of analytical results, such as those for radiation contamination swipes.
 - See Concern RP.10-2.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: Analyses at the Radiological and Environmental Sciences Laboratory are not being scheduled to meet the users' needs.
(TS.1-1)
(H2/C2)

TS.2 PROCEDURES AND DOCUMENTS

PERFORMANCE OBJECTIVE: Technical support procedures and documents should provide appropriate direction, allow for adequate record generation and maintenance for important activities, and should be properly and effectively used to support safe operation of all facilities on the site.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Both Bldg. CF-638 and Bldg. CF-690 are currently considered to be low hazard, nonnuclear facilities. Safety analyses of current operations are needed to support this categorization.
 - The RESL has in place a Safety Analysis document for the Radiological Sciences Branch Calibration Facility, Bldg. CF-638. However, this document, issued in December 1977, does not accurately reflect the current equipment and configuration of the facility, and its format and content are not consistent with the guidance of ID 5481.1A, Chapter I, Section 4.
 - An updated Safety Analysis for Bldg. CF-638, which is intended to accurately reflect the facility and its operations and to meet current requirements for format and content, is still in the draft stage.
 - This concern was addressed in the RESL self-assessment.

CONCERN:
(TS.2-1)
(H2/C1)

The Safety Analysis document for Building CF-638 does not accurately describe the current configuration and operations, and its format and content are not consistent with the guidance of ID 5481.1A, Chapter I, Section 4.

- FINDINGS:**
- Contrary to the requirements of DOE 5481.1B and ID 5481.1A, paragraphs 6.e.(3) and 6.e.(4), the RESL does not have a Safety Analysis document for the Radiological and Environmental Sciences Laboratory Building, Bldg. CF-690. This has been recognized as a deficiency. The RESL Director stated that planning is underway, and information is being gathered.
 - This concern was addressed in the RESL self-assessment.

CONCERN:
(TS.2-2)
(H2/C1)

The Radiological and Environmental Sciences Laboratory does not have a Safety Analysis document, as required by DOE 5481.1B and by ID 5481.1A, paragraphs 6.e.(3) and 6.e.(4), for Building CF-690.

Rockwell-INEL

FINDINGS:

- Rockwell-INEL has SARs and OSRs in place for all SMC operations that require them. Several of these documents were reviewed, including:
 - RWI-104, Rev. 1 "SMC Intersite Transportation Safety Analysis," December 1988.
 - ENI-105, "Operational Safety Requirements for the SMC Phase I Facility," August 1986.
 - RWI-033, Rev. 0, "Phase I Safety Analysis Report," April 1987.
 - RWI-438, Rev. 1, "OSRs for the SMC Phase II Facility," January 1989.
 - RWI-059, Rev. 1, "Phase II Safety Analysis Report," January 1989.
 - RWI-013, Rev. 0, "Safety Analysis Report for the SMC Manufacturing Development Facility," December 1989.

The format of these documents is consistent with that specified by ID 5481.1B, but the technical contents of both SARs and OSRs are deficient.

- The SARs do not fully address compliance with mandatory codes and standards. The Quality Assurance (QA) sections of these documents say little more than that the facility/operation will operate in accordance with the Rockwell-INEL QA Program.
- The OSRs are, in many instances, nonspecific in terms of requirements and bases. Operating limits such as "...shall be removed at designated frequencies...." and "Appropriate measures will be taken...." (Limit 2.5.3.1, ENI-105) are typical. A number of surveillance requirements merely state who is responsible for doing something, but not specifically what is to be done, or when or how it is to be done. With few exceptions, the bases do not provide justification for numerical values specified as requirements; a typical basis statement is that "The operating limits and surveillance requirements are based upon experience, HS&E safety procedures, and DOE Orders." (Paragraph 2.4.5, RWI-438.)
- Rockwell-INEL staff members who were interviewed stated that the SARs and OSRs do not accurately reflect current operations and configurations. Some described activities are no longer being conducted.

- Rockwell-INEL has recognized the deficiencies in its SARs and OSRs, and is in the process of updating and upgrading these documents. The target for completion of this activity, as identified in a February 4, 1991, letter from S.W. Creager, Rockwell-INEL General Manager, to Charles Gilmore, ID, is October 1991.
- See Concern AX.5-4.
- This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(TS.2-3)
(H2/C2)

The Safety Analysis Reports and Operational Safety Requirements for Rockwell-INEL operations are deficient in technical content and are not fully consistent with current operations.

FINDINGS:

- Rockwell-INEL Procedure QP 5.1.1, "Developing Quality Procedures, Compliance Action Plans, and Technical Procedures," Revision 0, April 4, 1991, requires, in paragraph G.2.a, that the originator of all technical procedures incorporate OSRs in key steps and refer to the SAR in the text of the step.
- This is a recent requirement, and identifying OSR requirements, as such, in procedures has not been the general practice in the past. Thus, most existing Rockwell-INEL procedures do not identify SAR/OSR requirements in their steps.
- Identifying procedure steps as SAR/OSR-related is particularly important at SMC, since most of the current OSRs are in classified documents and their availability to operating, maintenance, and other Rockwell-INEL staff in the field is limited.
- See Concern OP.3-5.
- This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(TS.2-4)
(H2/C2)

Rockwell-INEL operating, maintenance, and testing procedures do not clearly identify which items are related to Operational Safety Requirements compliance.

TS.3 FACILITY MODIFICATIONS

PERFORMANCE OBJECTIVE: Technical support services required by each facility on the site to execute modifications should be carried out in accordance with sound engineering principles that should assure proper design, review, control, implementation, and documentation in a timely manner.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- PTI operations are conducted within facilities for which another INEL contractor, EG&G Idaho, has site service responsibilities. The buildings and associated systems are the responsibility of the site service contractor, while programmatic equipment is the responsibility of the user.
 - Site service contractor and user responsibilities for CFA facilities are described in the Central Facilities Area Manual for Tenants, FM-CF-91-001. In many respects, the content of this manual is general in nature; it is not facility specific. Similar manuals exist for other INEL areas.
 - The Central Facilities Area Manual for Tenants provides for Tenant Interface Agreements, to be prepared by the users. These agreements will describe the specific physical and activity interfaces between the user and the CFA Building Manager (who is the EG&G Idaho representative). PTI is preparing Tenant Interface Agreements for the live fire range, and the other facilities it operates, but none of these are in place.
 - Without clear definition of the user-site service contractor interfaces the safety of PTI operations and equipment that interface with facility systems and site service contractor activities cannot be ensured.
 - See Concerns OA.1-5, AX.1-1, AS.1-2, and FP.7-1.
 - This concern was partially addressed in the PTI self-assessment.

CONCERN: Protection Technology of Idaho, Inc., has not completed Tenant Interface Agreements with the site service contractor of the (TS.3-1) Idaho National Engineering Laboratory facilities it uses to (H2/C2) clearly define specific safety-related physical and activity interfaces.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- The RESL staff is performing some readiness reviews for operation following equipment modifications. For example, a readiness review of a new radiation source control and

interlock system at Bldg. CF-638 was performed in April and May 1990, and a readiness review of the new dosimetry x-ray interlock system at Bldg. CF-638 was initiated in November 1990.

- DOE-accepted guides are being used in performing the readiness reviews. Examples are:
 - ERDA 76-45-1 (SSDC-1), Occupancy Use Readiness Manual - Safety Considerations, September 1975.
 - DOE 76-45/39 (SSDC-39), Process Operational Readiness and Operational Readiness Follow-on, February 1987.

However, the RESL does not have written procedures defining the readiness review process.

- The RESL does not have a written policy defining requirements for conducting readiness reviews.
- Without written requirements, performance of readiness reviews when required, and consistent quality of the reviews, cannot be ensured.
- This concern was not addressed in the RESL self-assessment.

CONCERN:
(TS.3-2)
(H2/C2)

The Radiological and Environmental Sciences Laboratory does not have either a written policy or procedure to direct readiness reviews.

FINDINGS:

- The RESL laboratory operations are conducted within facilities for which another INEL contractor, EG&G Idaho, has site service responsibility. The buildings and associated systems are the responsibility of the site service contractor, while programmatic equipment is the responsibility of the user.
- Site service contractor and user authorities and responsibilities for CFA facilities are described in the Central Facilities Area Manual for Tenants. The current version of this manual, FM-CF-91-001, was issued in May 1991. In many respects the content is general in nature. It is not facility specific.
- The Central Facilities Area Manual for Tenants provides for Tenant Interface Agreements, which are to be prepared by the users. The agreements will describe the specific physical and activity interfaces between the user and the CFA Building Manager (who is the EG&G Idaho representative). The RESL has not prepared Tenant Interface Agreements for either Bldg. CF-638 or Bldg. CF-690.

- Without clear definition of the site service contractor-user interfaces, the safety of programmatic operations and equipment that interface with facility systems (such as hoods served by building exhaust systems) cannot be ensured.
- See Concerns OA.1-7, AX.1-2, and RP.1-4.
- This concern was not addressed in the RESL self-assessment.

CONCERN:
(TS.3-3)
(H2/C2)

The Radiological and Environmental Sciences Laboratory has not prepared Tenant Interface Agreements with the site service contractor of Buildings CF-638 and CF-690 to clearly define specific safety-related physical and activity interfaces.

Rockwell-INEL

FINDINGS:

- Rockwell-INEL has identified some 1600 key drawings, designated as such on the basis of their importance to safety and/or programmatic interests. About 900 of these have been brought into as-built status. The Manager of Rockwell-INEL Design Engineering was uncertain as to the status of the other 700; how many are redline drawings awaiting submittal for conversion to as-built status and how many might need no revision.
- The Design Engineering Manager has set a goal to eliminate the backlog by October 1991. This goal may be affected by the fact that currently there are two drafter position vacancies.
- See Concern OA.7-5.
- This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(TS.3-4)
(H2/C2)

Rockwell-INEL has a substantial backlog of key drawings that are not in as-built status.

FINDINGS:

- Two engineers in the Rockwell-INEL Mechanical and Electrical Design Engineering organization stated that they use an INEL site design manual, DOE-ID Architectural Engineering Standards and ID-12044 Operational Safety Design Criteria Manual, Revised October 1990, to define design requirements. They do not use either DOE 5480.4 or DOE 6430.1A for guidance.
- The site design manual was prepared by EG&G Idaho. Engineering staff members who were involved in its preparation stated that this manual is intended as a supplement to the DOE Orders, and should be used in

combination with them rather than as a replacement. No systematic review had been made to determine to what extent the codes, standards and regulations mandated by the DOE Orders are included in the site manual.

- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(TS.3-5)
(H2/C1)

Rockwell-INEL does not ensure that relevant requirements of DOE 5480.4 and DOE 6430.1A are incorporated into engineering designs produced by its staff.

TS.4 EQUIPMENT PERFORMANCE TESTING AND MONITORING

PERFORMANCE OBJECTIVE: Effective equipment performance testing and monitoring should be performed by technical support groups to ensure that equipment and system performance is within established safety parameters and limits.

Rockwell-INEL

- FINDINGS:**
- A staff engineer in Rockwell-INEL Mechanical and Electrical Design Engineering stated that the engineers help solve problems that are brought to their attention, but do not belong to a formal performance monitoring function. He stated that he did not think there was any such function within Rockwell-INEL.
 - The Manager, Rockwell-INEL Mechanical and Electrical Design Engineering, stated that the Maintenance Management Tracking System provides a computerized data base on maintenance history. This is a tool available to the engineering staff if problems are identified by others. However, the Engineering Directorate does not provide a surveillance function.
 - See Concern AX.2-2.
 - This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN: Rockwell-INEL Engineering is not monitoring the performance of safety-related equipment.
(TS.4-1)
(H2/C2)

4.5.3.9 Packaging and Transportation

4.5.3.9.1 Overview

Morrison Knudsen-Ferguson of Idaho Company

This appraisal of MK-FIC addressed four of the 12 performance objectives in the Packaging and Transportation area. Administration and Organization, Training, Operations, and Onsite Transfers were addressed in the appraisal process. All other performance objectives were considered inapplicable due to the limited involvement of MK-FIC in packaging and transportation activities. Interviews were conducted with the Construction Superintendent identified on the organization chart as being in charge of construction projects at four operating contractor sites, and with the ES&H Manager. Since actual operations occur only six or eight times a year, no operations were observed. No construction sites were visited.

Hazardous materials are used by MK-FIC subcontractors and hazardous wastes are produced; however, the only transport of these materials by MK-FIC takes place within the boundaries of the construction site. Construction sites are controlled by the operating contractors who provides the Satellite Accumulation Areas (SAA). Because the operating contractor provides for all shipping off of the construction site, MK-FIC does not consider itself involved in packaging and transportation activities. Yet, MK-FIC employees do move full drums of hazardous waste from SAAs to the operating contractor's holding area within the construction site. These moves are covered by a site work permit and are accomplished by an MK-FIC employee who is a member of the Teamsters Union. MK-FIC considers it sufficient that this Teamster has a Class A Chauffeur's License from the State of Idaho and that the license has an "H" designation (indicating the holder has passed a test on hazardous materials as part of the Motor Vehicle Department written test for the license).

Subcontractors of MK-FIC are instructed that they are not to remove hazardous waste from the construction site. Almost all of the hazardous waste generated by the construction activity consists of paint and paint products. These liquid wastes, generated by the MK-FIC subcontractors, are poured into 55-gallon drums at an SAA set-up by MK-FIC or the operating contractor (there was some confusion as to who set up SAAs). Waste drums are labeled "Mixed Paint Products" (with labels supplied by EG&G Idaho). Subcontractors are instructed to comply with "waste feed products" listings that specify the materials that are authorized for addition to the waste drums. MK-FIC personnel interviewed for this appraisal indicated that only paints, thinners, solvents, and the like are placed in the waste drums.

The handling of hazardous waste by MK-FIC subcontractors is covered in "General Conditions," (GC-34) and "Special Conditions," (SC-15), which are made a part of each subcontract. Further, Attachment J of the "Special Conditions" covers additional requirements placed on subcontractors under the title "Conditional Waste Procedures." Finally, MK-FIC Procedure CMSM 5A-4, "Hazardous Waste Management," July 31, 1990, Section 7, details the procedure for shipping wastes. These procedures consist of instructions for obtaining

an analysis of the waste before moving it, specifying which forms must be filled out, and instructing the person completing the shipment to send the forms to MK-FIC ES&H for permanent file. There are no procedures for package closure, assurance of package integrity, loading or unloading the package, tie-down, qualification of the material handlers or the driver, or for requalification of the personnel involved. Other than collecting copies of the forms used, there is no requirement for review of the operation by anyone.

No one within MK-FIC is trained as a shipping coordinator (i.e., having attended the EG&G Idaho training). When a filled drum of hazardous waste is removed from the site, the MK-FIC ES&H Manager fills out an Environmental Protection Agency universal shipping manifest with the help of EG&G Idaho personnel.

In summary, MK-FIC has no formal packaging and transportation program. Packaging and transportation is not included in any of the internal MK-FIC audits. Further, in spite of requirements contained in DOE 5480.3, DOE 5480.18, Chapter I, ID 5480.3, and the EG&G Idaho Hazardous Materials Transportation Manual, Revision 3, June 1991, ID has accepted this approach by virtue of not including packaging and transportation in its audits of MK-FIC.

There were six concerns identified for MK-FIC addressing policies and implementation procedures, training, operating procedures for moving hazardous wastes, inconsistent instructions on the use of vermiculite, and periodic safety audits. One of these was partially identified in the MK-FIC self-assessment.

Protection Technology of Idaho, Inc.

This appraisal of PTI included eight of the 12 performance objectives in the Packaging and Transportation area. The areas of Regulatory Compliance, Intra-Building Movements, Onsite Transfers, and Packaging and Storage Procedures were not addressed as PTI is not involved or functional in these areas. Procedures, records, check-sheets, Quality Assurance (QA) program documents, manuals, DOE Orders, and other documentation were reviewed. Interviews were conducted with the Director of Operations, the Flight Operations Division Director, the Flight Safety Officer (who is the shipping coordinator), an ES&H Safety Specialist, and the Area 3 Training Coordinator. No actual operations were observed, as none were scheduled. Only Bldg. CF-609 was visited.

PTI is involved in the packaging and transportation activities of INEL in two distinct ways. There are some hazardous wastes (but no radioactive waste) generated by PTI and shipped from their facilities. In addition, PTI becomes involved in shipments by other parties when those shipments require escorts while on the INEL reservation.

PTI has written escort activity procedures that include extensive training requirements for that activity; however, there are no explicit procedures for the packaging and transportation of hazardous wastes generated in the PTI operations. PTI depends heavily upon EG&G Idaho for support in this area. The failure of previously qualified shipping coordinators to complete the recent recurrence training, and the dependence upon the Flight Safety Officer

(newly trained) to fill this position, indicates a low level of management concern for the packaging and transportation function (as compared to the escort function).

There were three concerns identified for PTI addressing management support, expertise, and operating procedures. None of these were identified in the PTI self-assessment.

Radiological and Environmental Sciences Laboratory

This appraisal of the RESL included eight of the 12 performance objectives in the Packaging and Transportation area. Accidents and Incidents, Intra-Building Movements, Onsite Transfers, and Packaging and Storage Procedures were not included either because the area was inapplicable or because the activity was covered in other areas of this report. Procedures, audit reports, records, memoranda, documents, manuals, DOE Orders, and other documentation were reviewed. Interviews were conducted with the Health Physicist, the Physical Science Technician who functions as a Health Physics Technician, two Physical Scientists (who fill functions related to packaging and transportation), and the Chairman of the RESL Safety Committee. Visits were made to Bldg. CF-690 and some Lab Pack operations were observed.

RESL has not been involved in any offsite packaging and transportation activities for several years and now finds it necessary to launch a concerted effort to ship large quantities of hazardous wastes. Shipments of radioactive materials has continued at a low level throughout this period. Both of the persons responsible for packaging and transportation are in the Environmental Sciences Branch and are relatively new to the organization.

The packaging and transportation operations suffer from several DOE directives that severely proscribe what can be shipped from the facility. Much of the effort expended by the shipping coordinators involves addressing these changes of direction. Packaging and transportation are not considered the prime responsibility of the shipping coordinators, nor are they even a significant part of their responsibilities.

There is a significant problem introduced by EG&G Idaho Hazardous Materials Transportation Manual, Revision 3, June 1991, since it is inconsistent, poorly referenced, and in some cases wrong. This introduces problems as to how RESL should interface with EG&G Idaho in the area of packaging and transportation. The relationship between RESL and EG&G Idaho is different than that of other contractor operated activities at INEL, but there are no considerations of that difference in the Transportation Manual.

Packaging and transportation activities are given little attention by management, are assigned as peripheral duties, and are generally considered as a lower priority than other activities. Heavy reliance upon EG&G Idaho is assumed by RESL management, even though EG&G Idaho handles only a small portion of the problem. This interface is poorly defined and even more poorly understood.

An inordinate amount of staff time is devoted to packaging and transportation simply because it is not afforded expert attention. As a result, packaging and transportation activities demand time from others on the staff who are not directly involved. Overall, packaging and transportation activities are not being conducted in an efficient or effective manner at RESL.

There were 10 concerns identified for RESL covering changes in policies, management support, staffing, resolution of conflicts, training requirements, expertise in packaging and transportation, QA of the packaging and transportation activity, lack of specific procedures, receipt of hazardous materials, training records, and routine safety appraisals. None of these were identified in the RESL self-assessment.

Rockwell-INEL

This appraisal of Rockwell-INEL, included all 12 of the performance objectives in the packaging and transportation area. Procedures, audit reports, records, check-sheets, memoranda, charts, shipping documents, purchase orders, drawings, receiving reports, QA Program documents, manuals, DOE Orders, and other documentation were reviewed. Interviews were conducted with the Manager of Logistics and Material Control, the Waste Operations Manager, the head of Traffic (who is the shipping coordinator), and with the Manager of Quality Engineering. Loading of product shipping containers onto a trailer for shipment offsite was observed. Informal discussions were conducted with health physics personnel and with material handlers. Visits and operations were viewed in Bldgs. TAN-682, TAN-677, TAN-629, TAN-602, and TAN-628; and tours were made through storage areas outside the buildings.

Packaging and transportation activities involving depleted uranium at SMC are centered in the Logistics and Materials Control Organization, where well-trained and experienced personnel cooperate on an informal basis to achieve a very high level of success in shipping product to the assembly plant. To date, no recyclable depleted uranium material has been shipped offsite. Recyclable depleted uranium is stored in the wooden shipping crates in which the feed material was received. Some contaminated or non-recyclable (waste) depleted uranium is stored in 55-gallon drums. New metal containers for the recyclable materials have been designed and purchased, but were rejected at the receiving inspection.

Industrial wastes at the site are packaged in Department of Transportation 7A containers and shipped to either the RWMC or the landfill depending upon the hazard involved. These shipments are made by the Waste Operations Manager in accordance with the EG&G Idaho Hazardous Materials Transportation Manual and the applicable DOE Orders. Shipments have been suspended since the beginning of this calendar year to perform quality inspections and to involve the Engineering Design Organization in the packaging process.

There are informal communications between those involved in the shipment of product and those shipping waste but there is no formal Transportation Safety Committee, or other means of sharing experiences or solving common problems. The team was told that a Transportation Committee is being formed. Packaging

and transportation suffers from a low priority when compared to other functions within the operation.

The packaging and transportation activities at SMC suffer from three major problems. There is a severe interface problem by virtue of a poorly written Hazardous Materials Transportation Manual. The manual is inconsistent, poorly referenced, and in several cases wrong. Under such a condition it is difficult to determine the proper level of procedures to develop, and the definitions of the interactions that need to be developed. There is also a severe problem with ID 5480.3. This implementation order is confusing, tries to alter accepted definitions, and is inconsistent with DOE guidance (and DOE 5480.3). Most troublesome in this implementation order is the confusion over onsite versus offsite. To the credit of Rockwell-INEL, they have defined everything outside their fence as offsite. Perhaps the most severe problem is that of the pending change in operating contractors. It is difficult to muster enthusiasm for producing procedures fitting the Rockwell-INEL template when it is known that the new contractor will require rewriting each one to fit into some new system.

In addition, there are requirements for procedural formality that will have to be achieved no matter who the contractor is, what the DOE implementing Order states, or how poorly written the Hazardous Materials Transportation Manual is. While Rockwell-INEL is trying to improve in the area of packaging and transportation, they are not in compliance in several areas as yet.

There were six concerns identified for Rockwell-INEL covering the definition of responsibilities, specification of appropriate training, verification of qualifications, current approved procedures for transfers within the site, Health Physics review of incoming radioactive materials, documentation availability on packaging adequacy. Three of these were identified in the Rockwell-INEL self-assessment.

All of the organizations audited during this appraisal suffered from two common problems. First, the ID implementing order ID 5480.3 does not provide proper guidance to the INEL contractors. Compounding this is the second problem, which concern the interface between the contractors and EG&G Idaho in the area of packaging and transportation. This interface is defined by the EG&G Idaho Hazardous Materials Transportation Manual, Revision 3, June 1991. This is a controlled document and is, therefore, to be reviewed yet it contains so many errors, omissions, and distortion that it confuses this important interface.

There were five concerns identified in this area covering inconsistencies in ID 5480.3, inconsistencies in the Hazardous Materials Transportation Manual, and formal review and approval of the Hazardous Materials Transportation Manual, and two on periodic audits by ID. None of these were identified in any self-assessment.

4.5.3.9.2 Findings and Concerns

PT.1 ADMINISTRATION AND ORGANIZATION

PERFORMANCE OBJECTIVE: Management should develop and implement a system of policies and directives that will provide for effective implementation of DOE Orders, particularly DOE 5480.3, DOE 1540.1, DOE 1540.2, Federal and State regulations, and accepted industrial practices in operations involving packaging and transportation of hazardous materials.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- MK-FIC personnel interviewed stated that they have no involvement in packaging and transportation in any way; all shipments leaving the construction site are initiated by the operating contractor. In spite of this viewpoint, MK-FIC procedure CMSM 5A-4, Revision B, "Hazardous Waste Management," July 31, 1990, has instructions for form ID F 5480.1A (Rev 07-83), which is specifically used for offsite shipments.
 - MK-FIC procedure CMSM 5A-4, Section 4.1.4, mandates, among other things, that the MK-FIC ES&H Manager "Provide an interface with MK-FIC and the operating contractor for the storage of hazardous waste." Procedure CMSM 5A-4, Section 4.1.6 states that the ES&H Manager "Will provide assistance for the transfer of hazardous waste to the permitted Hazardous Waste Storage Facility (HWSF) at CF-637." In spite of these instructions, there are no personnel employed by MK-FIC who are knowledgeable in the area of packaging and transportation. The MK-FIC Operations Manager (or the subcontractor) in CMSM 5A-4, Section 4.2.3, is instructed to "ensure that hazardous waste operations comply with this procedure, DOE-Field Office, Idaho and EPA regulations." With no one knowledgeable in packaging and transportation, it is impossible to achieve the intent of this instruction.
 - MK-FIC does not consider movements made between Satellite Accumulation Areas (by MK-FIC employees within the job site) to be packaging and transportation related. In actuality, these movements must involve packaging considerations, such as closure and inspection for leakage and general condition and the actual transportation of the package.
 - DOE 5480.3, Section 10, requires that a shipper establish and maintain operating procedures.
 - This concern was partially addressed in the MK-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company does not have
(PT.1-1) packaging and transportation policies or implementing procedures,
(H2/C1) as required by DOE 5480.3, Section 10.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- There is only one qualified shipping coordinator in the PTI organization who is current in the training requirements specified in the Hazardous Materials Transportation Manual. That individual happens to be the Flight Safety Officer, who is very busy with other duties. The reason given for his being qualified was to enable him to handle the needs of the Flight Department in disposing of their solvents, waste aviation jet fuel, wiping rags, and similar waste.
 - Urgency of other duties prevented other shipping coordinators from attending recurrence training held recently.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: Protection Technology of Idaho, Inc. management does not support
(PT.1-2) the packaging and transportation activity.
(H2/C2)

- FINDINGS:**
- The one shipping coordinator, although recently trained through the EG&G Idaho course, did not consider himself competent to act in that capacity. He indicated that he had to depend upon EG&G Idaho personnel to "walk him through" the process each time. The ES&H Safety Specialist (who had attended a 2-day DOE course on hazardous materials transportation), indicated that he tried to help the shipping coordinator as he had time available. However, the Hazardous Materials Transportation Manual only requires the EG&G Idaho course for qualification as a shipping coordinator.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: Protection Technology of Idaho, Inc. does not provide its
(PT.1-3) hazardous materials shipping coordinators with training that is
(H2/C1) necessary to develop the level of expertise required by
DOE 5480.19, Chapter 5.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- An operation, identified as a Lab Pack (in which surplus chemicals and other hazardous wastes are collected for disposal), was observed in progress at RESL. A wide variety of hazardous materials are being collected from the various laboratories within the facility and placed (in their original containers) into black plastic drums. The

containers are surrounded with vermiculite for absorption of free liquids (should any escape the individual containers), to cushion the individual containers to prevent damage, and to maintain position of the individual containers within the drum.

- Vermiculite was phased out of use by DOE as a thermal insulation and shock absorber in packages of radioactive material by virtue of an Energy Research and Development Administration Immediate Action Directive (IAD No.44) dated July 18, 1975. As a general practice, DOE ceased using vermiculite in all hazardous materials packages shortly after that IAD was issued. This restriction was relaxed somewhat in 1990 for application in a specific package design, which was later canceled. On June 7, 1991, in a Memorandum from Rex J. Bowser, Acting Director of the Office of Quality and Safety Programs of DOE, to distribution, titled "Use of Granular, Prilled or Pelletized Materials such as Vermiculite in Hazardous Materials Packaging," "all DOE use of granular, prilled or pelletized materials such as foamed plastic pellets and vermiculite, whether bagged or unbagged, tamped or untamped, to (1) thermally insulate, (2) cushion, (3) position, or (4) absorb," is banned effective August 31, 1991.
- This concern was not addressed in the RESL self-assessment.

CONCERN:
(PT.1-4)
(H2/C1)

The Radiological and Environmental Sciences Laboratory shipping coordinators do not receive changes to operating procedures mandated by DOE through such mechanisms as Immediate Actions Directives and Memoranda, as required by DOE 5480.3, Section 6, or from lessons learned at other DOE installations.

FINDINGS:

- The Health Physicist and the Health Physics Technician are the two individuals responsible for the transportation activities of both radioactive and other hazardous material. There is no defined responsibility for packaging hazardous (including radioactive) material for subsequent shipment. Packaging is handled as a distributed function falling on the individual who wants the shipment to take place.
- The shipping coordinator estimates the packaging and transportation activities consume about 10 percent of his job effort. Although there was relatively little activity in this area for the past several years, the level of involvement is expected to escalate in the future. Even so, packaging and transportation is not a major component of the job description of the Health Physicist.

- While the shipping coordinator is qualified for that responsibility by virtue of completing the EG&G Idaho training, there is no designation by RESL of the responsibility for packaging and transportation.
- Interviews with several individuals indicated difficulty in getting shipments ready for transport out of the RESL facility. In large measure this appears to be due to an inability to resolve issues that arise during the process. Such difficulties indicate a lack of management attention to packaging and transportation matters.
- There is no evidence that packaging and transportation are included in any safety committee charter, nor is there a RESL committee on transportation operation and safety.
- This concern was not addressed in the RESL self-assessment.

CONCERN:
(PT.1-5)
(H2/C2)

Radiological and Environmental Sciences Laboratory management support and direction for packaging and transportation activities are not documented and demonstrated.

FINDINGS:

- Inability to accomplish all of the packaging and transportation requirements on the first effort forces the shipping coordinators to correct mistakes and omissions and/or resolve conflicts before a shipment can be dispatched from the RESL. At the very least, this introduces delay and creates extra work and in some cases may require repackaging thus introducing additional risk.
- As of the end of July, RESL will have only one shipping coordinator (EG&G Idaho training of the other one will have lapsed). The remaining shipping coordinator handles packaging and transportation as a peripheral duty.
- This concern was not addressed in the RESL self-assessment.

CONCERN:
(PT.1-6)
(H2/C2)

The lack of support in the packaging and transportation area delays removal of hazardous materials from the Radiological and Environmental Sciences Laboratory.

FINDINGS:

- The RESL Safety Committee is not charged with oversight of packaging and transportation activities. There is no RESL Transportation Committee. Those involved in packaging and transportation at RESL have no one at RESL who they can look to for help in the packaging and transportation activity.
- This concern was not addressed in the RESL self-assessment.

CONCERN: There is no defined system or process to resolve technical
(PT.1-7) questions or review findings in packaging and transportation
(H2/C2) activities at the Radiological and Environmental Sciences
Laboratory.

Rockwell-INEL

- FINDINGS:**
- The interface between Rockwell-INEL and EG&G Idaho in packaging and transportation is poorly defined, resulting in substantial overlap.
 - The Hazardous Materials Transportation Manual is confusing. It uses references that are incorrect (or are not related to the subject) and contains outdated material in spite of the June 1991 publication date.
 - Rockwell-INEL does not comply with portions of the loading sequence specified in the Hazardous Materials Transportation Manual because the procedure is incorrect (e.g., the pull test on a trailer).
 - Control of outgoing shipments is not relinquished to EG&G Idaho until the vehicle reaches the EG&G Idaho facility at the CFA. While the Hazardous Materials Transportation Manual does not address this point, this procedure differs from common practice at INEL.
 - This concern was partially addressed in the Rockwell-INEL self-assessment.

CONCERN: The divisions of responsibilities between Rockwell-INEL and EG&G
(PT.1-8) Idaho, Inc. for packaging and transportation are not clearly
(H2/C2) defined and documented.

PT.2 PACKAGING AND TRANSPORTATION

PERFORMANCE OBJECTIVE: Personnel should be trained, qualified, and certified in handling hazardous materials, as required by DOE 5480.3 and 49 CFR.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- MK-FIC personnel interviewed stated that they have no involvement in packaging and transportation in any way, and all shipments leaving the construction site are initiated by the operating contractor. In spite of this viewpoint, MK-FIC procedure CMSM 5A-4, Revision B, "Hazardous Waste Management," Revision B, July 31, 1990, has instructions for form ID F 5480.1A (Revision 07-83) which is specifically used for offsite shipments.
 - MK-FIC labor contracts require that only Teamsters be used to move materials onsite. MK-FIC requires that Teamsters who handle hazardous materials have a Class A Chauffeur's Permit with an "H" designation. The "H" designation means that the driver has passed a test, administered by the State of Idaho, Motor Vehicles Department, covering emergency response in case of spills and/or accidents involving hazardous materials. An Idaho Class A Chauffeur's permit is valid for 4 years. Only two of the four Teamster drivers working for MK-FIC have the "H" designation. Further, some concern was expressed by the ES&H Manager of MK-FIC that turnover makes it difficult to achieve this qualification by all Teamster employees. These observations reveal that MK-FIC is not paying appropriate attention to the packaging and transportation activities being carried out by their employees.
 - Regulations found in 49 CFR 171.825 required recurrency training at least every 2 years. The EG&G Idaho Hazardous Materials Transportation Manual requires recurrency training on an annual basis.
 - There is no MK-FIC training for employees making hazardous materials movements.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN:
(PT.2-1)
(H2/C1)

Morrison Knudsen-Ferguson of Idaho Company has no initial or recurrent training for packaging and transportation personnel, as required by 49 CFR 171.825 and by the EG&G Idaho, Inc. Hazardous Materials Transportation Manual.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Other than the EG&G Idaho course for shipping coordinators, RESL has not defined minimum training requirements for its employees involved in packaging and transportation activities.
 - Both of the persons in the health physics area are relatively new to the RESL site, and while both are qualified as shipping coordinators (only one will remain qualified after July 31, 1991), the current shipping coordinators question whether the training is sufficient and depend heavily upon EG&G Idaho for support in packaging and transportation. (See Concern PT.1-6.)
 - These concerns were not addressed in the RESL self-assessment.

CONCERN:
(PT.2-2)
(H2/C1)

The Radiological and Environmental Sciences Laboratory does not document training and qualification requirements for individuals involved in the packaging and transportation of hazardous materials, as required by ID 5480.3, Chapter II.

CONCERN:
(PT.2-3)
(H2/C1)

The Radiological and Environmental Sciences Laboratory does not provide its hazardous materials shipping coordinators with training that is necessary to provide the level of expertise required by DOE 5480.19, Chapter 5.

Rockwell-INEL

- FINDINGS:**
- Much of the packaging and transportation training is accomplished in offsite courses, briefings, meetings, etc. for which there is no defined curriculum.
 - Training records kept by Rockwell-INEL are complete and easy to access, but in the area of packaging and transportation do not show consistency in the offsite course titles.
 - Job descriptions contain requirements for general training for all employees, and for well defined positions such as driver or material handler; however, they do not specify specific training for packaging and transportation responsibilities at the operating level.
 - There is no defined minimum level of training for persons involved in packaging and transportation other than those established by EG&G Idaho for the designation as Shipping Coordinator. This is in spite of Rockwell's shipping coordinator expressing the opinion that the EG&G Idaho training was not sufficient for persons responsible for this activity.

- Proof of qualification (by EG&G Idaho) to be a Shipping Coordinator could not be produced when the S&H Subteam asked for such documentation (EG&G Idaho gives an endorsement on the blue training card to those who complete the 16-hour training).
- The Rockwell-INEL shipping coordinators were well qualified, but their expertise was due to their own self-interest and their attendance at several offsite packaging and transportation courses and is not required by directives.
- A total of nine persons at Rockwell-INEL have taken the EG&G Idaho training to become a Shipping Coordinator (the number who are current was not determined). Among those who EG&G Idaho would recognize as Shipping Coordinators are two persons in the Training Organization. There is no control over who may take the training and thus become a Shipping Coordinator.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(PT.2-4)
(H2/C1)

Rockwell-INEL does not specify training and qualification for packaging and transportation personnel, as required by ID 5480.3, Chapter II.

PT.3 QUALITY ASSURANCE

PERFORMANCE OBJECTIVE: A system of checks and balances should exist that ensures the quality assurance requirements of the applicable DOE Orders, especially DOE 5700.6B and ANSI NQA-1-1986 are met.

Radiological & Environmental Sciences Laboratory

- FINDINGS:**
- RESL management has not conducted audits of the packaging and transportation activity.
 - The S&H Subteam could find no requirement for conducting critical self-assessments by the RESL management (as distinct from ID) of the packaging and transportation activity.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: There is no Radiological and Environmental Sciences Laboratory
(PT.3-1) program for audit and appraisal of packaging and transportation
(H2/C1) activities, as required by DOE 5480.3, Section 9, and
DOE 5700.6B.

PT.4 REGULATORY COMPLIANCE

PERFORMANCE OBJECTIVE: All Packaging and Transportation operations involving hazardous materials should be conducted in compliance with the applicable State and Federal regulations, including those of the Department of Transportation (DOT), Nuclear Regulatory Commission (NRC), Occupational Safety and Health Administration (OSHA), and Environmental Protection Agency (EPA).

DOE Field Office, Idaho

- FINDINGS:**
- ID 5480.3 redefines standard terms in what appears to be an attempt to retain an advantageous interpretation of the concept of onsite versus offsite. As such, the Order is confusing and nonspecific. For example, a Carrier is defined strictly in terms of onsite movements as if there are no offsite shipments.
 - ID 5480.3 redefines standard terms in common use in what appears to be an attempt to gain an advantage for INEL contractors. For example, the term "Containment" has specific connotations in NRC and DOT regulations. Yet, ID 5480.3 defines Containment as "An external covering or wrapping... designed to enclose the item and present a contamination-free external surface ..."; this is commonly called a wrapping.
 - Consistent reference is made throughout ID 5480.3 to transportation manuals. There is the EG&G Idaho Hazardous Materials Transportation Manual (p. 7), and the INEL Onsite Transportation Safety Manual (p. 8, 9), the DOE Onsite Transportation Safety Manual (p. I-1, II-9, II-10), the Onsite Transportation Manual (p. II-1), the Contractor's Onsite Safety Manual (which may or may not be another manual - see p. II-1), and the Hazardous Materials Transportation Manual (p. II-8, II-9). Questioned about this apparent plethora of manuals the ID representative claimed that there was only one manual involved. At best this is confusing.
 - Chapter I of ID 5480.3 is titled "Off-Site Shipments." Yet paragraph 2 requires that personnel involved be trained to the requirements specified in the DOE Onsite Transportation Safety Manual (which does not exist at this time). The implication is that DOE will apply its own concept to the rest of the world.
 - This concern was not addressed in the ID self-assessment.

CONCERN: ID 5480.3 is not consistent with DOE 5480.3 and other packaging and transportation requirements specified in Title 10 and Title 49 regulations and DOE Memoranda.
(PT.4-1)
(H2/C1)

FINDINGS:

- The Hazardous Material Transportation Manual, prepared by EG&G Idaho to meet the requirements of DOE 5480.1B, Section 8.d.6, is poorly written, confusing, and incorrect.
 - Repeatedly, references are given to nonexistent paragraphs or to the incorrect paragraph in the regulations. Some reference are outdated by years. References are made to nonexistent figures.
 - Requirements imposed on persons or entities are, in some cases, nonspecific. Words like "proper, appropriate, and applicable" are sprinkled liberally throughout without definition of their meaning.
 - Abbreviations are used that are undefined and not in standard usage.
 - Conceptual instructions are poorly explained and therefore confusing.
 - Terms are used to describe functional positions within other contractor organizations that are undefined and confusing.
 - Frequently, the title of the person responsible for a function does not define whether that individual is an EG&G Idaho employee or an employee of some other contractor.
 - Standard definitions are misused or redefined (e.g., Exemptions can only be granted by DOT yet Section 4.1.2 allows for DOE to issue Exemptions. DOE issues Alternatives at Headquarters only).
 - Procedures contained in the Order are sometimes wrong (e.g., the pull test on a trailer).
 - In one place, the use of NRC Certified Packagings is not allowed (4.4.2.2).
 - This is a sampling of the problems of this manual.
- The current version of the Hazardous Materials Transportation Manual is Revision 3, which would indicate that some considerable internal review by EG&G Idaho has taken place, but gross errors persist.
- Packaging and transportation activities at INEL appear to be of such low priority that there is little if any quality assurance applied.
- The S&H Subteam can find no DOE appraisal of this manual.

- This concern was not addressed in the ID self-assessment.

CONCERN: DOE Field Office, Idaho, does not conduct a formal review of the
(PT.4-2) Hazardous Materials Transportation Manual, as required by
(H2/C1) DOE 5480.19, Section 6.e.3 and Chapter I.C.1.

EG&G Idaho, Inc.

- FINDINGS:**
- The Hazardous Material Transportation Manual, prepared by EG&G Idaho to meet the requirements of DOE 5480.1B, Section 8.d.6, is poorly written, confusing, and incorrect.
 - Repeatedly references are given to nonexistent paragraphs or to the incorrect paragraph in the regulations. Some references are outdated by years. References are made to nonexistent figures.
 - Requirements imposed on persons or entities are, in some cases, nonspecific. Words like "proper, appropriate, and applicable" are sprinkled liberally throughout without definition of their meaning.
 - Abbreviations are used that are undefined and not in standard usage.
 - Conceptual instructions are poorly explained and therefore confusing.
 - Terms are used to describe functional positions within other contractor organizations that are undefined and confusing.
 - Frequently, the title of the person responsible for a function does not define whether that individual is an EG&G Idaho employee or a contractor employee.
 - Standard definitions are misused or redefined (e.g., Exemptions can only be granted by DOT yet Section 4.1.2 allows for DOE to issue Exemptions. DOE issues Alternatives at Headquarters only).
 - Procedures contained in the Order are sometimes wrong (e.g., the pull test on a trailer).
 - In one place, the use of NRC Certified Packagings is not allowed (4.4.2.2).
 - This is a sampling of the problems of this manual.
 - The current version of the Hazardous Materials Transportation Manual is Revision 3, which would indicate

that some considerable internal review by EG&G Idaho has taken place, but gross errors persist.

- Packaging and transportation activities at INEL appear to be of such low priority that there is little if any quality assurance applied.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(PT.4-3)
(H2/C1)

The EG&G Idaho, Inc. Hazardous Materials Transportation Manual is not consistent with DOE 5480.3, ID 5480.3, or other DOE instructions.

PT.6 OPERATIONS

PERFORMANCE OBJECTIVE: Sitewide operations involving packaging and transportation of hazardous materials should be conducted in a safe, consistent, and accountable manner, following approved procedures, in conformance with applicable standards and accepted practices.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- There was some confusion among these interviewed about who establishes Satellite Accumulation Areas (SAAs), but MK-FIC has eliminated, or will shortly eliminate, their own SAAs on the job sites; instead, they use the SAAs established by the resident contractor.
 - All solvents, thinners, and paints are poured together into SAA drums labeled "Mixed Paint Products" (the labels are supplied to MK-FIC by EG&G Idaho). Only materials on an approved "Waste Feed Products" listing are supposed to be added to the drums by MK-FIC subcontractors. When filled to 80 percent of the volume, an MK-FIC Teamster employee closes the drum, loads it into a pickup truck, and moves it to a warehouse for pickup by EG&G Idaho. There are no written procedures for these activities. MK-FIC depends upon the fact that the moves are made by employees who are members of the Teamsters Union. MK-FIC labor contracts require that only Teamsters be used to move materials onsite. MK-FIC requires that Teamsters who handle hazardous materials have a Class A Chauffeur's Permit with an "H" designation. The "H" designation means that the driver has passed a test, administered by the State of Idaho, Motor Vehicles Department, covering emergency response in case of spills and/or accidents involving hazardous materials. An Idaho Class A Chauffeur's permit is valid for 4 years. Only two of the four Teamster drivers working for MK-FIC have the "H" designation. Further, some concern was expressed by the ES&H Manager of MK-FIC that turnover makes it difficult to achieve this qualification by all Teamster employees. (See Concern PT.2-1.)
 - Since the EG&G Idaho Hazardous Materials Transportation Manual specifically excludes intra-facility transfers, this activity should be covered by MK-FIC procedures.
 - There are no MK-FIC procedures covering the movement of hazardous waste drums.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company does not have
(PT.6-1) procedures for the movement of hazardous wastes, as required by
(H2/C1) DOE 5480.3, Section 10.

- FINDINGS:**
- MK-FIC procedure CMSM 5A-4, Revision B, Section 8.4, "Hazardous Waste Management," specifies the use of vermiculite to absorb free liquids. Energy Research and Development Administration Immediate Action Directive No.44, dated July 18, 1975, specifically forbids the use of vermiculite for either positioning or as an insulating medium. While its use as an absorbent was not specifically mentioned, practice has been to avoid use altogether. A DOE memorandum dated June 7, 1991, titled "Use of Granular, Prilled, or Pelletized Materials such as Vermiculite in Hazardous Materials Packaging" completes this process by prohibiting, as of August 31, 1991, the "DOE use of granular, prilled or pelletized materials such as foamed plastic pellets and vermiculite, whether bagged or unbagged, tamped or untamped to 1) thermally insulate, 2) cushion, 3) position, or 4) absorb."
 - MK-FIC contract language in the General Conditions (GC-34, Section F.3.b), calls for the use of kitty litter as the absorbent for packaging oil filters after draining for 24 hours and as the absorbent for waste oil. Yet, in the MK-FIC Special Conditions (SC 4.1.4.b) "the use of kitty litter or floor dry" is specifically prohibited. SC 4.1.5 instructs the subcontractors to use "portland cement or vol-clay" to absorb free oils.
 - These concerns were not addressed in the MK-FIC self-assessment.

CONCERN: Hazardous waste instructions by the Morrison Knudsen-Ferguson of
(PT.6-2) Idaho Company to its subcontractors are not consistent.
(H2/C2)

CONCERN: Morrison Knudsen-Ferguson of Idaho Company hazardous waste
(PT.6-3) procedures suggest the use of vermiculite which is contrary to
(H2/C1) the Energy Research and Development Administration, Immediate Action Directive No.44.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- While extensive procedures and training efforts are expended on the escort function of the PTI personnel, no procedures were offered to the Team covering the packaging and transportation functions involved in disposal of hazardous materials generated by the PTI operations.

- Packaging and transportation activities are viewed as peripheral to the main mission of PTI. Heavy reliance is placed upon EG&G Idaho for support in this area.
- This concern was not addressed in the PTI self-assessment.

CONCERN: Packaging and transportation operating procedures for Protection
(PT.6-4) Technology of Idaho, Inc., are not documented, reviewed, and
(H2/C1) approved, as required by DOE 5480.3, Section 10.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- While RESL procedures for packaging and transportation activities are in existence, these are general in nature giving the reader references to regulatory documents covering the entire spectrum of packaging and transportation requirements. As such, these meet the requirement for procedures, but are too general to be useful to those involved in the activity. More specific procedures covering the types of movements encountered by RESL only, need to be developed.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: Movements and transfers of hazardous materials at the
(PT.6-5) Radiological and Environmental Sciences Laboratory are made under
(H2/C1) procedures that do not have sufficient detail to ensure compliance with DOE 5480.3.

Rockwell-INEL

- FINDINGS:**
- During loading and similar handling operations involving the movements of loaded product shipping containers, there is no item on the checklist requiring verification that the material handler has current qualifications for the task. No other mechanism for verifying this qualification was found.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN: Qualification of key Rockwell-INEL personnel involved in loading
(PT.6-6) and handling operations is not verified before each operation to
(H3/C1) ensure compliance with DOE 5480.3 and ID 5480.3.

PT.8 ONSITE TRANSFERS

PERFORMANCE OBJECTIVE: Onsite transfers of hazardous materials should be conducted in a safe, consistent, and accountable manner, following approved procedures, in conformance with applicable standards and accepted safety practices.

Rockwell-INEL

- FINDINGS:**
- Rockwell-INEL procedures for transfers between warehouses, or from production/packaging to the shipping warehouse (all within the TAN fence) are known to need revision.
 - Procedures in use are Warehouse Transfer procedures that are known to be out of date.
 - This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(PT.8-1)
(H2/C1)

Rockwell-INEL does not have current and approved hazardous materials packaging and transportation procedures for transfers within the Test Area North fence, as required in DOE 5700.6B.

PT.9 OFFSITE SHIPMENTS

PERFORMANCE OBJECTIVE: Offsite shipments of hazardous materials should be conducted in a safe, consistent, and accountable manner, following approved procedures, in conformance with applicable regulations, standards, and accepted practices.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Incoming shipments of hazardous materials are received by EG&G Idaho and transferred to RESL by EG&G Idaho. Incoming shipments are to be examined per requirements in the Hazardous Materials Transportation Manual, Section 4.6, and discrepancies reported.
 - There is no notification to RESL of incoming shipments. While all incoming radioactive shipments are required to be checked by health physics personnel (who also are the shipping coordinators), other hazardous materials are delivered directly to the consignee without notification of the shipping coordinators or anyone else.
 - Accepted industry practice dictates that all incoming shipments of hazardous materials be routed through a single designated, responsible person.
 - See Concern RP.10-2.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: Incoming packages of hazardous materials to the Radiological and Environmental Sciences Laboratory are not checked for breakage and/or leakage, nor are vehicles checked before release from the facility as required in DOE 1540.1, Chapter II, Section 7.
(PT.9-1)
(H2/C1)

Rockwell-INEL

- FINDINGS:**
- Incoming shipments of radioactive material are normally received by EG&G Idaho at the CFA where receiving inspections are performed. Shipments of hazardous material arriving outside of normal working hours will not be received by EG&G Idaho. However, shipments of billet material arriving during off-duty hours can be received by Rockwell-INEL, without being first processed by EG&G Idaho. This is covered by a Memorandum of Understanding between EG&G Idaho and Rockwell-INEL as is required by the Hazardous Materials Transportation Manual, Section 4.6.6.
 - Rockwell-INEL PIC-OP-410-Procedure 6, requires that Material Control shall notify Health Physics of all incoming shipments of "billet material." It is assumed that Health Physics will check all incoming shipments of

billet material for contamination of the package and/or the vehicle. There is no requirement for notification of Health Physics on any other incoming shipment of radioactive materials.

- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(PT.9-2)
(H2/C1)

Shipments of radioactive materials to Rockwell-INEL are being received without being surveyed by Health Physics for possible contamination, as required in DOE 1540.1, Chapter II, Section 7.

PT.10 RECORDS

PERFORMANCE OBJECTIVE: Records of hazardous materials movements, transfers, and shipments should be prepared and maintained to ensure compliance with DOE and other regulatory requirements, and to provide an auditable trail of actions.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- The records of training kept at RESL (by a Physical Scientist who inherited the task when the previous Health Physicist left) are based on random input. If the individual was scheduled for training by the Physical Scientist, he later asks if the person attended the course. If the individual says that the course was completed it is entered on the training record. If the course is given onsite (i.e., at RESL), a notice is sent to the records keeper. If the individual schedules the course and the course is conducted offsite, there is no record of attendance. The entire training record system is ad hoc.
 - Records of the two qualified shipping coordinators were discussed in a telephone interview with the Physical Scientist who keeps the RESL training records. The Health Physicist's record showed no indication of having attended the EG&G Idaho course for shipping coordinators (which he claims he did). The Health Physics Technician's record showed he completed the Science Applications International Corporation (SAIC) 4-day course on July 12, 1990. EG&G Idaho explicitly allowed the SAIC course to replace the EG&G Idaho course for the purposes of qualification as a shipping coordinator. No notice was given that recurrency training was required to maintain that qualification.
 - RESL personnel feel it is an EG&G Idaho responsibility to keep training records. The records kept onsite by the Physical Scientist are considered supplemental to those of EG&G Idaho and are used for internal RESL purposes only. There appeared to be little responsibility assumed for training records of RESL personnel.
 - This concern was not addressed in the RESL self-assessment.

CONCERN:
(PT.10-1)
(H2/C1)

The Radiological and Environmental Sciences Laboratory training records on packaging and transportation qualification are not complete and accurate, making it impossible to audit for compliance to DOE 5480.3 and 5480.19, Chapter V.

PT.11 APPRAISALS AND INTERNAL AUDITS

PERFORMANCE OBJECTIVES: Periodic Packaging and Transportation safety appraisals of contractors by the Field Office, and independent internal Packing and Transportation safety audits by each contractor are required by DOE 5480.3 and are conducted in accordance with DOE 5482.1B.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- MK-Ferguson does not consider themselves responsible for packaging and transportation since all such functions are handled by the construction site resident contractor or EG&G Idaho. However, MK-FIC employees are making onsite transfers of hazardous materials.
 - There have been no ID audits of the packaging and transportation activities at MK-FIC.
 - Packaging and transportation activities are not addressed in internal audits by MK-FIC.
 - These concerns were not addressed in the MK-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho company is not conducting periodic safety appraisals/audits of packaging and transportation activities, as required by DOE 5480.3.
(PT.11-1)
(H2/C1)

- FINDINGS:**
- This concern was not addressed in the ID self-assessment.

CONCERN: The DOE Field Office, Idaho, is not conducting periodic safety appraisals/audits of packaging and transportation activities at Morrison Knudsen-Ferguson of Idaho Company, as required by DOE 5480.3.
(PT.11-2)
(H2/C1)

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Audits of RESL packaging and transportation activities are conducted as a part of the overall ID self-appraisal. Organizationally RESL now falls under the Assistant Manager for Energy Programs. Previously RESL was part of the Energy Technologies Division (ETD). RESL was not included in the "Packaging and Transportation Safety Appraisal at Idaho National Engineering Laboratory (INEL)," published January 29, 1991. There is no mention of packaging and transportation in the ETD Critical Self-Assessment of RESL for the period of January 1, 1991, through March 31, 1991. There is no mention of packaging and transportation in the ETD Critical Self-Assessment of RESL for the period of October 1, 1990, through December 31, 1990.

- In the RESL self-assessment for the period of January 1 through March 31, 1991, there is no mention of packaging and transportation although one finding concluded that staffing is inadequate in the Health Physics area (where packaging and transportation is handled).
- ID audited RESL in the single area of packaging and transportation on June 21, 1991, but there is no published document available as yet.
- This concern was not addressed in the RESL self-assessment.

CONCERN:
(PT.11-3)
(H2/C1)

Packaging and transportation activities at the Radiological and Environmental Sciences Laboratory are not included in the routine periodic safety appraisals by the DOE Field Office, Idaho, as required by DOE 5480.3 and DOE 5482.1B, Section 8.

PT.12 PACKAGING AND STORAGE PROCEDURES

PERFORMANCE OBJECTIVE: All packaging and storage procedures for hazardous material are in conformance with DOE 5480.3, 49 CFR, and 40 CFR.

Rockwell-INEL

- FINDINGS:**
- The Rockwell-INEL product is shipped as Low Specific Activity (LSA) material and meets all of the requirements for that classification. The packagings used are designed for LSA application. These packagings must be certified by Rockwell-INEL as meeting the DOT requirements for LSA packaging. SMC has, in its files, documentation for each step in the certification process, but these pieces were scattered, and it was a time consuming process to collect all of them.
 - Rockwell-INEL has designed and is using product shipping containers that have been in service for several years. Product shipping containers were designed to specified design criteria established by a peer review process. Final designs of the product shipping container were also peer reviewed. Design drawings of the product shipping containers are current, controlled documents.
 - Product shipping containers have been inspected at the time of receipt for conformance to the design drawings; further, there is a statement by the manufacturer of the product shipping container that the finished units conform to the design drawings.
 - Procedures are in place for inspection of the product shipping containers before each use.
 - There is no central collection of these documents, which would make it possible to trace the process and certify that the packaging used is appropriate.
 - See Concerns AX.1-4 and TS.4-1.
 - This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(PT.12-1)
(H3/C1)

Rockwell-INEL compliance documentation demonstrating the appropriate design, procurement, use, and maintenance of packaging used for shipping product materials is not maintained and readily retrievable, as required by DOE 1540.2, Chapter 1.

4.5.3.10 Security/Safety Interface

4.5.3.10.1 Overview

Morrison Knudsen-Ferguson of Idaho, Company

Security/safety interface at MK-FIC was addressed relative to all four performance objectives to the extent that they apply. Security at MK-FIC facilities is among the least restrictive on the INEL site.

Security driven modifications have not been made at MK-FIC facilities, and those at the construction sites are governed by the operating contractors. Problems during security emergencies are not expected. Emergency vehicles are given access, and security force activities are primarily restricted to the construction site fence line. PTI provides security escorts for uncleared construction workers on sites requiring a clearance. Problems with this interface have not been identified.

Neither the MK-FIC self-assessment nor this report identified deficiencies with the security/safety interface.

Protection Technology of Idaho, Inc.

Security/safety interface at PTI was addressed relative to three of the four performance objectives. The performance objective of Safety of Improvements was not fully applicable to PTI because they are considered users in EG&G Idaho facilities and have minimal influence on facility modifications. However, inquiries related to problems in this area did not reveal obvious problems.

Inspection of the principal PTI facility revealed no security related impediments to emergency egress. PTI escorts, guards, and security inspectors have specific responsibilities to assist others with emergency egress in non-PTI facilities.

PTI conducts considerable training to prepare their personnel to deal with security emergencies in facilities occupied by others on the INEL. In connections with these, "no-fire zones" have been set up in facilities where gunfire could release hazardous materials or otherwise effect personnel safety. (See Section 4.5.3.17). A noteworthy practice was observed in the firearms safety area that directly relates to the security/safety interface. PTI conducts a force-on-force exercise each month in one of the facilities they protect. Pre-exercise briefings include safety briefings from contractor and PTI safety staff and a review of the no-fire zones. Exercise critiques include evaluation of the application of this information. This reinforcement of classroom instruction is performance-based training at its best.

The greatest area for improvement of the PTI security/safety interface appears to be in the area of the safety of security activities, and no concerns are cited in this report. PTI has training schedules for the facility contractors to train their personnel in the facility-specific hazards. However, not all of this training has been performed. The EG&G Idaho Tiger Team report

identifies two concerns in this area: (1) EG&G Idaho has not required facility-specific training for PTI personnel who are assigned to EG&G Idaho facilities, and (2) PTI personnel assigned to Treatment, Storage, and Disposal sites have not been provided the training required by EG&G Idaho, 29 CFR 1910.120 and 40 CFR 265. For other sites on the INEL, training content has been largely left up to the site service contractor.

Neither the PTI self-assessment nor this appraisal identified concerns in the security/safety interface.

Radiological and Environmental Sciences Laboratory

Security/safety interface at the RESL was addressed relative to three of the four performance objectives. The performance objective of Safety of Improvements was not fully applicable to RESL because they are considered users in EG&G Idaho facilities and have minimal influence on facility modifications. In addition, there have not been modifications for security purposes. Inspection of the RESL facility revealed no security related impediments to emergency egress.

Planning for either security/safeguard or operational emergencies in RESL facilities is largely informal. No emergencies are anticipated that would require a RESL response that would in any way conflict with security activities. Security requirements are such that security personnel rarely have a need to enter operating areas of RESL. Carcinogens and other hazardous materials are labeled and generally locked up during off-shift hours.

Neither the RESL self-assessment nor this appraisal identified problems with the security/safety interface.

Rockwell-INEL

Security/safety interface at the SMC, operated by Rockwell-INEL, was addressed relative to all four performance objectives. The safety of security improvements receives the same review as other facility modifications. Recent changes to convert rooms into vaults have the potential to adversely effect emergency notification and emergency egress. However, these problems were being addressed at the time of the appraisal. Approved panic hardware was on order and emergency alarms were being located outside of the rooms so that they could be heard by occupants.

Due to security restrictions, emergency access routes at SMC are often not the same as normal egress routes. Drills and exercises continue to show that occupants have a reluctance to use emergency exits, but the situation is improving. Although it is not a requirement, installation of panic hardware for emergency egress on normal exits would provide greater assurance of emergency egress.

Security personnel were well aware of their responsibility to allow emergency vehicles entry and egress, although this is not formally documented.

Some of the security force and fire fighters are trained and familiar with the facility to assist emergency responders in locating emergency situations. However, not all personnel in these groups are trained due to security restrictions. There are provisions to allow them to respond in an emergency and be debriefed later.

SMC facilities have designed no-fire zones and PTI officers onsite are trained in these. PTI personnel participate in facility emergency drills and exercises.

The safety of security personnel is somewhat less of a problem at SMC than at some other facilities at INEL because security personnel perform most of their duties from outside the facilities. Those that work inside are given an undocumented orientation by Rockwell-INEL.

The Rockwell-INEL self assessment covers a variety of general and specific health and safety concerns. It documents 12 concerns in the security/safety interface area; however, most are purely security or emergency preparedness related. No concerns are identified in the security/safety interface.

4.5.3.11 Site/Facility Safety Review

4.5.3.11.1 Overview

Morrison Knudsen-Ferguson of Idaho Company

MK-FIC was not appraised in the Site/Facility Safety Review area. This company's role at INEL is construction management--arranging subcontracts for site construction activities and overseeing such activities. The safety requirements for facility modification activities are set by the requesting contractor's programs.

MK-FIC's facilities consist of office space and craft shops, and do not involve nuclear or radioactive materials. Thus, these activities are specifically excluded from the requirements of DOE 5482.1B, by paragraphs 4.a and 4.c of that Order, and do not fall within the scope of DOE 5480.5 or DOE 5480.6.

Protection Technology of Idaho, Inc.

The appraisal of PTI addressed all six of the performance objectives in the Site/Facility Safety Review area. The appraisal included: visits to the PTI headquarters building; reviews of policies, procedures, safety analysis documents, and audit/appraisal reports; and interviews with the PTI Compliance Division Director and ES&H Department Manager.

PTI does not operate any nuclear facilities and, thus, does not fall under DOE 5480.5 or DOE 5480.6. When PTI members are within the INEL nuclear facilities their activities are governed by the facility operating contractor's safety programs and requirements. PTI activities do fall within the scope of DOE 5482.1B. The activities, however, are not of such a complex nature as to require a full safety review committee. The activities are governed by DOE 5480.16, and were appraised under Firearms Safety.

Safety overview of PTI operations has been assigned to the ES&H Department, which is responsible for conducting internal appraisals of high risk activities, conducting operational and facility inspections, and ensuring that SARs and/or safety assessments are prepared as required. PTI has in place a Live-Fire Range SAR that meets the requirements of DOE 5480.16, and also has in place safety assessments of all high risk activities such as those involving firearms, aircraft, and motor vehicles.

PTI has documented requirements for periodic appraisals, as required by DOE 5482.1B and ID 5482.1A. The appraisals are being scheduled and conducted. The PTI ES&H Department Manager believes that the appraisals cover the scope required by DOE 5482.1B, but this cannot be readily confirmed from the appraisal records. PTI does not have a program for triennial management reviews of the internal safety appraisal and review system.

PTI has an event trending requirement in its ES&H procedures. Occurrences are reported in accordance with the requirements of DOE 5000.3A. Data on injuries, deficiencies, and occurrences are compiled in a computer data base

that permits sorting and retrieval of data based on key words, and generation of hard copy reports.

Two concerns were identified, in the areas of periodic appraisal auditability and lack of triennial management review of the safety appraisal program. One of these concerns was partially addressed in the PTI self-assessment; the other concern was not addressed.

Radiological and Environmental Sciences Laboratory

The appraisal of the RESL addressed all six of the performance objectives in the Site/Facility Safety Review area. The appraisal included: visits to Bldgs. CF-638 and CF-690; reviews of policies, procedures, SARs, and files; and interviews with the RESL Director and Administrative Officer, ID Safety Division staff, ID Assistant Manager for Energy Programs, and the ID Technical Support Division Director.

The RESL facilities are currently considered to be low hazard nonnuclear facilities and, as such, are not covered by DOE 5480.5 or DOE 5480.6. They are subject to the requirements of DOE 5481.1B and DOE 5482.1B. Confirmation of the low hazard nonnuclear status of Bldg. CF-638, which contains some high activity sealed radioactive sources, will depend upon acceptance of the updated Bldg. CF-638 Safety Analysis document. This document currently is in draft form. The low hazard nonnuclear designation appears to be appropriate for Bldg. CF-690, but the low hazard categorization has not been confirmed by a documented safety analysis.

ID has not established an independent internal safety review and appraisal system for the RESL, and the periodic safety appraisals and triennial reviews specified by DOE 5482.1B, Section 9.d, are not being conducted. RESL management was of the opinion that the ID Safety Division reviews and appraisals provided these functions. This was contradicted by the Safety Division Director, who sees his division's role in relation to the RESL as overview, equivalent to that for INEL contractors.

Three concerns were identified. These were related to lack of an independent internal review and appraisal program, periodic safety appraisals, and triennial reviews. None of these concerns were identified in the RESL self-assessment.

Rockwell-INEL

The appraisal of Rockwell-INEL addressed all six of the performance objectives in the Site/Facility Safety Review area. The appraisal included: visits to SMC facilities, including Bldgs. TAN-629, TAN-679, and TAN-607A; reviews of policies, procedures, SARs, OSRs, and selected record files; and interviews of Rockwell-INEL managers, engineers, and the Independent Safety Review Committee (ISRC) Chairman.

The SMC facilities operated by Rockwell-INEL were formally designated as nuclear facilities in February 1990. As such, they are subject to the requirements of DOE 5480.5, DOE 5481.1B, and DOE 5482.1B.

Rockwell-INEL recently established an independent internal safety review committee, the ISRC. The committee's functions, membership, and responsibilities, as defined in the Rockwell-INEL procedure that established the ISRC, are fully consistent with the requirements of DOE 5480.5, Section 9. Procedures to direct the ISRC's activities are still in draft form; however, the committee is conducting its assigned reviews of safety documents and safety-related occurrences. Neither the charter nor the procedures address potential conflicts of interest by ISRC members.

Records of ISRC review activities include copies of completed comment forms. The combination of minutes/reports and attachments provides clear evidence of the quality of each review.

The ISRC responsibilities include performing the annual appraisals required by DOE 5480.5. However, this creates a situation in which the individuals who perform the annual review may be the same as those who review safety questions. No annual appraisals, as required by DOE 5480.5, have been performed since SMC was designated as a nuclear facility. No triennial management review of the Rockwell-INEL independent internal safety review system has been performed.

Occurrences are reported in accordance with DOE 5000.3A. A Rockwell-INEL procedure defines the event reporting system in detail and is fully consistent with DOE 5000.3A. Each event is reviewed by a critique committee, on which the ISRC is represented.

Three concerns were identified, in the areas of potential ISRC conflict of interest, annual appraisals, and triennial reviews. The Rockwell-INEL self-assessment addressed two of these three concerns.

4.5.3.11.2 Findings and Concerns

FR.1 SAFETY REVIEW COMMITTEE

PERFORMANCE OBJECTIVE: A Safety Review Committee should be available to review safety questions and the safety impacts of experiments. This committee is part of the "Contractor Independent Review and Appraisal System" specified in DOE 5480.5, or DOE 5480.6, and/or DOE 5482.1B., Section 9.d.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- The RESL Director and the RESL Administrative Officer identified the ID Safety Division as the organization that provides the facility independent safety review function for the RESL facilities and operations. The ID Safety Division Director, however, stated that his Division does not serve in this capacity but overviews the RESL in the same way that it overviews INEL contractor operations.
 - The ID Assistant Manager for Energy Programs, who has the RESL as a component of his organization, stated that there is no independent internal safety review system for RESL, agreeing that the ID Safety Division provides an oversight function. He has recognized the need to establish an independent internal safety review system for his organization and is currently exploring options.
 - The RESL has established a Safety Committee by Procedure RESL-2, "RESL Safety Committee," June 3, 1991. Its duties, however, are primarily related to overview of safety in the workplace, such as facility safety inspections and communication, and are not of the nature of activities specified for a facility independent review and appraisal system by DOE 5480.5 or DOE 5482.1B, Section 9.d.
 - See Concern PT.1-7.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: An independent safety review and appraisal function for the Radiological and Environmental Sciences Laboratory that meets the requirements of DOE 5482.1B, Section 9.d., does not exist.
(FR.1-1)
(H2/C1)

Rockwell-INEL

- FINDINGS:**
- Rockwell-INEL Procedure QP 14.2.1, "Independent Safety Review Program," Revision 1, June 3, 1991, defines responsibilities and membership of the ISRC. The ISRC is specified to include adhoc members from Engineering and Production Operations, among others; thus, there is a potential for ISRC members to act on matters for which they have line responsibility.

- Neither Procedure QP 14.2.1, nor the draft procedures for ISRC operation address how to deal with such conflicts of interest.
- See Concern FR.4-3.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN: See Concern OA.2-2.

FR.4 ANNUAL FACILITY SAFETY REVIEW

PERFORMANCE OBJECTIVE: An annual operating review of the facility should be performed by a committee appointed by top contractor management, as specified in DOE 5480.5 and DOE 5480.6.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- PTI does not operate any reactors or nuclear facilities; thus, it is not subject to the DOE 5480.5 or DOE 5480.6 requirements for annual appraisal of the operation of each facility. It is, however, subject to the requirement of DOE 5482.1B, paragraph 9.d.(2)(e), that the internal appraisal system shall "Review the overall operation of each facility with sufficient frequency to assure adequate ES&H coverage." DOE 5482.1B, paragraph 9.d.(2)(g), identifies seven elements to be covered by the appraisals.
 - PTI has established policies and procedures for inspections and internal appraisals of high risk activities (Protection Technology Idaho Policy and Resource Manual, Revision 00, Part II-1, Section 4.0, March 1991 and "PTI ES&H Department Procedures," Revision 4, Section 2.1, June 1991). The policy references DOE 5482.1B as the governing Order for appraisals, but neither the policy nor the procedures address scoping the appraisals to cover all appropriate elements specified by DOE 5482.1B.
 - Some, but not all, of the elements specified by DOE 5482.1B, paragraph 9.d.(2)(g), were covered in appraisal reports selected for review.
 - The PTI ES&H Manager expressed the opinion that the appraisal program does cover all of the required elements, and that this could be confirmed by a review of a sufficient number of reports. However, reviews and discussions over a period of one and one-half hours could not provide such confirmation.
 - DOE 5482.1B, paragraph 9.d.(2)(c), requires that the appraisal system be auditable.
 - This concern was partially addressed in the PTI self-assessment.

CONCERN: The Protection Technology of Idaho, Inc. internal appraisal system is not readily auditable, as required by DOE 5482.1B, paragraph 9.d.(2)(c), with respect to the appraisal scope.
(FR.4-1)
(H3/C1)

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Because the RESL facilities are not designated as nuclear facilities, they do not fall under the requirement of DOE 5480.5, Paragraph 9.g, for annual appraisals. They do, however, fall within the requirement of DOE 5482.1B, Paragraph 9.d.(2)(e), to "Review the overall operation of each facility with sufficient frequency to assure adequate ES&H coverage."
 - The RESL Director and RESL Administrative Officer expressed the opinion that appraisals by the ID Safety Division served to meet the periodic internal appraisal requirements of DOE 5482.1B, Paragraph 9.d.(2)(e). The ID Safety Division Director, however, stated that these appraisals were an overview comparable to that applied to INEL contractors, and were not intended to meet the DOE 5481.1B requirements for internal appraisals.
 - From a review of several ID Safety Division reports on appraisals of the RESL, it appears that these were more in the nature of functional appraisals required by DOE 5482.1B, Section 9.c than internal appraisals required by Section 9.d.
 - See Concern RP.2-1.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: Periodic internal safety reviews required by DOE 5482.1B, (FR.4-2) Section 9.d, are not being performed for the Radiological and (H2/C1) Environmental Sciences Laboratory.

Rockwell-INEL

- FINDINGS:**
- Rockwell-INEL Procedure QP 14.2.1, "Independent Safety Review Program," assigns the ISRC the responsibility to perform annual reviews of SMC facilities as set forth in DOE 5480.5, paragraphs 9.g and 9.h.
 - QP 14.2.1 also assigns the ISRC responsibility for reviewing safety questions associated with SMC facilities.
 - Nothing in the draft ISRC procedure for performing annual appraisals precludes individuals performing the annual reviews from being the same as those who review the safety questions.
 - See Concerns FR.1-2 and OA.2-3.
 - This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(FR.4-3)
(H3/C2)

The Rockwell-INEL procedures for annual internal facility safety appraisals required by DOE 5480.5, paragraphs 9.g and 9.h, do not preclude individuals who review safety questions from participating in the appraisals.

FINDINGS:

- The SMC was formally designated as a low hazard nuclear facility in February 1990 (letter, R.L. Carlile, Manager SMC Project Office, to R.G. Peterson, General Manager, Rockwell-INEL. Subject: SMC Compliance Strategy RLC-12-90, February 14, 1990). Since that time it has been subject to the requirements of DOE 5480.5, paragraph 9.g, to provide an appraisal of each facility at least annually.
- The Chairman of the Rockwell-INEL ISRC stated that the ISRC has not yet conducted any annual appraisals. The Manager, Program Assessment, stated that he was unaware of any annual appraisals prior to chartering of the ISRC in April 1991.
- The ISRC Chairman proposed, in a May 1, 1991, letter to the Rockwell-INEL General Manager, that the recently completed internal self-assessment and the scheduled Tiger Team appraisal serve as the SMC annual facility review for 1991. However, the Tiger Team appraisal is not an internal Rockwell-INEL appraisal. Rockwell-INEL made a comparison that shows all elements that are required to be included in the annual appraisals are covered by the DOE TSA performance objectives and criteria, which were used in the self-assessment. However, the information is scattered through the self-assessment report, and does not provide a consolidated picture of safety program implementation and compliance for each facility, as required by DOE 5480.5, paragraph 9.g.
- This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(FR.4-4)
(H2/C1)

Rockwell-INEL has not performed annual appraisals of the Specific Manufacturing Capability operations, as required by DOE 5480.5, paragraph 9.g.

FR.5 TRIENNIAL APPRAISAL OF SITE/FACILITY SAFETY REVIEW SYSTEM

PERFORMANCE OBJECTIVE: A triennial appraisal of the safety review system should be performed by contract management.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- PTI policies and procedures do not include a defined requirement for the internal appraisal to "Be reviewed by management for adequacy of performance every 3 years, or more often, as required."
 - The PTI ES&H Manager stated that such reviews, which are required by DOE 5482.1B, paragraph 9.d.(2)(d), have not been conducted.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: Protection Technology of Idaho, Inc., management has not reviewed the internal appraisal system every three years or less, as required by DOE 5482.1B, paragraph 9.d.(2)(d).
(FR.5-1)
(H2/C1)

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- No documentation of triennial management reviews of the performance of the RESL internal appraisal system, required by DOE 5482.1B, paragraph 9.d.(2)(d), was provided by either RESL or ID Safety Division staff.
 - The ID Safety Division Director stated that there have been no triennial reviews of the RESL safety review system as specified by DOE 5482.1B, Section 9.d.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: Triennial reviews of the internal environmental, safety, and health appraisal system required by DOE 5482.1B are not being performed for the Radiological and Environmental Sciences Laboratory.
(FR.5-2)
(H2/C1)

Rockwell-INEL

- FINDINGS:**
- The SMC was formally designated as a nuclear facility in February 1990, by a letter from R. L. Carlile, Manager SMC Project Office, to R. G. Peterson, General Manager Rockwell-INEL. Since that time it has been subject to the DOE 5480.5, paragraph 9.i, requirement for contractor management review of the independent internal review and appraisal program at least every 3 years.

- Both before and after February 1990, SMC operations have been subject to a similar requirement in DOE 5482.1B, paragraph 9.d.(2)(d).
- The Rockwell-INEL Independent Safety Review Committee Chairman, Health and Safety Programs Manager, and Program Assessment Manager all were unaware of any documentation of triennial reviews specifically designed to meet the DOE 5480.5 and DOE 5482.1B requirements.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(FR.5-3)
(H2/C1)

Rockwell-INEL management has not reviewed the performance of the internal independent review and appraisal program at least every 3 years, as required by DOE 5480.5 and DOE 5482.1B.

4.5.3.12 Radiological Protection

4.5.3.12.1 Overview

Morrison Knudsen-Ferguson of Idaho, Co.

This appraisal addressed only the ALARA performance objective in the Radiation Protection area. The other 11 performance objectives were reviewed and determined not to be applicable to MK-FIC. The appraisal was conducted by means of interviews with senior management and review of manuals and procedures.

MK-FIC is the construction manager at the INEL and performs construction and construction management of projects as directed by ID. MK-FIC does not have responsibility for providing health physics services as this function is provided by the facility operating contractor. In the performance of construction management and oversight, MK-FIC personnel are exposed to radiation and radioactive materials at operating contractor sites. ALARA goals are established by the operating contractor for MK-FIC personnel. ALARA goals differ between contractors and do not insure MK-FIC personnel exposure will be ALARA. MK-FIC has not prepared a written ALARA policy and initiated ALARA goals to ensure exposure will be maintained ALARA.

The MK-FIC self-assessment did not address the one concern cited in the ALARA area.

Protection Technology of Idaho, Inc.

PTI was evaluated against eight of the 12 Radiological Protection performance objectives. Those not considered were Internal Radiation Exposure Control Program, Internal Radiation Dosimetry, Fixed and Portable Instrumentation, and Air Monitoring because they were not applicable to PTI activities and responsibilities. The assessment was conducted by review of policies, procedures and manuals and interviews with PTI staff. Since PTI provides the security forces for the INEL, they have responsibilities in all facilities at the INEL. PTI has included in their ES&H Manual a Section 16.0, Radiation Safety. However, this provides only a general and incomplete description of their program and responsibilities. The radiation protection controls applicable to PTI staff at INEL facilities are established by the operating contractor for each facility. Radiation and contamination surveys of PTI personnel, equipment and facilities are provided by contractor personnel at each facility or by EG&G Idaho under contract with PTI. General radiation protection training, including respirator training, is provided annually to PTI personnel by EG&G Idaho. Additional radiation protection training applicable to the specific assigned facility is provided by the facility. The PTI self-assessment indicated that there were no findings in the area of radiation protection. This assessment found one significant concern in that not all of the organization and management elements necessary for implementation of the radiation protection program were provided, as required by DOE 5480.11.

Radiological and Environmental Sciences Laboratory

This appraisal addressed all 12 of the performance objectives in the area of Radiation Protection. The appraisal was conducted by means of interviews with senior management, staff, and technicians; and reviews of manuals, procedures, and records. Facilities visited include Science Laboratory, Bldg. CF-690, and the Calibration Laboratories, Bldg. CF-638.

RESL provides radiological and environmental support to ID; Headquarters, DOE; the Nuclear Regulatory Commission; and the INEL. RESL primarily processes environmental samples with low levels of radioactivity. Personnel exposure has been very low and incidents relating to personnel contamination rare. However, the Health Physics Program does not effectively implement the requirements of DOE 5480.11.

RESL has had difficulty initiating the rapid DOE cultural changes occurring in radiation protection. Significant weaknesses exist in the health physics program. Management has not given implementation of the program the appropriate priority and level of effort necessary to bring the program into compliance with DOE 5480.11. Organizational responsibility, authority, and accountability for the program are not clearly defined in the RESL Manual. Staffing deficiencies in the Environmental Science Branch have caused the Health Physics Program to operate for periods without a Health Physicist and a Health Physics Technician, however, these positions are now filled. The recent appointment of a Health Physicist is expected to introduce the proactive posture required to update the Health Physics Program. Health physics procedures do not document all elements of an effective program and lack detail to ensure proper performance. The Health Physics Technician has not been trained and qualified to DOE 5480.11 standards. This position is unique to ID. RESL has not been successful in obtaining training for the technician. Internal audits have not been conducted to evaluate all functional elements of the Health Physics Program. RESL does not have a written ALARA policy statement and has not established effective ALARA goals. Posting and labeling does not comply with DOE 5480.11. Results of contamination surveys are not always provided as required to evaluate radiological conditions, and leak testing and inventory of RESL sources was not performed within required frequencies. Portable survey instruments are not always performance tested prior to use. Personnel monitoring instruments are not located in all laboratory areas where operations may cause personnel contamination. In addition, record storage and disposition is not satisfactory.

The RESL self-assessment addressed four of the 21 concerns cited in the radiation protection area. The self-assessment identified deficiencies in the areas of posting and labeling, specialized training procedures upgraded, a site service contractor-user agreement, calibration and standards, and records.

Rockwell-INEL

Radiological Protection at Rockwell-INEL was evaluated against all 12 performance objectives. There were 13 concerns in 10 of the areas

appraised. The appraisal was performed by reviewing documents, inspecting facilities, and interviewing staff in both line organizations and safety disciplines. In addition, during the appraisal a limited number of measurements were made using contractor portable radiation protection instruments.

Health Physics and Radiological Engineering are two of the three groups within the Health and Safety Department. Health Physics has a staffing of twelve personnel plus a Manager, and Radiological Engineering has one professional reporting directly to the Health and Safety Department Manager.

The facility is relatively new and in spite of being constructed and equipped in a relatively short period of time, has been designed to provide a significant percentage of remote operation and enclosed work stations to enhance radioactive contamination and exposure control. Also, the material primarily used in the process has a relatively low, specific activity and minimal radiation exposure potential. As a result of this and a well managed Radiation Protection Program, personnel exposures, both internal and external, are very low.

Rockwell-INEL relies upon other site contractors for many services including portable instrument supply and calibration, radiation dosimeter provision and processing, bioassay (urinalysis, and whole-body and lung counting), respirator cleaning and testing, and contaminated laundry processing.

The Rockwell-INEL self-assessment appeared to be an honest and reasonably comprehensive self-assessment, which included 36 findings in radiation protection. It fully addressed three of the 13 concerns in this appraisal and partially addressed two, and it agreed with the appraisals' observations particularly well in the area of identifying the need for additional formality to the program. The program could benefit especially by enhancement of the technical rigor applied to policies, procedures, and practices.

The appraisal found no evidence that employees or others at the facility were being exposed to more than a small fraction of the allowable radiation limits. While several areas for improvement were noted, radiation and contamination control at the facility provides a high degree of assurance that radiation protection of workers is being accomplished.

4.5.3.12.2 Findings and Concerns

RP.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Site/facility organization and administration should ensure effective implementation and control of radiological protection activities on the site/facility.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- Responsibilities for radiation protection of PTI personnel are not clearly defined in the PTI ES&H Manual or in position descriptions of PTI staff.
 - The PTI ES&H Manual provides radiation exposure limits for unborn children, but does not define the radiation exposure limits for PTI personnel.
 - Procedures for implementation of radiation protection requirements, such as investigation of lost or off-normal dosimeter results, review of quarterly dosimeter results, frequency and extent of equipment and building surveys, etc., were not available.
 - This concern was partially addressed in the PTI self-assessment.

CONCERN: Not all of the elements necessary for implementation of the
(RP.1-1) Protection Technology of Idaho Inc., radiation protection program
(H2/C1) are provided, as required by DOE 5480.11.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- The RESL Radiation Protection Program has been identified as not in compliance with DOE Order requirements in functional assessments performed January 1990 and September 1987.
 - RESL management has not clearly defined the organizational responsibilities for radiological protection.
 - RESL has not clearly defined individual authorities necessary to bring the Health Physics Program into compliance.
 - The organizational responsibilities for implementation of the RESL Radiation Protection Program are not clearly established in the RESL Manual.
 - Personnel authority, responsibility, and accountability for the Radiation Protection Program are not clearly defined.

- This concern was not addressed in the RESL self-assessment.

CONCERN:
(RP.1-2)
(H2/C1)

Radiological and Environmental Sciences Laboratory does not ensure effective radiological protection, as required by DOE 5480.11.

FINDINGS:

- The RESL Health Physics Technician has not been trained and qualified at RESL prior to unsupervised work assignments. This is contrary to DOE 5480.11 and DOE 5480.20.
- ID does not employ other Health Physics Technicians at INEL and has no training program to qualify Health Physics Technicians.
- RESL has been unsuccessful in negotiating for the training of this individual by an operating contractor.
- This concern was partially addressed in the RESL self-assessment.

CONCERN:
(RP.1-3)
(H2/C1)

The Health Physics Technician at the Radiological and Environmental Sciences Laboratory is not trained and qualified in accordance with DOE 5480.11 and DOE 5480.20.

FINDINGS:

- RESL has not assured that occasionally occupied areas of Bldg. CF-690 (e.g., roof and basement) are surveyed at a regular frequency, nor have they assured the proper posting/labeling of radiological areas and potentially contaminated systems.
- RESL Health Physics was unable to provide information concerning the radiological status of laboratory sink drain piping located in Bldg CF-690, nor concerning contamination levels in fume hood ventilation ducting.
- The facility site service contractor been required to provide results of routine surveys nor of surveys performed during and upon completion of work on potentially contaminated systems in areas occupied by RESL personnel.
- The facility contractor does not always inform RESL prior to starting work on potentially contaminated systems. The present system involves informal verbal notification.
- A single point of contact at RESL has not been designated for the facility contractor in matters concerning radiation protection.
- See Concern TS.3-3.
- This concern was addressed in the RESL self-assessment.

CONCERN:
(RP.1-4)
(H2/C1)

Radiological and Environmental Sciences Laboratory has not formally defined site service contractor and user responsibilities to ensure the Health Physics Program will be efficiently implemented as required by DOE 5480.11.

RP.2 INTERNAL AUDITS AND INVESTIGATIONS

PERFORMANCE OBJECTIVE: The Internal Audit Program for both routine operations and unusual radiological occurrences should provide adequate performance assessments.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Documentation of internal audits conducted to evaluate all functional elements of the RESL Radiation Protection Program was not performed.
 - RESL has not conducted and documented internal audits of the Radiation Protection Program in accordance with DOE 5480.11 and DOE 5482.1B.
 - See Concern FR.4-2.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: The Radiological and Environmental Sciences Laboratory does not
(RP.2-1) conduct internal audits of the radiation protection program as
(H2/C1) required by DOE 5482.1B and DOE 5480.11.

Rockwell-INEL

- FINDINGS:**
- One audit of the Radiation Protection Program was conducted using personnel from the Health Physics staff to provide technical expertise.
 - One audit of the Radiation Protection Program was conducted using QA personnel with little expertise in radiation protection.
 - While management recognizes the requirement for independent and multidisciplinary reviews with in-depth technical competence in the areas being reviewed, limitations related to security impede compliance.
 - This concern was partially addressed in the Rockwell-INEL self-assessment.

CONCERN: The Rockwell-INEL Internal Radiation Protection Audit Program
(RP.2-2) does not meet the independence and/or expertise requirements of
(H2/C1) DOE 5482.1B and DOE 5480.11.

- FINDINGS:**
- The unusual occurrence and off-normal investigation system does not assure health physics involvement in the review, investigation, and approval process.
 - Health and safety procedures are not available for investigation of accidents and dissemination of information for prevention of recurrence and lessons learned evaluation.
 - This concern was addressed in the Rockwell-INEL self-assessment.
- CONCERN:**
(RP.2-3)
(H2/C2)
- Rockwell-INEL Health Physics is not included in the investigation and review of off-normal incidents and unusual occurrences involving radiation and radioactive materials.

RP.3 RADIOLOGICAL PROTECTION PROCEDURES AND POSTING

PERFORMANCE OBJECTIVE: Radiation protection procedures for the control and use of radioactive materials and radiation generating devices should provide for safe operations and for clearly identified areas of potential consequences.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Uncontrolled copies of the Radiological and Environmental Sciences Laboratory Manual were observed on the area technicians desks at Bldgs. CF-638, and CF-690.
 - This concern was not addressed in the RESL self-assessment.

CONCERN:
(RP.3-1)
(H2/C1)

The Radiological and Environmental Sciences Laboratory document control system does not ensure maintenance of current procedures in the workplace, as required by DOE 5480.19 and the Radiological and Environmental Sciences Laboratory Manual.

- FINDINGS:**
- The "Very High Radiation Area" posting at the entry to room D of Bldg. CF-638, RESL Calibration Laboratory, does not specify the anticipated dose rate, or the range of dose rates on the posting, or in conjunction with the posting, as required by DOE 5480.11.
 - Posting is not established to identify a buffer zone adjacent to a hood posted as a contamination area in room 150 of Bldg. CF-690, as required by DOE 5480.11.
 - Special instructions or access restrictions are not displayed at entrances to radiological areas or areas surrounding radiological areas to establish requirements for entry.
 - Contrary to the Health Physics Plan, information concerning the contamination control clothing requirements was not observed posted at the access to a hood identified as a contamination area (room 150 of Bldg. CF-690).
 - Contrary to the Health Physics Plan, RESL has not marked potentially contaminated ducts, hoses, and piping "Internal Contamination" to indicate radiological controls are required for work on the systems.
 - RESL has not ensured occasionally occupied areas of Bldg. CF-690 (in roof and basement) are surveyed at the intervals specified in the Health Physics Plan.
 - The frequency of radiation surveys (i.e., semi-annually) established for all RESL facilities does not ensure exposure will be ALARA given the potential for a change in

radiological condition occurring in source storage vaults, the calibration laboratory, and in certain chemical laboratories where tracers are present.

- RESL survey documentation indicates that radiation fields present on exterior surfaces of the RESL Calibration Laboratory, Bldg. CF-638, have not been characterized for type, energy, and dose rate since 1984.
 - The area has not been surveyed for proper posting since the 10,000 Ci Co-60 source was reported changed out.
 - A ventilation stack on Bldg. CF-638 was reported on a radiation survey to reach 3.0 to 5.0 milliRoentgen per hour but was not posted.
- This concern was partially addressed in the RESL self-assessment.

CONCERN:
(RP.3-2)
(H2/C1)

Radiological posting at Radiological and Environmental Sciences Laboratory does not meet the requirements of DOE 5480.11.

FINDINGS:

- RESL, Environmental Science Branch procedures do not provide details for the identification and control of material and equipment removed from radiological areas.
- RESL Health Physics procedures do not specify requirements for establishing a controlled area as defined in DOE 5480.11.
- RESL, Environmental Science Branch procedures do not establish requirements for the release of material and equipment from radiological control as required by DOE 5400.5.
- RESL, Environmental Science Branch procedures do not detail procedures for the receipt and shipment of radioactive material.
- RESL, Environmental Science Branch procedures do not provide instruction for the performance and documentation of radiological surveys.
- The RESL Health Physics Plan, an upper tier document defining the radiation protection program, does not document all elements of an effective Radiation Protection Program.
- RESL Environmental Sciences Branch, Health Physics procedures do not provide sufficient documentation and

detail for the Health Physics Technician to ensure all operations will be conducted in compliance with DOE 5480.11.

- Procedures do not cover all work activities and policies associated with the radiation protection program.
- Procedures are not sufficiently detailed to allow performance without supervision.
- RESL has not established formal work controls to:
(1) assure health physics supervision will be notified of proposed radiological work, (2) require evaluation of present and anticipated radiological conditions, (3) approve job controls, and (4) properly address worker and environmental safety.
- The RESL, contrary to DOE 5480.11, does not have an approved procedure for operation of portable air sampling equipment to sample airborne radioactivity.
- This concern was not addressed in the RESL self-assessment.

CONCERN:
(RP.3-3)
(H2/C1)

The procedures for radiological work at Radiological and Environmental Sciences Laboratory do not effectively implement the requirements of DOE 5480.11.

FINDINGS:

- RESL sources were not accounted and leak tested semi-annually as required by RESL Procedure ESB-HP.3, "Radioactive Material Storage and Accountability."
- This concern was not addressed in the RESL self-assessment.

CONCERN:
(RP.3-4)
(H2/C2)

Radiological and Environmental Sciences Laboratory does not ensure that sources are inventoried and leak tested semi-annually as required by ESB-HP.3, "Radioactive Material Storage and Accountability."

FINDINGS:

- The results of radiological surveys were not observed posted in any of the RESL facilities.
- RESL does not ensure personnel will be made aware of all radiological conditions present in their work area such that action can be taken to minimize exposure.
- This concern was not addressed in the RESL self-assessment.

CONCERN:
(RP.3-5)
(H2/C1)

Radiological and Environmental Sciences Laboratory does not ensure personnel will be made aware of radiological conditions so as to maintain exposure as low as reasonably achievable, as required by DOE 5480.11.

- FINDINGS:**
- Radiological Science Branch technicians use portable radiation survey instruments to perform surveys without receiving performance-based training.
 - Training provided for Radiological Science Branch technicians on the use of portable radiation survey instruments to allow unescorted access to Bldg. CF-638 is limited to instrumentation familiarization and operation.
 - A lesson plan is not prepared for instrument training.
 - Radiological Science Branch technician radiation survey instrument training does not include all elements necessary for an instrument training program to ensure personnel exposure will be ALARA.
 - This concern was not addressed in the RESL self-assessment.

CONCERN:
(RP.3-6)
(H2/C1)

The Radiological and Environmental Sciences Laboratory does not ensure that Radiological Science Branch technicians are properly trained on the use of radiation survey instruments, as required by DOE 5480.11.

Rockwell-INEL

- FINDINGS:**
- There is a procedure for operation of the air sample counting equipment but no procedure for its calibration.
 - There is no documented procedure for determining the dose for a person who has a lost dosimeter or for investigating an off-normal dosimeter reading.
 - This concern was partially addressed in the Rockwell-INEL self-assessment.

CONCERN:
(RP.3-7)
(H2/C1)

Procedures for some Rockwell-INEL radiation protection activities are not provided, as required by DOE 5480.11.

RP.4 EXTERNAL RADIATION EXPOSURE CONTROL PROGRAM

PERFORMANCE OBJECTIVE: External radiation exposure controls should minimize personnel radiation exposure.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- The type and acceptable range for survey instruments required for entry to room D of the Calibration Laboratory, Bldg. CF-638, is not established in a procedure.
 - RESL radiation survey instruments are rented from, and calibrated by, a site operating contractor. There is no assurance that instruments of the appropriate sensitivity, type, and range will always be provided.
 - This concern was not addressed in the RESL self-assessment.

CONCERN:
(RP.4-1)
(H2/C1)

Radiological and Environmental Sciences Laboratory does not ensure that radiation survey instruments of the required sensitivity, type, and dose rate range will be used for entry to the Calibration Laboratory irradiation area, as required by DOE 5480.11.

- FINDINGS:**
- Keys providing access to the Calibration Laboratory, Bldg. CF-638, and to the lock box within the Calibration Laboratory are hung on the branch office wall. The lock box contains keys to the irradiation rooms.
 - The area of key storage is not continually manned.
 - During off-shift hours and weekends unauthorized personnel have access to this lockbox containing keys.
 - RESL has not ensured appropriate controls are in place to prevent access to the Calibration Laboratory contrary to DOE 5480.11.
 - This concern was not addressed in the RESL self-assessment.

CONCERN:
(RP.4-2)
(H2/C1)

Radiological and Environmental Sciences Laboratory, contrary to DOE 5480.11, does not ensure that unauthorized entry to Building CF-638 and the irradiation rooms will be prevented.

RP.5 EXTERNAL RADIATION DOSIMETRY

PERFORMANCE OBJECTIVE: The routine and accident personnel radiation dosimetry programs should ensure that personnel radiation exposures are accurately determined and recorded.

Rockwell-INEL

- FINDINGS:**
- Rockwell-INEL does not have documentation showing the characterization of the radiation at SMC, as required to assure the correct dosimeter calibration and evaluation.
 - Rockwell-INEL Health Physics has requested (from RESL) the basis for the dosimeter correction factors, but it has not been provided.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN: Rockwell-INEL has not verified that its radiation dosimetry meets the DOE Laboratory Accreditation Program criteria, as required by DOE 5480.11.
(RP.5-1)
(H2/C1)

RP.6 INTERNAL RADIATION EXPOSURE CONTROL PROGRAM

PERFORMANCE OBJECTIVE: Internal radiation exposure controls should minimize internal exposures.

Rockwell-INEL

- FINDINGS:**
- Personnel entry is made into certain potentially airborne radioactivity areas when wearing respirators, but no air sample measurements are taken to assure that respirator protection factors are adequate.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN: Rockwell-INEL personnel may enter an airborne radioactivity area without airborne concentration measurements being made to assure that the selected respiratory protection is appropriate, as required by DOE 5480.11 and ANSI Z88.2 (1980).
(RP.6-1)
(H2/C1)

RP.7 INTERNAL RADIATION DOSIMETRY

PERFORMANCE OBJECTIVE: The internal radiation dosimetry program should ensure that personnel radiation exposures are accurately determined and recorded.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- RESL does not routinely perform monitoring for airborne radioactivity in laboratory spaces. RESL determined this practice was acceptable based on the low activity of samples typically handled and the high rate of air exchange provided to these spaces; however, no documented technical basis was provided.
 - RESL does not require a pre-employment baseline bioassay for new employees.
 - RESL does not periodically perform bioassay surveillance of individuals potentially exposed to airborne radioactivity.
 - RESL has no procedure to test fume hood face velocities or assure the required flow rate will be continually maintained.
 - At RESL request, fume hoods were evaluated (by the facility site service contractor) for proper air flow. Several hoods did not meet the flow requirements. (See Concern OP.4-3.)
 - This concern was partially addressed in the RESL self-assessment.

CONCERN: Radiological and Environmental Sciences Laboratory does not ensure that potential internal personnel exposures are measured, as required by DOE 5480.11.
(RP.7-1)
(H2/C1)

Rockwell-INEL

- FINDINGS:**
- One spiked sample was included with routine urinalysis samples in April 1991, but there is no routine Quality Assurance program which includes spiked or blank urinalysis samples.
 - While a pre-employment whole-body count is required, a pre-employment (baseline) urinalysis is not required.
 - This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN: The quality assurance of the analysis and the data collected for Rockwell-INEL internal dose evaluations does not ensure accurate internal dose determination, as required by DOE 5480.11.
(RP.7-2)
(H3/C1)

FINDINGS:

- Analysis of urine samples for total uranium from radiation workers at the Rockwell-INEL facility may take 6 weeks or longer.
- Rockwell-INEL has been directed by ID to use the current service provider, which precludes using a different service provider.
- Rockwell-INEL has identified this problem and elevated it to senior contractor management for resolution, and it was not resolved at the time of the appraisal.
- The length of time associated with the analysis for detection of potential internal radioactive material deposition at Rockwell-INEL precludes the implementation of prompt corrective action.
- This concern was not addressed in the Rockwell-INEL self-assessment.

**CONCERN:
(RP.7-3)
(H3/C1)**

Analytical results, required to assure control of radiation exposures to Rockwell-INEL personnel, are not provided in a timely manner, as required by DOE 5480.11.

RP.8 FIXED AND PORTABLE INSTRUMENTATION

PERFORMANCE OBJECTIVE: Personnel dosimetry and radiological protection instrumentation used to obtain measurements of radioactivity should be calibrated, used, and maintained so that results are accurately determined.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- RESL has not established an accountability program for portable survey instruments.
 - RESL, contrary to ANSI-N323-1978 and DOE 5480.11, can not ensure survey instruments in use are in calibration.
 - This concern was not addressed in the RESL self-assessment.

CONCERN:
(RP.8-1)
(H2/C1)
Radiological and Environmental Sciences Laboratory does not have an effective program to ensure calibration of portable survey instruments in use, as required by DOE 5480.11 and ANSI N323-1978.

- FINDINGS:**
- The Environmental Sciences Branch Health Physics Technician indicated that some portable survey instruments are subjected to performance testing prior to use; however, the test is not documented.
 - Survey instruments placed in chemistry laboratories for personnel monitoring are not routinely performance tested.
 - Radiation survey instruments used by the Radiological Sciences Branch technicians in Bldg. CF-638, Calibration Laboratory, are not routinely performance tested prior to use.
 - Documentation of performance testing of portable survey instruments used by RESL is not available.
 - RESL has not performed and documented portable survey instrument performance testing to assure operability, as required by ANSI N323-1978.
 - This concern was not addressed in the RESL self-assessment.

CONCERN:
(RP.8-2)
(H2/C1)
The Radiological and Environmental Sciences Laboratory, contrary to ANSI N323-1978, does not perform operability checks of radiation survey instruments.

Rockwell-INEL

- FINDINGS:**
- Calibration of the Canberra 2404 Gas Proportional Counter is performed annually; however, there is no documentation of the calibration.

- While most sources used for instrument functional tests were traceable to National Institute of Science and Technology, the source used for calibration of the air sample counter was not.
- Portable radiation survey and frisking instruments are not functionally tested before each use or periodically during continuous use, as required by ANSI N323-1978.
- Radiation counters used to evaluate wipes of areas and equipment are not calibrated. Counters are marked "Calibration not Required", but they are used to release tools and equipment from areas controlled for protection from radiation hazards.
- Special tool survey box instruments are not calibrated although they are used to release tools and small items from areas controlled for protection from radiation hazards.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(RP.8-3)
(H2/C1)

The Rockwell-INEL testing and calibration of radiation measurement instruments does not meet the requirements of ANSI N323-1978.

FINDINGS:

- A 1 microcurie Caesium-137 source was passed through the center of two different portal monitors at Bldg. TAN-676 with no alarm. This source was marked as reading 4 milliRoentgen per hour at contact. The instruments had just been calibrated and returned to service by instrument maintenance.
- The portal monitors at Bldg. TAN-676 may provide a false sense of security as far as contamination control is concerned.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(RP.8-4)
(H2/C2)

The radiation detection portal monitors used by Rockwell-INEL at Building TAN-676, Gate House, are not sufficiently sensitive to provide contamination control.

RP.9 AIR MONITORING

PERFORMANCE OBJECTIVE: Air monitoring systems through selection, location, calibration, and maintenance should ensure reliable estimates of air activity for radiological control purposes.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- RESL has portable air samplers for use in site emergency response. These samplers are powered from a 12-volt car battery.
 - RESL has no portable air samplers operable using normal line power.
 - RESL has no procedure for sampling airborne radioactivity. (See Concern RP.3-3.)
 - Contrary to DOE 5480.11, RESL does not have a program to monitor airborne radioactivity.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: The Radiological and Environmental Sciences Laboratory does not routinely measure airborne radioactivity concentrations to which personnel are exposed, as required by DOE 5480.11.
(RP.9-1)
(H2/C1)

Rockwell-INEL

- FINDINGS:**
- The time of exchange of air sample filters is assumed to be the same time each day rather than identifying the time on and time off. A variance of plus or minus 15 minutes is allowed. Consequently, an unnecessary potential error of up to 2 percent is built into the calculation of air concentration.
 - Air samples are exchanged each work day and eight filters selected and counted. A ratio of alpha to beta activity is determined to evaluate the natural radon contribution. However, the rest of the filters are not counted until a decay period of at least 24 hours. Thus, early detection of potential releases from the facilities (which could be made using the alpha/beta ratio and an immediate count of the air samples) is not performed. Response to a release may be delayed from 1 to 3 days using the current system.
 - Documentation of air flow studies to establish location of air samplers was not available.
 - While some recognition of the gap in airborne activity information was made in the Rockwell-INEL self-assessment, it

did not consider all aspects of providing optimum protection to workers.

- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(RP.9-2)
(H2/C1)

The Rockwell-INEL radiological air sampling program does not ensure timely and representative airborne activity measurements in the workplace, as required by DOE 5480.11.

RP.10 RADIATION MONITORING/CONTAMINATION CONTROL

PERFORMANCE OBJECTIVE: The Radiation Monitoring and Contamination Control program should ensure worker protection from radiation exposures.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Personnel monitoring instruments are not located in all chemistry laboratories where personnel handle radioactive sources and samples that are likely to cause personnel contamination.
 - A chemistry technician was observed working in a laboratory posted as a radioactive material area, but a personnel monitoring instrument was not present. When questioned how personnel monitoring would be performed in this laboratory the technician responded that it was necessary to go the Health Physics Technician office to survey. The Health Physics Office is not located immediate to this laboratory.
 - Survey instruments provided for personnel monitoring are not capable of providing an alarm when contamination equal to the facility limit is detected.
 - RESL does not assure personnel monitoring instruments will be available for immediate use.
 - See Concern RP.8-2.
 - This concern was not identified in the RESL self-assessment.

CONCERN: Radiological and Environmental Sciences Laboratory, contrary to (RP.10-1) DOE 5480.11, does not have an effective personnel contamination (H2/C1) monitoring program.

- FINDINGS:**
- Results of most current contamination surveys performed of RESL facilities for April, May, and June of 1991 were not available.
 - Contamination is not identified to ensure areas requiring control for contamination will be posted and personnel protected from radiological hazards.
 - See Concern TS.1-1.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: Radiological and Environmental Sciences Laboratory does not have (RP.10-2) an effective program to assure the timely identification and (H2/C1) control of radioactive contamination, as required by DOE 5480.11.

Rockwell-INEL

FINDINGS: • Incoming radioactive material is not always required to be surveyed by Health Physics.

CONCERN: See Concern PT.9-2.

RP.11 ALARA PROGRAM

PERFORMANCE OBJECTIVE: A formally structured, auditable program should be in place with established milestones to ensure that exposures are maintained as low as reasonably achievable (ALARA).

Morrison Knudsen-Ferguson of Idaho Co.

- FINDINGS:**
- MK-FIC personnel may be exposed to radiation and radioactive material while visiting contractor sites.
 - MK-FIC does not have a formal written ALARA policy, as specified in DOE 5480.11 and DOE publication PNL-6577.
 - ALARA goals (individual annual exposure goals) are established for MK-FIC personnel by the operating contractors.
 - Individual annual exposure goals differ between operating contractors.
 - MK-FIC has not established ALARA goals in accordance with guidelines contained in DOE publication PNL 6577.
 - Contrary to DOE 5480.11, MK-FIC does not assure personnel exposure will be ALARA.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company does not have an As Low as Reasonably Achievable Program, as required by DOE 5480.11.
(RP.11-1)
(H2/C1)

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Only one ALARA goal (i.e., an individual annual exposure goal) was established for 1991.
 - RESL is not in compliance with the program elements contained in DOE Publication PNL 6577.
 - An individual(s) with appropriate authority and responsibility is not identified in the RESL organization as having responsibility for coordination of ALARA at RESL.
 - The RESL Manual does not contain a formal written policy statement on ALARA, as specified in DOE publication PNL-6577.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: The Radiological and Environmental Sciences Laboratory does not
(RP.11-2) have an As Low As Reasonably Achievable Program, as required by
(H2/C1) DOE 5480.11.

Rockwell-INEL

FINDINGS:

- While an ALARA Program and Committee has been established by Policy No. 3.5.16, "ALARA Program & Committee," November 1, 1989, no formal ALARA review program is documented.
- The ALARA Committee sets annual goals for each individual and for each department; however, individuals do not have input to the goal setting process.
- Reminders are posted for contamination control at the source, (e.g., do not linger, etc.), but documentation of formal ALARA reviews of processes and activities was not available.
- This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN: Plans and programs to document the Rockwell-INEL As Low As
(RP.11-3) Reasonably Achievable Program were not available, as required by
(H2/C1) DOE 5480.11.

FINDINGS:

- QP. No. 3.2.2, "Engineering Initiation Request," December 20, 1990, permits the requesting engineer (if he judges it necessary) to initiate work immediately and complete the Engineering Initiation Request form and authorization process later.
- QP. No. 3.3.4, "Design Review," January 8, 1991, states "The Responsible Engineer shall determine the need for design reviews on each Engineering Initiation Request..."
- This concern was not addressed in Rockwell-INEL self-assessment.

CONCERN: The Rockwell-INEL configuration control system does not ensure
(RP.11-4) health physics organization review and evaluation, as recommended
(H2/C2) in DOE Publication PNL-6577.

RP.12 RECORDS

PERFORMANCE OBJECTIVE: Records related to occupational radiation exposure should be maintained in a manner that permits easy retrievability, allows trend analysis, and aids in the protection of an individual and control of radiation exposure.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Environmental Sciences Branch Health Physics records are not maintained in a manner which will prevent loss and allow ease of retrievability.
 - Environmental Sciences Branch Health Physics records are not periodically dispositioned as specified in DOE 1324.2A.
 - This concern was not addressed in the RESL self-assessment.

CONCERN:
(RP.12-1)
(H3/C1) Radiological and Environmental Sciences Laboratory, contrary to DOE 1324.2A and ASME NQA-1-1989, does not ensure health physics records are properly stored, protected from loss, and dispositioned.

- FINDINGS:**
- RESL radiological survey forms do not specify data required by ANSI N13.6-1966 (R-1972) (e.g., survey location, instrument serial number, measurement units, or purpose of survey).
 - This concern was not addressed in the RESL self-assessment.

CONCERN:
(RP.12-2)
(H3/C1) The Radiological and Environmental Sciences Laboratory does not ensure documentation of the conditions of individual radiation exposure, as required by ANSI N13.6-1966 (R-1972).

Rockwell-INEL

- FINDINGS:**
- The Health Physics log books, used to record the results of many of the routine surveys, do not always contain all of the necessary information, (e.g., instrument type and number, readings, etc.).
 - Documentation of wipe sample counting did not always provide sufficient information to permit traceability from surveyor, to counting instrument, to instrument calibration, to result, as required by ANSI N13.6-1966 (R-1972).
 - Documentation of air sample counting did not always provide sufficient information to permit traceability from sample taker, to person counting the sample, counting instrument identification, to instrument calibration, sample counting raw data, to calculation of result, as required by ANSI N13.6-1966 (R-1972).

- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(RP.12-3)
(H2/C1)

Documentation of radiation surveys and sample counting at Rockwell-INEL does not meet the requirements of ANSI N13.6-1966 (R-1972).

4.5.3.13 Personnel Protection

4.5.3.13.1 Overview

Morrison Knudsen-Ferguson of Idaho, Company

Personnel Protection at MK-FIC was addressed relative to all five performance objectives. There is, of course, considerable overlap between the objectives and criteria of this section and those of Worker Safety and Health (OSHA) Compliance. In general, programmatic concerns and those that are not primarily OSHA compliance are covered in this section.

To some extent MK-FIC has two personnel protection programs, one covers their employees, and one applies to subcontractors. MK-FIC employees have over 1.8 million manhours without a lost work day injury. This would be considered a notable achievement for an office organization and it is especially so for a contractor with employees who visit construction sites and do construction work.

The safety record of the major subcontractors is not as good in spite of several activities by MK-FIC aimed at assuring that DOE safety requirements are met. MK-FIC furnishes sample safety plans for subcontractors, assures that safety responsibilities are assigned to a subcontractor employee they consider qualified, and performs frequent inspections of construction sites. In addition, they have begun special training for their own and subcontractor personnel in scaffolding and other high risk activities. Unfortunately, the major subcontractors have not availed themselves of this training and serious violations have been found by both MK-FIC and S&H Subteam personnel.

MK-FIC has an undocumented program which has been used to exclude both workers and foremen who violate safety rules from the site for various times.

One of the MK-FIC subcontractors has experienced 15 cases of occupational illnesses (skin rash) during a 3-month period. These led the Occupational Medical Physician to recommend that a particular compound be discontinued. However, the subcontractor was not formally directed to find a substitute for the material for more than 1 month after the doctor documented his findings. The occupational illnesses constituted a Class B occurrence but were not investigated as such. On another occasion the MK-FIC ES&H Manager recommended cessation of a subcontractor's work due to multiplicity of safety violations and high incidence of recordable injuries. Rather than stop work, MK-FIC management issued a corrective action request. In neither case did MK-FIC curtail operations, leading the S&H Subteam to question the priority given to safety and health, relative to production. The lack of effective corrective actions and the apparent unwillingness to resort to work shutdown resulted in a Category II concern.

MK-FIC is at a disadvantage in fulfilling their DOE assigned responsibility for the health of their own and subcontractor employees in that they have no industrial hygienists. They instead rely on the operating contractors' industrial hygienists who perform measurements and review MSDSs on an on-call

basis. However, they have not been involved in establishing the Health Protection Program or identifying conditions needing monitoring.

The MK-FIC self-assessment addressed two and partially addressed two of the five concerns in this appraisal.

Protection Technology of Idaho, Inc.

Personnel Protection at PTI was addressed relative to all five performance objectives. There is, of course, considerable overlap between the objectives and criteria of this section and those of the Firearm Safety, and Worker Safety and Health (OSHA) Compliance areas. In general, programmatic concerns that are not directly related to explosives or firearms and those not covered in Worker Safety and Health (OSHA) Compliance are covered in this section. A concern on hearing conservation is discussed in Section 4.5.3.15.

PTI has identified and trained some of their employees to fulfill safety responsibilities. The primary emphasis has been on firearms safety, explosive safety, and industrial safety. Industrial hygiene (health protection) services are to be provided for PTI by EG&G Idaho. Industrial Hygienists have not been involved in establishing hearing conservation or respiratory protection programs, nor have they performed walkthrough surveys of PTI assigned areas. This led to a global concern that the industrial hygiene services provided PTI do not meet the requirements of DOE 5480.10 and DOE 5480.4.

The PTI self-assessment did not address either of the concerns of this section.

Radiological and Environmental Sciences Laboratory

Personnel Protection at the RESL was addressed relative to all five performance objectives. There is, of course, considerable overlap between the objectives and criteria of this section and those of Worker Safety and Health (OSHA) Compliance. In general, programmatic concerns and those that are not primarily OSHA compliance are covered in this section.

RESL has been aggressive in developing a personnel protection program in recent years. It has done this by arranging for the services of an EG&G Idaho Industrial Hygienist, headquartered in RESL facilities, who directs the environmental protection, waste management, safety, and health programs in a consulting capacity. While this arrangement may be less than ideal it appears to be effective at establishing the needed personnel protection programs. In fact, it has facilitated the modification and adoption of EG&G Idaho procedures and training programs for RESL use.

Three personnel protection concerns are identified in this section. Two involve the fact that chemical monitoring and carcinogen control programs are not yet fully implemented. Although these are not enumerated in the RESL self-assessment, they were known, and corrective actions are planned.

The third concern involved the perchloric acid fume hood exhaust systems. Although the hoods and exhaust systems were designed for use with perchloric acid, they are old. However, they are not being maintained in a manner that assures that perchlorate salts are not allowed to build up in portions of the duct work. This is a Category II concern, requiring prompt corrective action, because organic perchlorates are shock sensitive explosives.

Rockwell-INEL

Personnel Protection at the SMC, operated by Rockwell-INEL, was addressed relative to all five performance objectives. There is, of course, considerable overlap between the objectives and criteria of this section and those of Worker Safety and Health (OSHA) Compliance. In general, programmatic concerns and those that are not primarily OSHA compliance are covered in this section. A majority of the appraisal time in personnel protection was devoted to the Rockwell-INEL operation because they have the greatest variety of potential hazards.

Rockwell-INEL has a mature health and safety program but recently staff turnover has been high. Some positions have been vacant for many months. The industrial safety and hygiene positions are now nearly filled, but programs are not yet caught up. Deficiencies were found in the hazardous work permit, laser safety, respiratory protection, health monitoring, and hazard communications programs. In all cases, some elements of the program were present, but they did not fully comply with prescribed standards and/or assure employee protection.

Deficiencies in the respiratory protection program were considered a Category II concern requiring prompt corrective actions. This is because of the dangers inherent in the use of airline respirators on plant air systems, as Rockwell-INEL does. Although such uses are reasonably common, they require a number of physical and administrative controls that are not present at Rockwell-INEL.

In addition, Rockwell-INEL has not institutionalized the principle of engineering controls in preference to administrative controls and personnel protective equipment. There are specific cases where application of this procedure would reduce employee health and/or personnel protective equipment requirements. Rockwell-INEL has not informed employees of the hazard or provided an alternative to the use of drinking water contaminated with measurable but allowable levels of 1,1,1-trichloroethylene, an American Conference of Governmental Industrial Hygienists designated carcinogen.

Rockwell has an unusually high frequency of repetitive motion illnesses. Although investigations and process modifications have been initiated, these illnesses have not been dealt with as a Type B Occurrence which DOE 5484.1 defines them to be. There is a similar concern against DOE because they were aware of the illnesses, but did not initiate the investigation as required.

The Rockwell-INEL self-assessment covers a variety of general and specific health and safety concerns. However, it failed to identify seven of the 10 concerns cited in this report.

4.5.3.13.2 Findings and Concerns

PP.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Site and facility organization and administration should ensure effective implementation of the Personnel Protection Program.

Morrison Knudsen-Ferguson of Idaho, Company

- FINDINGS:**
- ID 4700.1, Attachment 3, assigns the construction management contractor, MK-FIC, primary safety responsibility for ES&H during construction. It specifically assigns responsibility for "Health and Environmental Monitoring" to the construction management contractor. (Conversely, it assigns primary responsibility for radiation safety to the operating contractor.)
 - MK-FIC has no industrial hygienists on staff and has reportedly been denied funding for such a position based on the rationale that they are to use the services of the site operating contractors.
 - None of the operating contractor industrial hygiene personnel inspect job sites or MK-FIC assigned facilities unless specifically requested. Often there is a considerable delay between requests and actual services.
 - Industrial hygiene monitoring results (noise, chemicals, etc.) furnished MK-FIC by the operating contractors are often incomplete in that they do not include the instrument used, name of the person making the measurement, lower limit of detection, etc.
 - Industrial hygiene concerns of construction work are different from industrial hygiene concerns in an operating facility: thus, requiring most industrial hygienists some time to come-up-to-speed.
 - There have been disagreements between MK-FIC and the operating contractor over who should furnish alarming oxygen monitors for work in the operating contractor's confined spaces.
 - This concern was addressed in the MK-FIC self-assessment.

CONCERN:
(PP.1-1)
(H2/C2)

Morrison Knudsen-Ferguson of Idaho Company has been assigned health protection responsibilities for construction activities by DOE Field Office, Idaho, but does not have the professional resources to effectively fulfill them.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- PTI employees work with cleaning chemicals (in the aviation department), lead, lasers, and also wear respirators. However, PTI has no industrial hygienists on staff. Instead they must rely on EG&G Idaho to provide these services on request.
 - Industrial hygiene walkthrough surveys of PTI assigned spaces have not been performed, as required by DOE 5480.10.
 - PTI employees displayed minimal familiarity with the DOE mandatory respiratory protection and laser safety standard. Their involvement with EG&G Idaho on respiratory protection has dealt with specific issues and has not been programmatic, and the program is not in compliance with ANSI Z88.2, as required by DOE 5480.4. (See Concern PP.4-3.)
 - ES&H support requested in May 1991 had not been provided over 2 months later due to a need to resolve funding issues.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: Industrial hygiene services provided to Protection Technology of Idaho, Inc. do not meet the requirements of DOE 5480.10 and DOE 5480.4.
(PP.1-2)
(H2/C1)

Rockwell- INEL

- FINDINGS:**
- The overall Rockwell-INEL safety policy does not specify a hierarchy of controls (i.e., engineering controls preferred to administrative controls, which are preferred to personnel protective equipment).
 - Workers in the vicinity of a large 1,1,1 trichloroethane degreaser are required to wear respirators. The degreaser is opened the first thing in the morning and closed at the end of the day. The opening is far larger than that required to introduce and remove parts.
 - Industrial punches were installed without vibration mountings and workers are required to wear hearing protection. Metal sheers are also a source of noise (primarily from sheered metal falling into the receptacle). Although some consideration has been given to engineering away these exposures, the evaluation has been informal and modifications have not been made.

- There is no local ventilation on a uranium cutting system even though it would be expected to reduce protective clothing and respiratory protection requirements.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(PP.1-3)
(H2/C1)

Engineering controls are not always preferred over personnel protective equipment in Rockwell-INEL operations, as required by 29 CFR 1910.95, Subpart B, 1910.1000, Subpart E, and ANSI Z88.2.

FINDINGS:

- Hazardous Work Permits may be approved by any of the industrial safety, industrial hygiene, or fire protection staff. Their line management, up to, and including the Director, may also sign Hazardous Work Permits. Where one discipline signs, there is no assurance of review by the other disciplines.
- For example, although health physics signs each work permit regardless of whether or not radiation is involved, a fire protection engineer may be the only approval for a job involving dust, noise, and potentially hazardous paint fumes.
- Some work permits may have been filled out without a complete review as evidenced by a series of permits for the same job on different dates. Some of these specified one type of gloves; others another. Some indicated a hazardous atmosphere was present, others did not.
- This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(PP.1-4)
(H2/C2)

The Rockwell-INEL Hazardous Work Permit approval process does not ensure review of hazardous work by the appropriate safety disciplines.

PP.2 PROCEDURES AND DOCUMENTATION

PERFORMANCE OBJECTIVE: Procedures and documentation should provide appropriate direction, record generation, and support for the personnel protection program.

Morrison Knudsen-Ferguson of Idaho, Company

- FINDINGS:**
- Industrial Hygiene data provided to MK-FIC for protection of their employees and subcontractors is often incomplete. There is no reference to the procedure used, the identity of the person performing the measurement, or the equipment used.
 - The report of monitoring of welding ventilation surveys did not identify where the samples were taken or if all ducts were measured.

CONCERN: See Concern PP.1-1.

Rockwell-INEL

- FINDINGS:**
- Rockwell-INEL has no documented procedures for industrial hygiene measurements.
 - This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN: See Concern PP.4-9.

PP.3 MANAGEMENT OF HEALTH AND SAFETY CONCERNS

PERFORMANCE OBJECTIVE: Chemical, physical, and/or other environmental stresses arising in the workplace should be identified, evaluated, and controlled.

Morrison Knudsen-Ferguson of Idaho, Company

- FINDINGS:**
- There is often a month or more between industrial hygiene measurements (e.g., noise, airborne lead, etc.) and the transfer of those monitoring results to the subcontractor for corrective action.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: Industrial Hygiene monitoring results are not always provided to Morrison Knudsen-Ferguson of Idaho Company subcontractors in a timely manner to facilitate employee protection.
(PP.3-1)
(H2/C2)

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Monitoring of chemical contaminants (e.g., acids and solvents) has not been performed to determine personnel exposures at RESL.
 - A target list of substances to be monitored has been established.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: Radiological and Environmental Sciences Laboratory is not monitoring for personnel exposure to chemicals, as required by DOE 5480.10 and DOE 5483.1A.
(PP.3-2)
(H2/C1)

Rockwell-INEL

- FINDINGS:**
- Rockwell-INEL employees have complained of the taste of water in Bldgs. TAN-602 and TAN-607. Samples indicate the water contains detectable quantities (up to 4 micrograms per liter) 1,1,1-trichloroethylene (TCE), an American Conference of Governmental Industrial Hygienists listed carcinogen. The primary drinking water standard is 5 micrograms per liter.
 - The specific employees who complained, and their supervisors, were notified of the sample results; however, no general announcement was made, and an alternate drinking water source has not been provided.

- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(PP.3-3)
(H2/C2)

Rockwell-INEL has not informed its employees of the presence of a listed carcinogen in the sanitary water system or provided an alternative water source.

PP.4 SURVEILLANCE OF HEALTH AND SAFETY CONCERNS

PERFORMANCE OBJECTIVE: Appropriate surveillance of activities should be conducted to measure safety and health performance and ensure the continued effectiveness of controls.

Morrison Knudsen-Ferguson of Idaho, Company

- FINDINGS:**
- An MK-FIC subcontractor had 15 employees that reported to medical with skin rashes over a 3 month period. Two of these workers missed one day of work each.
 - An Occupational Health Physician performed an informal investigation with the assistance of the site operating contractor's industrial hygienists. On April 23, 1991, the physician issued a letter to MK-FIC stating that the cause of the rashes had been determined to be a sealant in use at that time. The same day, the industrial hygienists also issued a letter. It recommended precautions to use until a substitute material was found. There was not a formal Type B investigation (as required by DOE 5484.1 for five or more occupational illnesses involving one or more lost work days).
 - On April 29, 1991, MK-FIC transmitted the physician's letter to the subcontractor but did not specifically direct them to employ precautions or find an alternate sealant. A May 28, 1991 letter directed the subcontractor to find an alternate product.
 - On May 13, 1991, the subcontractor wrote a letter to MK-FIC disputing the results of the investigation.
 - The ES&H Manager for MK-FIC stated that he had recommended shutdown of the subcontractor operations based on numerous uncorrected safety violations and their high frequency of recordable injuries. In lieu of the shutdown, there was a consensus among MK-FIC management and safety personnel to issue "Corrective Action Report (CAR) 91-001," dated January 31, 1991. It documented two serious OSHA violations noted on the previous day, and cited the subcontractor's failure to respond to previous notices of violations. It specifically cited 11 instances of 6 other serious violations.
 - The subcontractor responded to the CAR on February 11, 1991, (including correction of the cited items). Although a May 8-11, 1991, walkthrough and appraisal by an MK-FIC corporate team noted no noncompliance items on the construction site, inspection by

the Worker Safety and Health (OSHA) Compliance appraisers of the S&H Subteam showed 174 violations.

- During the appraisal, subcontractor construction workers were directed by their designated health and safety staff to use equipment that was tagged as unsafe.
(See Concern WS.5-1.)
- This concern was addressed in the MK-FIC self-assessment.

CONCERN:
(PP.4-1)
(H1/C1)
CAT. II

Morrison Knudsen-Ferguson has not taken effective corrective action (such as curtailing construction activities) to correct serious health or safety conditions, as required by DOE 5483.1A.

FINDING:

- This concern was not addressed in the MK-FIC self-assessment.

CONCERN:
(PP.4-2)
(H1/C1)

Contrary to the requirements of DOE 5484.1, Morrison Knudsen-Ferguson has not notified the DOE Field Office, Idaho, of the need to investigate a series of occupational illnesses that constitute a Type B occurrence.

Protection Technology of Idaho, Inc.

FINDINGS:

- PTI has no documented respiratory protection program as required by ANSI Z88.2, although the topic is addressed in chemical agent procedures. PTI employees wear respirators for protection against chemical agents.
- The use of respirators by PTI personnel has recently been limited to special response team (SRT) members who staff crucial posts because they must have available two pairs of corrective lenses. The type of corrective lenses used by the SRT members penetrates the sealing surface of the respirator in violation of ANSI Z88.2. (They are reportedly fitted for the respirators with the glasses in place.) No request for exemption has been filed. (Personnel at crucial posts have no corrective lenses for respirator use.)
- There is no single individual in charge of PTI's respiratory protection program as required by ANSI Z88.2; nor does there appear to be anyone sufficiently knowledgeable of the regulations to take on that responsibility at the present time. (See Concern PP.1-2.)
- Annual audits of respiratory protection have not been done, as required by ANSI Z88.2 (although there are inspections assuring equipment is properly stored and current).

- Training and fit tests are done by EG&G Idaho using curriculum designed primarily for protection against radioactive materials. It is supplemented by chemical agent training. However, the training has not been reviewed for adequacy.
- This concern was not addressed in the PTI self-assessment.

CONCERN:
(PP.4-3)
(H2/C1)

The Protective Technology of Idaho, Inc. Respiratory Protection Program does not meet the requirements of ANSI Z88.2.

Radiological and Environmental Sciences Laboratory

FINDINGS:

- The RESL building has more than 20 perchloric acid fume hoods connected two or four to an exhaust system. Perchloric acid is of concern because it may form organic perchlorates that are shock sensitive explosives.
- Although there is a documented washdown of each hood and stack weekly, there is minimal other maintenance to prevent the build up of perchloric acid salts in the duct work. There is no assurance that some of the 30-year old washdown lines are not plugged. There is no inspection or maintenance program for the flexible sleeves that connect the blowers to the stacks and some of those were observed to be degraded (repair had been requested on some of these.) Because the flexible sleeves are double, perchlorates could accumulate between the sleeves when an inner sleeve failed. (A failed inner sleeve was observed in the ventilation penthouse. It was not known when it had been replaced.)
- Available routine maintenance records indicated fan belt tension checks and lubrication but did not indicate that the flexible sleeves were checked. They did not indicate any precautions regarding the introduction of organic materials into this system, nor did they indicate what materials are acceptable.
- See Concern AX.1-2.
- This concern was not addressed in the RESL self-assessment.

CONCERN:
(PP.4-4)
(H1/C2)
CAT. II

The potential for buildup of shock sensitive explosives in perchloric acid duct work at Radiological and Environmental Sciences Laboratory has not been effectively addressed.

Rockwell-INEL

- FINDINGS:**
- Rockwell-INEL has experienced a series of repetitive motion injuries to the hand or wrist since July 1990. According to the OSHA No. 200 Log, three Manufacturing Technicians had four repetitive motion injuries to the wrists in 1990. (One additional recordable wrist ailment to an employee in the same work classification was diagnosed as an occupational injury, although there was no apparent cause). In 1991 (through June) there were six additional diagnoses. The 1990 and 1991 cases together have involved 45 lost workdays (to two individuals) and 118 days of restricted work activity. In addition, at least three of the effected employees have been reassigned to other jobs. (Job reassignment terminates the count of days of restricted work activity.)
 - According to Rockwell-INEL investigators five of the 1991 illnesses have involved production technicians on a single assembly line. A total of 20 people work on this line.
 - Reportedly, the production line activities are not considered to be of the type that normally cause the types of illnesses experienced. However, Rockwell-INEL has aggressively addressed the situation (at least since April 1991) with investigations and ergonomic modifications to production line equipment. An Occupational Health Physician has also been involved. However, Rockwell-INEL has not notified ID of the need for a Type B investigation (as required by DOE 5484.1 for five or more similar occupational illnesses involving one or more lost work days). No formal report of the investigation was available.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN: Contrary to the requirements of DOE 5484.1, Rockwell-INEL has not notified DOE Field Office, Idaho, of the need for a Type B investigation of a series of occupational illnesses.
(PP.4-5)
(H2/C1)

- FINDINGS:**
- ID program office personnel participated in briefings on these illnesses but did not require that they be investigated, as DOE 5484.1 requires.
 - See the discussion of a similar incident involving MK-FIC subcontractors above.
 - This concern was not addressed in the ID self-assessment.

CONCERN:
(PP.4-6)
(H2/C1)

DOE Field Office, Idaho, personnel have not enforced the investigation requirements of DOE 5484.1.

FINDINGS:

- Rockwell-INEL uses half-face respirators extensively. There is also limited use of full-face and airline respirators. The airline respirators use plant air filtered through a commercial filter system.
- Air hoses used on the air filter systems were not manufactured by the same company who makes the mask and filter and were not specifically designed for breathing air applications. This voids approval of the mask.
- There is no preventive maintenance program for the air filters.
- Breathing air system fittings are not unique, as required by ANSI Z88.2.
- Although some indicator tube tests have been done on the oil pumped air system, analyses have not been performed on either air system that could verify that the breathing air is Grade D or better, as required by ANSI Z88.2.
- There is no single individual in charge of the respiratory protection program, as required by ANSI Z88.2.
- Supervisors of respirator users are not given special training for this role, as required by ANSI Z88.2.
- Organic vapor respirators are used for vapors for which the respirators have not been quantified and which the workers describe as almost odorless. Both of these uses violate ANSI Z88.2.
- The Respiratory Protection Program has been audited by the Rockwell-INEL QA Department. This was done relative to the Rockwell-INEL requirements of RPP 3.3.2, not the mandatory ANSI standard referenced above. The failure to audit employee performance in proper respirator use was identified, but had not been corrected at the time of this appraisal, 15 months later. The other deficiencies enumerated above were not found in the audit.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(PP.4-7)
(H1/C1)
CAT. II

The Rockwell-INEL Respiratory Protection Program does not ensure the quality of breathing air and does not comply with ANSI Z88.2.

FINDINGS:

- Rockwell-INEL uses several Class IV infrared lasers for material cutting. These are equipped with Class IIIB helium neon (HeNe) alignment lasers (visible red). After a period of not having a Laser Safety Officer, a recently hired Industrial Hygienist was assigned the duties during the appraisal.
- The Class IV beam is completely enclosed to the surface of the material being cut and so may classify as a Class I laser system depending on scattered radiation. The Laser Safety Officer stated that the system is a Class I system, although it is not posted as such.
- Portions of the alignment procedure using the Class IIIB laser expose the beam. Therefore alignment must be treated as a Class IIIB laser operation.
- Rockwell specific alignment procedures have not been issued. The alignment procedure provided to the appraiser had been obtained from the manufacture during the appraisal. It had no evidence of approval by a Rockwell-INEL Laser Safety Officer, as required by ANSI Z135.1.
- The only eye protection used is that specified by the manufacturer, safety glasses made of glass, plexiglas, or plastic. The adequacy of this protection, for either laser, has not been verified by the Rockwell-INEL Laser Safety Officer. The manufacturer states, "The HeNe is not considered harmful to your skin. But if you stared head-on into the HeNe beam, it could harm your eyes." This precaution appears appropriate for a class I or II alignment laser but not a class IIIB laser which the HeNe is. (A possible explanation for this discrepancy may be that the laser system may be purchased with either of two HeNe alignment lasers.)
- No Rockwell-INEL Laser Safety Officer has performed the hazard evaluation (including establishment of Nominal Hazard Zones), and approved standard operating and alignment procedures, as required by ANSI Z135.1-1986.
- During the appraisal, Rockwell-INEL had an outside laser safety expert evaluate their system. The report was not yet available.
- This concern was not addressed in the Rockwell-INEL self-assessment.

**CONCERN:
(PP.4-8)
(H1/C1)**

Rockwell-INEL employees who use and maintain the laser systems are not protected by all of the elements required by ANSI Z135.1-1986.

- FINDINGS:**
- Rockwell-INEL has no criteria established or schedule to indicate when health protection sampling or monitoring should be performed.
 - Air purifying respirators are prescribed for contaminants that have never been measured (dibutyl phthalate from paint) and for contaminants that have not been measured since November 1990. For these, there was no information to indicate where they were taken, at what flow rate, or that workers who participated in the sampling received the data (if they were personnel samples; however, this could not be determined).
 - This concern was partially addressed in the Rockwell-INEL self-assessment.

CONCERN:
(PP.4-9)
(H1/C1)

Rockwell-INEL has no program to perform health monitoring or to maintain records of previous health monitoring, as required by DOE 5483.1A, DOE 5480.10 and ANSI Z88.2.

- FINDINGS:**
- There is no established procedure for employees to report health and safety suggestions and complaints to Rockwell-INEL.
 - A data base of previous occupational safety and health concerns from employees was available. However, all entries were between May 18, 1990, and July 9, 1990.
 - Thirty-five of the 204 entries were still reported open at the time of the appraisal (a year or more later).
 - This concern was addressed in the Rockwell-INEL self-assessment.

CONCERN:
(PP.4-10)
(H2/C1)

Rockwell-INEL has no effective program to ensure employee participation in identifying health and safety health concerns, as required by DOE 5483.1A.

PP.5 PERSONNEL COMMUNICATIONS PROGRAMS

PERFORMANCE OBJECTIVE: Site/facility personnel should be adequately informed of chemical, physical, and biological stresses that may be encountered in their work environment. Written programs are available, and are of sufficient quality to comply with all DOE-prescribed occupational safety and health standards.

Morrison Knudsen-Ferguson of Idaho, Company

- FINDINGS:**
- MK-FIC maintains a list of chemical products that are acceptable for use on their construction sites. When a new chemical is proposed it is sent to the Industrial Hygiene Department of the cognizant operating contractor who must approve it. It is then placed on the list and a copy sent to each of the operating contractors Industrial Hygiene Departments. It was not possible to determine if the industrial hygienists acceptance of a chemical was based on acceptability in their facility, or if it included protection of the subcontractor employees who would be installing it.
 - No records are maintained to indicate who approved what chemical. No periodic reevaluations are performed.
 - The list included some rather hazardous chemicals (e.g., chromic acid and perchloric acid) that were indicated as being acceptable. The ES&H Manager stated that these were on the list in error.
 - This concern was partially addressed in the MK-FIC self-assessment.

CONCERN: The Morrison Knudsen-Ferguson of Idaho, Company Construction Material Safety Data Sheet list does not ensure that workers are not exposed to hazardous materials.
(PP.5-1)
(H2/C2)

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- RESL has chemical carcinogens and has segregated storage for them. They have not yet established and posted control areas for their use, as required by DOE 5480.10.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: Use of chemical carcinogens at Radiological and Environmental Sciences Laboratory is not in compliance with the requirements of DOE 5480.10 in that carcinogen control areas have not been established.
(PP.5-2)
(H2/C1)

Rockwell-INEL

- FINDINGS:**
- A line that delivers hot concentrated (6-12 Normal, 37-72 percent) nitric acid at temperatures up to 185 degrees F was labeled "Unsafe Water." When questioned, two of three employees stated that they believe the pipe contained rinse solution. A third employee believed it contained nitric acid.
 - A chemical inventory supplied to the appraiser gave the National Fire Protection Association (NFPA) codes to be used on the color coded diamond labels. However, it showed that approximately 60 percent of the chemicals listed had NFPA codes of 0 (health), 0 (flammability), and 0 (reactivity). This included such obviously hazardous materials as sulfuric and nitric acids, and carbon tetrachloride. The inventory also had other inaccuracies such as assigning "0" flammability to anhydrous ammonia.
 - Neither the operations representative nor a safety professional who accompanied the appraiser could identify or determine the content of a molten salt bath and adjacent barrels of the salt. Both stated they believed it was ordinary salt, sodium chloride. In fact, it contained no sodium chloride but three other salts.
 - Basic Material Safety Data Sheet (MSDS) training has been given and some employees have also been trained on specific chemicals; however, the effectiveness of that training was questionable from the answers given by individual employees.
 - Some supervisors were unaware of the reason respiratory protection was prescribed for their employees. One supervisor contradicted the employee when the employee explained he was told to wear a respirator for paint fumes (the same explanation given by the industrial hygienists).
 - Other hazard communication deficiencies are discussed in Section 4.5.3.14, WS.4.
 - Although hearing protection is provided and used in the carpenter shop, there is no sign indicating when it is required.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(PP.5-3)
(H1/C1)

The Rockwell-INEL Hazard Communications Program required by 29 CFR 1200 does not effectively inform employees of the hazards to which they are exposed.

- FINDINGS:**
- Eating and drinking is allowed in some welding shops and other shops where toxic materials are stored and used. This violates Rockwell-INEL policy and 29 CFR 1990.141. In many of these there were no facilities for hand washing prior to eating.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN:
(PP.5-4)
(H2/C1)

Rockwell-INEL employees are permitted to consume food and beverages in areas exposed to toxic materials in violation of 29 CFR 1910.141.

4.5.3.14 Worker Safety and Health Compliance

4.5.3.14.1 Overview

The six performance objectives for the Worker Safety and Health (OSHA) Compliance technical area were included in this appraisal.

A comprehensive safety and health compliance appraisal (OSHA-type) covering OSHA general industry and construction standards was conducted at the INEL site to determine compliance with existing OSHA regulations as adopted by DOE.

Morrison Knudsen-Ferguson of Idaho, Company

The inspection encompassed MK-FIC and subcontractors managed by MK-FIC throughout the INEL site. Noncompliance and hazards were documented and discussed with management at the end of each day (see Appendix F).

The inspection covered various construction operations and fabrication shops/buildings. The appraisal focused primarily on areas selected according to where the majority of the employees worked, where hazardous materials were present, type and size of the activity, and size of the shop/building. Buildings and structures under construction or modification were inspected and evaluated for compliance with OSHA regulations. Evaluation criteria were based, in part, on OSHA general industry and construction standards, 29 CFR 1910 and 29 CFR 1926, respectively.

Facilities satisfying these criteria are the maintenance shops, facilities under varying degrees of construction, hazardous materials storage areas, materials storage areas, hazardous waste disposal, and fabrication shops/buildings. These facilities encompass a majority of the hazardous workplaces. A less comprehensive sample of office buildings and other low-hazard areas was also inspected.

A concentrated effort was made by the S&H Subteam to select those areas of construction which were significant in terms of size and expenditure of funds. In addition, the team elected to inspect a broad sampling of diverse work practices associated with construction operations.

MK-FIC acts as the construction manager for construction activities performed on the INEL site. Numerous programs are in place for addressing the requirements of worker safety standards and programs in place for the INEL. Preinspection interviews held with MK-FIC managers indicated that MK-FIC has ultimate responsibility for subcontractor conformance to OSHA standards and DOE Orders. Subcontractors have a general responsibility for compliance with the programs administered by the MK-FIC safety staff.

One month prior to this appraisal, MK-FIC requested and received a complete inspection by their own inspection staff from MK-Ferguson Group, MK-Ferguson Corporation. The inspection was to provide MK-FIC a measure to gauge the adequacy of existing safety and health efforts and to prepare the site personnel for the Tiger Team Assessment.

The MK-Ferguson Group inspection resulted in virtually no findings regarding safety and health issues at the INEL. The report titled "Environmental Safety and Health Compliance Report for Mk-Ferguson of Idaho Company at the Idaho National Engineering Laboratory" and dated June 4, 1991, was forwarded to MK-FIC.

The number of serious noncompliances of OSHA standards observed by the team indicates a serious deficiency in the inspection methodology being used by the MK-Ferguson Group.

MK-FIC does not exert control or oversight of subcontractors to ensure that they are complying with mandatory safety and health requirements. MK-FIC does not have the staff and/or resources needed to conduct meaningful, quality, and effective safety and health inspections at this facility. In the past, MK-FIC issued only one corrective action requirement (CAR) to address recalcitrant subcontractors when obvious flaunting of safety and health issues were taking place, repeatedly and in plain view of the MK-FIC managers. This method of achieving abatement for safety and health noncompliances is under used by MK-FIC.

The safety and health staff responsible for inspecting all of the sites under MK-FIC is highly qualified and has demonstrated the ability to continuously find numerous serious safety hazards as evidenced by MK-FIC Commitment/Deficiency Management System, "All Item Assessment Finding Report," dated July 8, 1991. This report documents numerous instances of repeated noncompliances of OSHA standards.

During the inspection of Fuels Processing Restoration (FPR) construction project by the S&H Subteam, it became obvious that hazards were being abated only after the S&H Subteam members pointed out the condition instead of exercising any proactive effort to comply prior to the inspection. This became more evident on the second day of the inspection at FPR. As part of the Subteam proceeded to the lower levels of the site, the number of observed serious noncompliances of scaffold and guard rails requirements increased.

After members of the Subteam inspected work areas and pointed out serious hazards, subcontractors tagged the equipment "Do Not Use." A second Subteam element walked through the same areas later in the day and found the newly tagged-out equipment being used by subcontractors employees. In addition, the persons responsible for inspecting and tagging the equipment were directing the exposed employees to use the equipment.

The appraisal indicates serious deficiencies in the following areas:

- Employees are not protected from impalement hazards on uncapped reinforcement bars.
- Housekeeping in perimeter areas, as well as employee work stations, was poor, creating tripping hazards.
- Guard rails and guarding of floor and wall openings at FPR were seriously deficient.

- Electrical disconnects were blocked and unavailable for emergency use.
- Employee training in areas of safety and health, hazard avoidance, and Hazard Communication (trenching, respirator training, and competent persons training) for subcontractors are deficient.
- Job-made ladders, scaffolds, concrete formwork platforms, and other wooden structures erected onsite are unsafe and not in compliance with standards.
- Manufactured metal scaffolds are not being erected or used according to standards.
- Emergency preparedness, emergency planning, and emergency evacuation are deficient.
- Danger tags for formwork and scaffold deficiencies are inaccurately assessed and are ignored or removed.
- Open pits, remote excavations, opensided floors, open shafts, and numerous falling hazards are prevalent throughout the FPR and guarding is not provided.
- There is no followup on or enforcement of corrective action on deficiencies noted during routine inspections.
- Fire protection at the FPR site is inadequate and there is a shortage of proper fire extinguisher.
- Defective hand tools are used.
- Compressed gas cylinders usage, handling, and storage indicate a disregard for safe work practices.
- Daily inspections of all areas are not performed to ensure compliance with DOE and OSHA standards. Items that are observed and cited by MK-FIC safety and health staff are generally repeated by the various subcontractors.
- Storage of bulk propane tanks is not in accordance with OSHA standards.
- Hazard Communication Program requirements are not being enforced in the areas of labeling and training.
- Employees working in elevated areas are not protected by safety lines, catch platforms, or other methods.
- Personal protective equipment is not being worn or its use enforced.

A total of 174 noncompliance issues were identified. Of these, 168 were considered serious and 6 were classified as other than serious. Table 4.5.3 WS-1 provides a summary of the buildings that were inspected, the number of noncompliance issues noted and the OSHA noncompliance classification of each. Appendix F is a tabulation, by building, of all noncompliance of OSHA standards and the classification of each. (See Figure 4.5.3-1.)

Table 4.5.3 WS.1
Building Noncompliance Summary

<u>BUILDING</u>	<u>CLASSIFICATION</u>		
	Serious	Other-Than-Serious	Willful
FPR	120	1	0
TRA	15	1	0
CFA	8	0	0
ICPP	25	4	0
<u>TOTALS</u>	<u>168</u>	<u>6</u>	<u>0</u>

Protective Technology of Idaho Inc.

PTI, is the prime contractor for security at the INEL. The inspection encompassed all of the PTI operations being conducted in Bldgs. CF-609 and CF-B21-608. All six performance objectives for the Worker Safety and Health (OSHA) Compliance technical area were evaluated for PTI.

Noncompliances and hazards were documented and discussed with management at the end of each day. Repeated noncompliance of the same standard was noted only once on the inspection report form (Appendix F).

The inspection covered various operations, service, and maintenance buildings. The appraisal focused primarily on areas selected according to where the majority of the employees worked, where hazardous materials were present, type and size of the activity. Evaluation criteria were based on OSHA general industry and construction standards, 29 CFR 1910 and 29 CFR 1926, respectively.

Facilities satisfying these criteria are the maintenance shops, hazardous materials storage areas, materials storage areas, hazardous waste disposal, firing ranges, and operational buildings. These facilities encompass a majority of the hazardous workplaces. A less comprehensive sample of office buildings and other low-hazard areas was also inspected.

Protective Technology Idaho, (PTI), has facilities throughout the INEL site as the major part of the security mission for this facility. PTI management exhibited an aggressive approach to achieving compliance with OSHA standards as well as DOE Orders for safety and health issues. Their efforts are best

INEL/MK-FIC WORKER SAFETY VIOLATIONS

OSHA 29 CFR 1910 & 1926 STANDARDS

OTHERS: LESS THAN 2.0% OF TOTAL VIOLATIONS

measured by the relatively few number of noncompliances and/or concerns found during the walkthrough inspection by S&H subteam members.

While the concerns discussed in this report are scheduled for correction, PTI has to rely on their site service contractors scheduling for abatement of noncompliances. For example, the hangar insulation constitutes a fire hazard and the floor of the hangar needs sealing to prevent fuel spills from entering the cracks in the floor and leaching into the ground. As a result, the hangar area cannot be used to house the aviation divisions helicopters until correction of the problems are completed by the site service contractor.

The concerns in this report were not addressed in PTI's self-assessment. Collectively the findings indicate deficiencies in the following areas:

- Ventilation for removal of solvent vapors is inadequate at Bldgs. B-21-608 and CF-B21-608.
- Hearing protection attenuation has not been evaluated for workers at the firing range.

A total of 10 noncompliance issues were identified. Of these, five were considered serious and five were classified as other than serious. Table 4.5.3-2 WS.2 provides a summary of the buildings that were inspected, the number of noncompliance issues noted and the OSHA noncompliance classification of each. Appendix F is a tabulation, by building, of all noncompliance of OSHA standards and the classification of each. (See Figure 4.5.3-2.)

Table 4.5.3 WS.2

Building Noncompliance Summary

<u>BUILDING</u>	<u>CLASSIFICATION</u>		
	Serious	Other-Than-Serious	Willful
609	3	3	0
B21-608	2	2	0
<u>TOTALS</u>	<u>5</u>	<u>5</u>	<u>0</u>

Radiological and Environmental Sciences Laboratory

The appraisal of RESL addressed the performance objectives for the Worker Safety and Health (OSHA) Compliance technical area in Bldg. CF-690.

Rockwell-INEL

Rockwell-INEL operates the SMC for the INEL. All of the facilities and operations managed by Rockwell-INEL were inspected for conformance to OSHA

INEL/PTI WORKER SAFETY VIOLATIONS OSHA 29 CFR 1910 & 1926 STANDARDS

OTHERS: LESS THAN 2.0% OF TOTAL VIOLATIONS

standards as well as DOE Orders. All six performance objectives for the Worker Safety and Health (OSHA) Compliance technical area were evaluated for Rockwell-INEL.

Noncompliances and hazards were documented and discussed with management at the end of each day. Repeated noncompliance of the same standard in a department were only noted once on the inspection report form (see Appendix F).

The inspection covered major processes, service facilities, manufacturing operations, and storage buildings. The appraisal focused primarily on areas selected according to where the majority of the employees worked, where hazardous materials were present, type and size of the activity, and size of the facilities. Facilities were inspected and evaluated for compliance with OSHA regulations. Evaluation criteria were based on OSHA standards for general industry, 29 CFR 1910.

Facilities satisfying these criteria are the maintenance shops, manufacturing facilities, hazardous materials storage areas, materials storage areas, hazardous waste disposal, and fabrication shops. These buildings encompass a majority of the hazardous workplaces. A less comprehensive sample of office buildings and other low-hazard areas was also inspected.

Administrative programs for health related issues, such as asbestos monitoring, hearing conservation, and other exposure monitoring, are not formalized and are, therefore, open to various interpretations. For example, hearing conservation programs are in rough draft only.

Collectively, the findings indicate deficiencies in the following areas:

- Fork lift training and operations do not meet OSHA standards. In addition, employees are operating fork lifts with vision obstructed and the rated capacity of lift trucks is being exceeded.
- Hazardous materials are not used and stored according to classification. For example, in excess of 120 gallons of flammable liquids are stored outside of a flammable liquid storage cabinet or storage room.
- Machine guarding is inadequate or nonexistent. For example, in Bldg. TAN-629, the rack loader is not guarded and the "Rotator" station is not guarded.
- The Hazard Communication Program is not being uniformly conveyed to employees, and the Chemical Hygiene Program is using MSDSs which do not contain the required information.
- Toxic substances are not controlled or stored to prevent inadvertent employee exposures.

- Health monitoring programs are incomplete or nonexistent, for example, the Asbestos Management Program is in draft form.
- Industrial hygiene monitoring results are not being conveyed to workers at SMC.
- Woodworking machinery and equipment do not have required guarding installed. Examples include the radial arm saws, shapers, and belt sanders in Bldg. TAN-606.
- Electrical equipment, wiring, and electrical fixtures are not installed or used in accordance with OSHA standards.

A total of 95 noncompliance issues were identified. Of these, 77 were considered serious and 17 were classified as other than serious and 1 was classified as willful.

Table 4.5.3 WS.3 provides a summary of the buildings that were inspected, the number of noncompliance issues noted and the OSHA noncompliance classification of each. Appendix F is a tabulation, by building, of all noncompliance of OSHA standards and the classification of each. (See Figure 4.5.3-3.)

Table 4.5.3 WS.3

Building Noncompliance Summary

<u>BUILDING</u>	<u>CLASSIFICATION</u>		
	Serious	Other-Than-Serious	Willful
628	50	16	0
606	15	1	0
677	3	0	0
629	12	0	1
<u>TOTALS</u>	<u>77</u>	<u>17</u>	<u>1</u>

DOE Field Office, Idaho

The ID office facility was inspected relative to an employee concern regarding electrical safety. Violations of standards were noted and are covered in Appendix F. A concern was written.

INEL/ROCKWELL WORKER SAFETY VIOLATIONS OSHA 29 CFR 1910 & 1926 STANDARDS

OTHERS: LESS THAN 2.0% OF TOTAL VIOLATIONS

4.5.3.14.2 Findings and Concerns

WS.3 COMPLIANCE WITH OCCUPATIONAL HEALTH STANDARDS FOR GENERAL INDUSTRY

PERFORMANCE OBJECTIVES: Site/facility operations should comply with DOE-prescribed standards for the evaluation and control of occupational health hazards.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- Hearing attenuation factors are not being evaluated to protect personnel from hearing loss on the firing range.
 - Employees are not being trained regarding excessive noise levels associated with weapons firing.
 - Ventilation used to control solvent vapors is inadequate. In Bldg. CF-B21-608, adequate ventilation controls are not installed for the Engine Mechanics Shop. At the gun cleaning stations in Bldg. CF-B21-608, the fume hoods are improperly designed.
 - This concern was addressed in the PTI self-assessment.

CONCERN: Hearing conservation and ventilation control at Protection Technology of Idaho, Inc. do not comply with 29 CFR 1910.94 and 1910.95, Occupational Health and Environmental Control.
(WS.3-1)
(H1/C1)
CAT. II

- FINDINGS:**
- Not all workers potentially exposed to airborne lead, at Bldg. CF-B-21-608, are trained.
 - Controls are not installed in the ventilation system for the indoor range at Bldg. B-21-CF-608, which monitor the concentration of lead in the return air system.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: Training for persons exposed to airborne lead at Protection Technology of Idaho, Inc. does not comply with 29 CFR 1910.1025, Toxic and Hazardous Substances.
(WS.3-2)
(H2/C1)

WS.4 COMPLIANCE WITH OCCUPATIONAL SAFETY STANDARDS FOR GENERAL INDUSTRY

PERFORMANCE OBJECTIVES: Workplaces should be free of uncontrolled physical hazards and be in compliance with DOE-prescribed occupational safety standards.

Radiological and Environmental Sciences Laboratory

FINDINGS:

- Adequate guarding is not provided for machines to protect employees from the hazards associated with rotating parts, in-running nip points, and points of operation. Lathes, a milling machine, and a band saw are not guarded.
- This concern was not addressed in the RESL self-assessment.

CONCERN: Machines operating at the Radiological and Environmental Sciences Laboratory are not guarded according to 29 CFR 1910.212, (WS.4-1) Subpart O.
(H1/C1)

- FINDINGS:**
- Noncompliances of electrical standards, such as frayed cords, open grounds, and improper use of flexible cords, were observed at RESL.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: Electrical installations at Radiological and Environmental Sciences Laboratory do not comply with 29 CFR 1910.303, 1910.304, (WS.4-2) and 1910.305 of Subpart S.
(H1/C1)

ROCKWELL-INEL

- FINDINGS:**
- Machine guarding requirements for production machines and woodworking machines are not being met. In Bldgs. CF-629 and CF-606, wood shapers, power saws, and sanders were missing blade guards, spreaders/splitters, and nip point guards. The Hydro Ironworker was missing point of operation guards and nip point guards.
 - This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN: Machine guarding at Rockwell-INEL does not comply with 29 CFR 1910.212 and 1910.213, Machinery and Machine Guarding. (WS.4-3)
(H1/C1)
CAT. II

- FINDINGS:**
- Hazard Communication programs are inadequate and do not meet the requirements of OSHA standards. For example, Material Safety Data Sheets (MSDSs) in Bldgs. TAN-629 and TAN-627 did not contain the required information.

- Hazard communication regarding labeling and chemical inventory is not adequate. For example, in Bldgs. TAN-629, TAN-677, TAN-682, and TAN-607, incoming hazardous chemicals are not properly labeled.
- The written Hazard Communication Program did not contain a current Chemical Inventory listing for hazardous chemicals used in this facility. In addition, the program did not indicate how employees are to be trained.
- This concern was not addressed in the Rockwell-INEL self-assessment.

CONCERN: See Concern PP.5-3.

- FINDINGS:**
- Fork lift training and fork lift operations are not conducted according to OSHA standards. For example, operators of fork lifts are carrying loads with their vision obstructed, not slowing down when proceeding through blind intersections, and exceeding capacities rated for the specific fork lift truck.
 - Fork lift operators are not familiar with the rated loading capacities of the trucks they operate in Bldg. TAN-677. Fork lift trucks rated for 3,000 pounds were being operated with a 4,500 pound load on the tines.
 - Cranes, in Bldg. TAN-629, are not marked to show loading capacity for the cranes.
 - This concern was not addressed in Rockwell-INEL self-assessment.

CONCERN: Forklift and crane operations at Rockwell-INEL do not comply with 29 CFR 1910.178 and 1910.179, Materials Handling and Storage.
(WS.4-4)
(H1/C1)
CAT. II

- FINDINGS:**
- Electrical equipment operating at 600 volts or less is not guarded or covered with approved fixtures or covers. In Bldg. TAN-679, covers are removed from conduit for maintenance and the covers are not replaced.
 - This concern was not addressed in Rockwell-INEL self-assessment.

CONCERN: Guarding of energized electrical equipment at Rockwell-INEL does not comply with 29 CFR 1910.303, Electrical.
(WS.4-5)
(H1/C1)
CAT. II

- FINDINGS:**
- Flammable liquids are being stored and used improperly. In Bldg. TAN-628 in excess of 120 gallons of Class 1B liquids were not in an approved inside storage room. Three 55-gallon drums of flammable liquids were in the general work area.
 - In Bldg. TAN-628, lighting and exhaust fans inside a flammable liquid storage room were not operated by a switch located outside of the room.
 - Light fixtures in the flammable liquid storage room of Bldg. TAN-628 are not explosion proof.
 - This concern is not addressed in Rockwell-INEL self-assessment.

CONCERN: Flammable liquid storage at Rockwell-INEL does not comply with
(WS.4-6) 29 CFR 1910.106, Hazardous Materials.
(H1/C1)
CAT. II

- FINDINGS:**
- Employees are not made aware of sample results taken to determine exposure to toxic materials. For example, asbestos samples in Bldg. TAN-628 contained 90 percent amosite asbestos. The employees were not notified.
 - Initial monitoring for exposures to toxic materials is not being performed. For example, employees working in asbestos areas of Bldg. TAN-628 are not monitored.
 - This concern is not addressed in Rockwell-INEL self-assessment.

CONCERN: Asbestos sampling and employee notification at Rockwell-INEL do
(WS.4-7) not comply with 29 CFR 1910.1001, Toxic and Hazardous Substances.
(H1/C1)
CAT. II

Department of Energy Field Office, Idaho

- FINDINGS:**
- Electrical equipment was not free from recognized hazards that were likely to cause death or serious physical harm to employees.
 - There were overcurrent devices locked within a room not readily accessible in case of an emergency.
 - Lightweight, two-conductor wire not suitable for use was installed.

- Flexible cords were energized from flexible cords, not from an approved receptacle outlet. There were extension cords fed from power strips.
- Flexible cords were concealed behind walls and furniture.
- There are receptacle outlets with up to eight appliances connected, drawing more current than the rated current capacity.
- This concern was not addressed in the ID self-assessment.

CONCERN:
(WS.4-8)
(H1/C1)

The DOE Field Office, Idaho, electrical equipment was not free from recognized hazards that are likely to cause death or serious physical harm to employees, as required by 29 CFR 1910.303.

WS.5 COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR CONSTRUCTION INDUSTRY

PERFORMANCE OBJECTIVES: Construction activities should be free of uncontrolled physical and health hazards, and should be in compliance with DOE-prescribed occupational safety and health standards relating to construction.

NOTE: Noncompliances with this performance objective will be documented utilizing the OSHA Form 1B format. A compilation of these completed forms will be provided as Appendix F to the Tiger Team Assessment Report, and to the TSA.

Morrison Knudsen-Ferguson of Idaho Co.

- FINDINGS:**
- Wooden scaffolds are erected with broken and cracked scaffold members, and missing end cleats. None of the formwork scaffolds in the lower level of the Fuel Process Restoration (FPR) project are in compliance with the standards.
 - Mobile scaffolds are used without the caster brakes being set or damaged brakes that could not be set.
 - Planks are not scaffold grade for both mobile and job made wooden scaffolds. Planks are various sizes of pine and other species of lumber.
 - Scaffold picks are improperly installed using 2 inch x 4 inch lumber for support. Some have deformed end clips.
 - Mobile scaffolds are being accessed using the end panel supports. Some ladders installed on mobile scaffolds are made of broken scraps of lumber and have protruding nails.
 - Employees working in the cells of Level 2 through 4 of the FPR are climbing job made ladders to gain access to formwork platforms. The access ladders have splinters, protruding nails, and cracked side rails.
 - In many cases guard rails and toe boards are missing or broken on open sides of scaffolds. Guard rails are missing top-and mid-rails leaving openings in the guards in the cell areas of FPR. Employees are exposed to falls of 14 feet.
 - Scaffolds were being inspected and/or erected by unqualified and untrained subcontractors at FPR, Bldg. CF-689, and the Simulator Training Facility.
 - Several instances were observed where subcontractors have directed and permitted their employees to use scaffolds

that were marked as "Unsafe Do Not Use" even though corrections have not been made.

- Damaged or weakened scaffolds and their components are not removed from service immediately.
- This concern was addressed in the MK-FIC self-assessment.

CONCERN:
(WS.5-1)
(H1/C1)
CAT. I

Ladders and scaffolding in use on Morrison Knudsen-Ferguson of Idaho Company managed construction sites do not comply with 29 CFR 1926.450 and 1926.451, Ladders and Scaffolding.

FINDINGS:

- Housekeeping in walkways, work spaces, stairs, and perimeter areas at FPR created tripping hazards. For example, trash, pieces of wood, nails, pieces of reinforcement bars, and assorted construction debris were laying in the work areas of Level I at FPR.
- Scrap lumber with protruding nails was observed throughout the FPR facility.
- Debris was permitted to accumulate in remote pits and excavations at FPR.
- Scrap parts and tools are permitted to accumulate in walkways of work areas creating slipping and tripping hazards. For example, at the east end of level one at FPR, adjacent to an open sided floor opening 10 feet deep, tool bits, round stock, and scrap bolts were strewn about the walkway.
- This concern was addressed in the MK-FIC self-assessment.

CONCERN:
(WS.5-2)
(H1/C1)
CAT. II

Construction housekeeping at Morrison Knudsen-Ferguson of Idaho Company construction sites does not comply with 29 CFR 1926.25, General Safety and Health Provisions.

FINDINGS:

- Employees were required to work over and around uncapped reinforcement bars and were exposed to the hazards associated with impalement. For instance reinforcement bars were uncapped and exposed at entrances to the Level 1 slab area, in stairwells below walking surfaces, under ladders, and in pits open on all sides. In addition, highly traveled access points to the work areas, in and around the perimeter of the site, contained uncapped reinforcement bars.
- There is no uniform enforcement policy for capping reinforcement bars at FPR. The abundance of this hazard

indicates that all subcontractors at the FPR are exposed to this hazard.

- This concern was addressed in the MK-FIC self-assessment.

CONCERN:
(WS.5-3)
(H1/C1)
CAT. II

Unprotected reinforcement bars at Morrison Knudsen-Ferguson of Idaho Company construction sites expose employees to impalement hazards in violation of 29 CFR 1926.701, Concrete and Masonry Construction.

FINDINGS:

- Electrical disconnects throughout the FPR are not marked to show their intended use in the event of an emergency.
- Access to electrical disconnects is blocked. For example, poor housekeeping, physical barriers such as wooden guardrails, reinforcement bars, cables, and other impediments prevented immediate access in the event of an emergency.
- Clear working space for electrical disconnects and equipment, required by construction electrical standards, are being used to store materials.
- This concern was addressed in the MK-FIC self-assessment.

CONCERN:
(WS.5-4)
(H1/C1)
CAT. II

Electrical disconnect access and labeling at Morrison Knudsen-Ferguson of Idaho Company construction sites do not comply with 29 CFR 1926.400 and 1926.403, Electrical.

FINDINGS:

- Employees are issued respirators for concrete grinding operations without adequate training.
- Employees were observed improperly wearing respirators with both of the straps placed around their neck. Some were observed with the respirators hanging around their necks while chipping concrete. Large amounts of silica dust are generated during this operation.
- This concern was addressed in the MK-FIC self-assessment.

CONCERN:
(WS.5-5)
(H1/C1)
CAT. II

Respirator use at Morrison Knudsen-Ferguson of Idaho Company construction sites does not comply with 29 CFR 1926.103, Respiratory Protection.

FINDINGS:

- Emergency preparedness and evacuation planning has not been conveyed to workers throughout FPR. Workers are performing work inside cells of the FPR at the lower levels, without being made aware of evacuation methods.

- Emergency lighting to safely evacuate employees from areas subject to power failures or other emergencies is not provided. For example, employees are working inside of cells (which were located inside of a structure) illuminated by a temporary power supply. Instructional procedures for electrical outages are not conveyed to these employees.
- Routine inspections by competent persons with meaningful followup being performed are not conducted at the construction sites throughout INEL.
- Defective, unsafe, or improperly installed equipment is in use throughout the FPR.
- Equipment such as scaffold components, guardrail systems, ladders, and hand tools are inspected and declared to be safe when in fact they are not. For example, scaffolds and scaffold components which exhibited cracks, damaged parts, and missing members, and scaffolds erected according to improper procedures are tagged as "safe for use." Numerous noncompliances were observed by appraisal Team members immediately after tagging.
- Employees are not being trained in the recognition and avoidance of unsafe or hazardous conditions for work sites at Bldg. CF-687, the Simulator Training Facility (STF), and FPR. For example, employees are exposed to falling hazards in excess of 10 feet, uncapped reinforcement bars, broken scaffold components, and unsafe ladders. Employees were not aware of the requirements.
- These concerns were addressed in the MK-FIC self-assessment.

CONCERN: Training for persons responsible for identifying and correcting safety and health issues on Morrison Knudsen-Ferguson of Idaho Company construction sites does not comply with 29 CFR 1926.20, General Safety and Health Provisions.
(WS.5-6)
(H1/C1)
CAT. II

CONCERN: Training for employees in the recognition and avoidance of hazardous conditions on Morrison Knudsen-Ferguson of Idaho Company construction sites does not comply with 29 CFR 1926.21, General Safety and Health Provisions.
(WS.5-7)
(H1/C1)
CAT. II

FINDINGS:

- In most areas of the FPR site there was a shortage of fire extinguishers for the hazards encountered.
- Unserviceable fire extinguishers were in service at the FPR.

- Fire extinguishers placed for the protection of areas were not of the correct size and capacity. For example, two 300-gallon bulk propane tanks are protected with less than one 20 BC extinguisher.
- This concern was addressed in the MK-FIC self-assessment.

CONCERN:
(WS.5-8)
(H2/C1)
CAT. II

Fire extinguishers at the Morrison Knudsen-Ferguson of Idaho Company construction site do not comply with 29 CFR 1926.150, Fire Protection and Prevention.

FINDINGS:

- At Bldg. TAN-689 and the FPR, open sided floors lacked top- and mid-rails in areas where work is being performed. Workers are exposed to falls in excess of 10 feet.
- An unguarded wall opening, at a lower level area of FPR, was located in a poorly lighted area. In addition, tripping hazards were present in front of the wall opening. Employees were exposed to falls of 40 feet.
- Nylon rope was being used in lieu of standard guardrails adjacent to a floor opening at the FPR facility. The rope was at the edge of the floor opening and would not have prevented employees from falling into the opening.
- Guardrails for platforms and walkways are not constructed in conformance with OSHA standards at the FPR facility. For example, guardrails are installed using double headed nails exposing employees to lacerations.
- Platforms are being installed at the FPR which do not meet OSHA standards. For example, platforms installed around Area 17 are constructed of assorted sizes of lumber at different elevations. The points of platform elevation are not provided with a ramp to prevent tripping on the upraised portion of the walkway. Platforms installed around form work are not equipped with toe boards and standard rails around the entire periphery of the platforms.
- Job made stairs leading to tool and equipment trailers do not meet the requirements of the OSHA standards regarding handrails and strength of components. Temporary stairs at office trailers have broken railings. In addition, the stair tread rise to height requirement was not uniform in several instances.
- At the FPR, floor holes (into which employees could step) have covers that were not secured to prevent displacement.
- This concern was addressed in the MK-FIC self-assessment.

CONCERN: Missing and defective railings and walkways expose workers at Morrison Knudsen-Ferguson of Idaho Company construction sites in violation of 29 CFR 1926.500, Floor and Wall Openings, and Stairways.
(WS.5-9)
(H1/C1)
CAT. I

- FINDINGS:**
- Compressed gases used throughout the FPR site were not being stored in a manner consistent with safe work practices outlined in the standards. For example, oxygen and acetylene cylinders are stored together on carts designed for moving them. The carts are used to contain the cylinders in lieu of proper storage.
 - Compressed gas cylinders are stored below areas where steel erection activities are being conducted at FPR. The cylinders are subject to damage from inadvertent dropping of steel members and/or parts.
 - Employees using acetylene gas for cutting are not instructed in the safe use of the equipment. Employees are observed opening valves in excess of 3/4 turn on full acetylene cylinders.
 - This concern was addressed in the MK-FIC self-assessment.

CONCERN: Welding, cutting, and compressed gas cylinder storage and use at Morrison Knudsen-Ferguson of Idaho Company construction sites does not comply with 29 CFR 1926.350, Welding and Cutting.
(WS.5-10)
(H1/C1)
CAT. II

- FINDINGS:**
- Propane fuel storage areas are not protected from potential damage due to vehicular traffic. For example, two 300-gallon capacity bulk tanks are placed in an area directly adjacent to an access roadway at FPR. In addition, steel beam offloading is conducted in this area.
 - Combustible materials are accumulating near the propane tanks.
 - The pump used to transfer liquid propane gas was not marked or tagged for use with propane.
 - This concern was addressed in the MK-FIC self-assessment.

CONCERN: Propane storage and dispensing at Morrison Knudsen-Ferguson of Idaho Company construction sites does not comply with 29 CFR 1910.110, as incorporated by 29 CFR 1926, Subpart H, Hazardous Materials.
(WS.5-11)
(H1/C1)
CAT. II

- FINDINGS:**
- Load ratings are not calculated for all overhead storage areas.

- Some loads are incorrectly calculated to indicate larger amounts of storage than can be supported by the structure at Bldg. 1638. (This was confirmed by the structural engineer that originally miscalculated the floor loading values of the structure.)
- This concern was not addressed in the MK-FIC self-assessment.

CONCERN:
(WS.5-12)
(H1/C1)

Load ratings on floors at Morrison Knudsen-Ferguson of Idaho Company construction sites do not comply with 29 CFR 1926.250, Materials Handling Use and Disposal.

FINDINGS:

- The excavation around Area 17 had the barricades placed in and at the edge of the excavations instead of 5 feet away. This excavation was not being worked and was in a highly traveled portion of the FPR.
- Daily inspections of excavations were not made by competent persons for evidence of situations which could result in a cave-in or failure of protective systems. At trailer TR-25, employees performing excavation work adjacent to, and under, a structure were not qualified to perform daily inspections of the condition.
- This concern was not addressed in the MK-FIC self-assessment.

CONCERN:
(WS.5-13)
(H1/C1)
CAT. II

The inspection and guarding of pits and excavations at Morrison Knudsen-Ferguson of Idaho Company construction sites does not comply with 29 CFR 1926.651, Excavation.

FINDINGS:

- The wearing of personal protective equipment such as fall prevention devices (safety belts and lifelines), is not being enforced. For example, workers at Bldg. TAN-689 and at the FPR are working at elevated heights without using safety belts.
- This concern was addressed in the MK-FIC self-assessment.

CONCERN:
(WS.5-14)
(H1/C1)
CAT. II

Fall prevention devices are not always used at Morrison Knudsen-Ferguson of Idaho Company construction sites in violation of 29 CFR 1926.103, Personal Protective Equipment and Life Saving Equipment.

4.5.3.15 Fire Protection

4.5.3.15.1 Overview

Morrison Knudsen-Ferguson of Idaho Company

Six of the seven Fire Protection performance objectives were reviewed during this appraisal. The ID Fire Department performance objective is not part of this review, it is addressed elsewhere in this report. An interview was conducted with the Chemical Processing Plant Safety supervisor who also conducted the tour of the MK-FIC occupied facilities: Bldgs. CPP-698 and CPP-1606, and the Fuel Processing Restoration construction project. The Management Plan and self-assessment documents were used to evaluate the program.

MK-FIC does not have a fire protection organization and administration plan to ensure implementation and control of fire protection activities. The ES&H Management Plan, Chapter X, "Fire Prevention and Protection," November 1, 1988, assigns subcontractor program responsibilities to minimize losses due to fire or explosion. The fire protection engineering design is done by the operating contractor and the construction fire protection/prevention is the responsibility of the construction contractor. There is no fire protection program overview audit made of subcontractors by MK-FIC.

The FPR construction site presents a life safety problem and a potential for a maximum credible fire exceeding \$1 million. A fire in the lower area could cause a delay of the construction completion schedule. The lowest area (four stories below ground) contains a large volume of wood (most not marked as fire retardant), temporary wiring, and temporary lighting. As viewed during this appraisal, no work was being done; when work continues it is expected that there will be combustible compressed gas cylinders in the area. No audible evacuation alarms are provided. There are open stairways and emergency lights exist only in the stairways. The ID Fire Department does not have a facility prefire plan. The only fire prevention equipment available consists of fire extinguishers distributed throughout the area. Reasonable precautions that could be taken to limit life safety and fire loss concerns are: (1) Immediate installation of automatic sprinklers if planned, or provision of a temporary automatic sprinkler system, (2) Provision of charged stand pipe systems with at least 100 feet. of 1 1/2-inch hose connected for use by workers trained in small fire hose use, (3) Automatic closing doors provided at two stairways for smoke free exits to the ground level, (4) Installation of emergency lights in the work areas, (5) Installation of an evacuation pull box system connected to the central fire station, (6) Verification, inspection, and enforcement ensuring the wood introduced into the lower areas is fire retardant, and (7) Establishment and maintenance of a facility prefire plan by the responding fire department.

None of the performance objectives are being met. There is serious concern regarding the life safety and fire loss potential of the FPR construction facility and omission of a fire protection plan. MK-FIC self-assessments do not address the fire protection concerns.

Protection Technology of Idaho, Inc.

Six of the seven Fire Protection performance objectives were reviewed during this appraisal. The ID Fire Department performance objective is not part of this review; it is addressed elsewhere in this report. A review was made of manuals, correspondence, self-appraisals, and consultant fire protection reports. Tours were conducted of Bldgs. CF-608 and CF-609.

The major program weakness is the nonavailability of fire protection engineering services; the program strength is PTI's recognition of this need and the action taken by them to get this engineering service.

The fire protection program is administered by the ES&H manager and explained in PTI, ES&H Manual, Section 19, December 1990. The fire protection performance objectives are being met except for the two listed concerns. They are (1) the omission of an audible interior building evacuation alarm, and (2) verification of fire equipment tests at PTI.

EG&G Idaho is supposed to provide fire protection engineering support as directed by ID. This support has been lacking. PTI, because of apparent fire protection problems with the Hangar, Bldg. CF-608, had a fire protection engineer consultant review the hangar fire protection requirements (March 4, 1991). This review resulted in 15 recommendations and the closing of the hangar by PTI for helicopter use. This action limits the fire loss potential. PTI is acting to correct the hangar deficiencies. This same consultant made a fire protection engineering review of CF-609 and issued the report April 17, 1991. PTI initiated a letter to EG&G Idaho (June 10, 1991) requesting fire protection and other related safety and health services.

PTI self-assessments include the need for audible building evacuation alarms; verification of fire equipment tests were not included.

Radiological and Environmental Science Laboratory

Six of the seven Fire Protection performance objectives were reviewed during this appraisal. The ID Fire Department performance objective is not part of this review; it is addressed elsewhere in this report. A review was made of fire protection audits and ES&H critical self-assessments. Tours were conducted of Bldgs. CF-690 and CF-638.

The RESL manager is responsible for providing an adequate fire protection program for the facility. There are no fire protection personnel on his staff and this service is provided by ID. The Fire Protection performance objectives are being met except the two listed concerns. They are (1) fire equipment test verification is not available at RESL, and (2) omission of fire protection engineering surveys.

Bldg. CF-690 is an office/laboratory complex containing 23 perchloric acid fume hoods (explosion potential) and an interior flammable liquid storage vault having flammable liquids that can be ignited at normal temperatures (Fire Hazard 3, flashpoint below 100 degrees F).

Bldg. CF-638, a radiation calibration facility containing radiation source material, has smoke detectors connected to the fire department, and automatic closing air duct dampers. Combustible panelling, shelves, and bench, and open top trash receptacles provide some fire loading in the 80 feet by 40 feet bunker type facility. If reasonable Fire Department response is not provided, a fire may result in outside radioactive contamination.

Considering the fire/explosion potentials of these facilities, there is a concern for a fire protection engineering survey to provide baseline data to determine if the facilities meet DOE 5480.7 objectives (1) that there are no undue hazards to employees from fire, and (2) that vital DOE programs (DOE-wide dosimetry program services) will not suffer unacceptable delays as a result of fire. RESL's self-assessments do not address these concerns.

Rockwell-INEL

Six of the seven Fire Protection performance objectives were reviewed during this appraisal. The ID Fire Department performance objective is not part of this review; it is addressed elsewhere in this report. Interviews were conducted with plant managers, the Fire Protection Engineer, and building managers. The external appraisal by Factory Mutual Research Corporation, in-house fire protection audits; issued, or to be issued procedures; and the self-assessment were used to evaluate the program. Tours were made in Bldgs. TAN-602A, TAN-606, TAN-607A, TAN-628, TAN-629, TAN-675, TAN-677, TAN-679, TAN-681, TAN-682, and TAN-688.

Major strengths of the fire protection program are (1) clean, fire-protected production facilities and boiler houses that are without a potential fire loss exceeding \$1 million, (2) professional fire protection engineering services that are effectively used in the program, (3) fire protection engineering surveys of TAN-606 and TAN-628 that contain the necessary elements to evaluate fire protection and life safety conditions, and (4) thorough fire equipment and area condition inspections made by the Rockwell-INEL Reliability Group. The concerns are (1) Bldg. TAN-628 (a warehouse) is a high fire hazard storage facility without adequate exit facilities, and (2) internal fire protection engineering surveys are not made of major buildings.

These are the significant facts concerning each performance objective evaluated. Presently the fire protection organization and administration procedures are not in place. "Compliance Action Plan," CAP 8.2.4, scheduled to be issued between September and December, adequately covers this area. This Fire Protection CAP, although not officially issued, has been approved and is being followed. Compliance Action Program 8.2.4 establishes the work requirements for the fire protection engineering services; these requirements exceed the work capability of the one Fire Protection Engineer on the Rockwell-INEL staff. The major known life safety problem is Bldg. TAN-628, a warehouse, is listed as a concern. When the internal building fire protection engineering surveys are completed (also listed as a concern) more will be known regarding the adequacy of life safety provisions against the effects of fire. There is no threat to the public as a result of an onsite fire. The site is not vulnerable to being shutdown for an unacceptable period as the result of a credible fire. The provision of sprinklers supplied by reliable

water supplies and inspections and maintenance to ensure their respective operation, limits the maximum credible property loss to less than \$1 million. Building. TAN-606 is an unsprinklered shop facility that is expected to be a total loss when involved in fire; the loss expectancy is \$200,000. With respect to the Fire Department servicing Rockwell-INEL, the prefire plan of Bldg. TAN-606 lists the contents as normal office and storage; the present occupancy is a large paint spray booth and carpentry and utility shops.

Prefire plans for SMC production and storage facilities simply lists the contents as "SMC" (no hazards evaluation). These deficiencies were discussed with the ID Fire Department Chief, and action has been taken during this appraisal to update the prefire plans and appropriately list the contents of SMC facilities according to the NFPA 704 content system. The criteria listed in "Program Implementation" are being implemented considering the use of CAP 8.2.4 except for the need for fire protection Engineering Surveys by a professional Fire Protection Engineer (a listed concern). Rockwell-INEL self-assessments partially addressed the concerns.

4.5.3.15.2 Findings and Concerns

FP.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Fire Protection organization and administration should ensure the effective implementation and control of fire protection equipment and activities.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- MK-FIC's ES&H Management Plan, Chapter X, November 1, 1988, is the only procedure referencing fire protection. This plan establishes (1) what each subcontractor will do concerning fire suppression equipment, personnel training, fire inspections, and fire notification; and (2) temporary buildings fire protection requirements. No policy is established for the overall direction of the fire protection program by MK-FIC.
 - MK-FIC does not have a person designated with authority, responsibilities, accountability, or interfaces with supporting groups. For the Fuel Processing Restoration construction project, WINCO is the operating contractor responsible for fire protection design; Ebasco is the construction contractor responsible for construction fire prevention; and the ID Fire Department makes weekly site visits. Information concerning fire prevention/protection from these groups is not known or monitored by MK-FIC.
 - This concern was not addressed in the MK-FIC self-assessment.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company has not established an organization for fire protection activities, as required by DOE 5840.7.
(FP.1-1)
(H2/C1)

FP.2 LIFE PROTECTION

PERFORMANCE OBJECTIVE: All facilities onsite should provide adequate life safety provisions against the effects of fire.

Morrison Knudsen-Ferguson of Idaho Company

- FINDINGS:**
- Level 4 (four stories below ground) contains wood (scaffolds, plywood piles, scaffold board piles, forms, and benches) some marked "fire retardant." There may be sufficient untreated wood to cause a serious fire in this unsprinklered area. Stairways from the lower level are not enclosed to prevent smoke penetration.
 - The ID Fire Department makes weekly visits to the Fuel Processing Restoration site but does not have a prefire plan or records to indicate inspection results. Fire fighting support is not expected in the 4th Level by the ID Fire Department; therefore required exits are important because of questionable fire fighting response.
 - There is no audible evacuation alarm for the large underground areas.
 - This concern is not addressed in the MK-FIC self-assessment.

CONCERN:
(FP.2-1)
(H1/C1)
There is no program in place to ensure that Morrison Knudsen-Ferguson of Idaho Company facilities include NFPA 101, "Life Safety Code," requirements, at the Fuel Processing Restoration construction site, as required by DOE 5480.7.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- Bldgs. CF-608 and CF-609 have a fire pull box system which, when activated, sends a signal to the fire station, but does not provide an audible alarm in the building.
 - The buildings contain flammable liquids and other hazardous materials. Card access doors throughout hallways prevent vocal notification.
 - Absence of building audible alarms is in violation of NFPA 101, Section 7-6.3.
 - Absence of audible alarms were called to the attention of ID.
 - Sleeping quarters are also provided and up to 12 employees use these facilities daily.

- This concern was addressed in the PTI self-assessment.

CONCERN: Audible building alarm omission at Protection Technology of
(FP.2-2) Idaho, Inc. Buildings CF-608 and CF-609 presents a life safety
(H2/C1) problem.

Rockwell-INEL

- FINDINGS:**
- The August 1989, Rockwell-INEL fire protection survey of Bldg. TAN-628 (a warehouse), includes: (1) the hazardous waste storage area requires a second exit, (2) an additional exit (that does not exit through a more hazardous area) is needed in Room 110.
 - The waste storage area contains hazardous waste in 55-gallon drums that are marked Fire Hazard Classification 3 (flashpoint below 100 Degree Fahrenheit). This area does not have fire wall separation with other warehouse combustible storage areas and requires a second exit because of the hazardous classification.
 - The building evacuation plan shows proposed exits and fire walls which could confuse occupants when emergency exiting is required.
 - This concern was partially addressed in Rockwell-INEL self-assessment.

CONCERN: Rockwell-INEL's Building TAN-628 contains high hazard storage
(FP.2-3) without adequate exits and an inaccurate posted evacuation plan
(H2/C1) required by DOE 5480.7.

FP.7 PROGRAM IMPLEMENTATION

PERFORMANCE OBJECTIVE: A fire protection engineering program should be in place to effectively provide and maintain an "improved risk" level of fire protection.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- The PTI ES&H office has responsibility to maintain records of the testing of fire protection systems and fire protection appraisals (PTI, ES&H Manual, Section 19; December 1990). Fire protection equipment test records are not available at PTI. EG&G Idaho makes the fire equipment tests.
 - Besides the wet pipe sprinkler systems, the hangar pre-action system and control room halon system should be verified as being adequately tested because of the uniqueness and importance of these systems.
 - See Concern AX.1-1.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: There are no recorded fire protection equipment tests at
(FP.7-1) Protection Technology of Idaho, Inc. facilities, as required by
(H2/C1) DOE 5480.7.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- The RESL manager is responsible for providing an adequate fire protection program that should include verification of fire protection equipment tests. EG&G Idaho does not provide RESL confirming fire protection equipment test results.
 - Besides confirming the operability of sprinklers in Bldg. CF-690, it is important to receive test results of the smoke alarms at Bldg. CF-638. An undetected fire in Bldg. CF-638 could result in radioactive contamination outside the building.
 - This concern was not addressed in the RESL self-assessment.

CONCERN: There are no recorded fire protection equipment tests at
(FP.7-2) Radiological and Environmental Sciences Laboratory facilities, as
(H2/C1) required by DOE 5480.7.

- FINDINGS:**
- Fire protection engineering surveys are required by DOE 5480.7, and this is not being done.

- Bldg. CF-690 has 23 perchloric acid fume hoods and an internal flammable liquid storage area containing material classified as Fire Hazard 3 (can ignite at normal temperatures). These areas have not been surveyed to determine fire loss potentials and hazards to the occupants.
- Bldg. CF-638 does not have automatic sprinklers but depends on Fire Department response to a smoke detector alarm. The building should be evaluated to determine the potential for spread of radioactive contamination (outside of the building) in the event of a fire.
- This concern was not addressed in the RESL self-assessment.

CONCERN: In-depth fire protection engineering surveys have not been made
(FP.7-3) for Radiological and Environmental Sciences Laboratory Buildings
(H2/C1) CF-690 and CF-638, as required by DOE 5480.7.

Rockwell-INEL

- FINDINGS:**
- The last fire protection engineering surveys of Bldgs. TAN-606 and TAN-628 were conducted in 1989. These type surveys, an essential element of an improved risk facility, have not been made of major Rockwell-INEL facilities.
 - Planned fire protection engineering surveys will determine if the facilities meet the requirements of DOE 5480.7 and the NFPA 101, Life Safety Code; additionally, survey information can be used for inclusion in SAR's.
 - The major production facilities have high pressure hydraulic metal shears, large vapor degreasers, rolling mills, and other production machines that should be evaluated for fire protection adequacy.
 - This concern was partially addressed in Rockwell-INEL self-assessment.

CONCERN: In-depth fire protection engineering surveys have not been made
(FP.7-4) for major Rockwell-INEL facilities, as required by DOE 5480.7.
(H2/C1)

4.5.3.16 Aviation Safety

4.5.3.16.1 Overview

Protection Technology of Idaho, Inc.

This appraisal addressed all of the six Aviation Safety performance objectives. The appraisal was conducted by means of interviews with PTI management, all pilots in management positions, all maintenance personnel, and available duty helicopter crewmembers including pilots, flight safety engineers (FSE), and special response team (SRT) members. The FSE is a SRT officer qualified to aid the pilot in navigation, tactics, and cockpit duties. EG&G Idaho personnel interviewed included the Flight Surgeon assigned to INEL aviation activities, and personnel responsible for the contracting and overview of on demand charter aviation activities for all INEL contractors. In addition, discussions were held with ID management and safety personnel responsible for support and overview of INEL aviation programs and activities. Facilities visited and reviewed included Bldg. CF-608/609 and the associated hangar, maintenance shops, heliport, ramp area, and fuel tanks. Aviation manuals, training manuals, training and certification records and aviation safety documentation were reviewed.

The PTI aviation organization consists of two DOE-owned Bell 222UT helicopters equipped with combat weaponry. At least one aircraft is available on a 24-hour standby alert status and is capable of responding in a matter of minutes at any location on the 890 square mile INEL facility. The aviation specific staff consists of seven pilots, four FSEs, and three mechanics. In addition to its primary security mission, the helicopters perform a number of secondary missions on an as available basis. These missions include pilot training, proficiency and certification flights, construction surveillance, photography, personnel transportation, emergency assistance to law enforcement, search and rescue operations, and various other airborne utility tasks.

PTI has been able to achieve its mission objectives in spite of major obstacles. The hangar was vacated in March 1991 due to fire code violations. Documentation regarding the conditions which eventually precipitated the closing of the hangar date back to 1988 with some concerns going back as far as 1985. Expulsion from the hangar exposes the aircraft to the deteriorating effects of the weather and degrades PTI's ability to do maintenance. The lack of maintenance facilities is particularly crippling due to reliability of the helicopters' LTS-101 engines. PTI has had 61 unscheduled engine removals and numerous other technical problems since the aircraft were procured seven years ago. Maintenance personnel are required to do all repair work outside the hangar on the tarmac, and engine removal/installation must be done with a construction type mobile crane. The majority of the problems plaguing the PTI facilities could have been avoided by proper planning and prioritization on the part of the facility landlord, EG&G Idaho. Reorganization and vacancies within ID since December 1989 have resulted in the elimination of an outside safety overview of PTI's aviation operations.

There are four concerns relating to two performance objectives; two are addressed to ID and one each to EG&G Idaho and PTI. Two of the concerns relate to the currently vacated hangar. One concern relates to a lack of aviation safety oversight by ID. The final concern relates to the performance of the helicopter engines.

4.5.3.16.2 Findings and Concerns

AS.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Organization, administration, and safety programs should ensure the provision of proper aircraft, facilities, and effective implementation and control of aviation and associated safety activities.

EG&G Idaho, Inc.

- FINDINGS:**
- EG&G Idaho is the site contractor for the PTI aviation facilities and is responsible for a hangar which houses two DOE owned helicopters.
 - Serious problems with the CF-608/609 hangar were identified and documented in November 1988. Problems recognized at that time included sunken grade beams and hangar floor drainage problems due to the irregular settling of the concrete slab floor. Several efforts have been made to determine the cause of the apparent geological shifting. The condition of the floor had been noted as early as March 1985.
 - Poor planning and prioritization by the site service contractor, EG&G Idaho, has culminated in the evacuation of the hangar facility and deprived the government-owned helicopters of shelter from the weather and proper maintenance facilities.
 - In late 1988, Life Safety Code violations were documented relating to the hangar's urethane insulation. PTI proposed potential repair solutions for the hangar problems on December 5, 1988, but the projects were not funded.
 - On June 2, 1991, severe weather forced PTI to move the aircraft inside the hangar in violation of the fire code.
 - This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(AS.1-1)
(H2/C1)

The hangar has not been maintained by EG&G Idaho, Inc. to permit the sheltering of the government owned helicopters. This is a violation of DOE Property Management Regulation 109-28.001-51(a) requiring adequate housing of government property.

DOE Field Office, Idaho

- FINDINGS:**
- ID has allowed EG&G Idaho to deny budget requests involving repairs and corrective actions to the hangar. These budget requests date back to 1988.
 - ID has not conducted independent reviews of project proposals, as required by ID 1120.A3, Part 1, Section 1.
 - This concern was not addressed in the ID self-assessment.

CONCERN:
(AS.1-2)
(H2/C1)

DOE Field Office, Idaho has failed to ensure prompt resolution of hangar deficiencies and has not fulfilled its independent review responsibilities, as required by ID 1120.A3, Part 1, Section 1.

- FINDINGS:**
- Since the ID Chief of the Industrial Safety Branch retired in December 1989, there has been almost no evidence of ID involvement in aviation safety activities.
 - Following his retirement, ID reorganized into separate oversight and support functions. No clearly defined aviation safety role was found in either ES&H organization.
 - ID 5480.1 Chapter XIII, Aviation Safety, has not been revised to reflect changes in the ID organizational structure.
 - ID has not assigned aviation safety responsibilities as required by ID 5480.1, Chapter XIII, Section 4.a.(3).
 - ID 1120.A3, which assigns ID functional responsibility, does not specifically address aviation safety.
 - ID does not perform Aviation Safety Oversight.
 - This concern was not addressed in the ID self-assessment.

CONCERN:
(AS.1-3)
(H2/C1)

Contrary to ID 5480.1, Chapter XIII, DOE Field Office, Idaho does not perform aviation safety oversight.

AS.3 MAINTENANCE

PERFORMANCE OBJECTIVE: Maintenance should ensure safe operations and control of maintenance activities, and that these activities are conducted in a safe, accountable manner, following DOE and FAA standards, procedures, and accepted practices to support each facility condition and operation.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- PTI helicopter engines have experienced 61 problems requiring extensive maintenance; 22 required premature engine changes.
 - In the last 6 weeks, PTI has experienced two engine problems requiring in-flight engine shutdowns and the performance of a single-engine precautionary landing.
 - In an unrelated incident on July 8, 1991, maintenance personnel applied a manufacturer's recommended corrective action that involved the application of an engine shroud. After the shroud was installed the engine experienced a catastrophic failure of the number two engine bearing resulting in the complete destruction of the aircraft engine; the engine literally came apart.
 - This concern was not addressed in the PTI self-assessment.

CONCERN:
(AS.3-1)
(H2/C3)

Protection Technology of Idaho, Inc.'s excessive helicopter engine problems are a potential threat to flight safety.

4.5.3.17 Firearm Safety

4.5.3.17.1 Overview

Protection Technology of Idaho, Inc.

The appraisal of the Firearms and Explosives Safety Program at PTI included all seven performance objectives. The appraisal process involved detailed inspections of firearms, ammunition, and explosives storage areas; firearms maintenance areas; training facilities; physical fitness facilities; duty posts; vehicular patrols; aviation operations; and shift change operations. The Security Training Facility (STF) was not a part of this inspection due to electrical and asbestos contamination problems which prompted PTI management to temporarily close the facility prior to the Tiger Team Assessment. Interviews were conducted with the General Manager, Compliance Division Director, ES&H Manager, Training Director, Rangemaster, firearms instructors, protective force Security Inspectors, special response team (SRT) personnel, and Quality Assurance Division personnel. PTI policies, procedures, lesson plans, training records, training safety plans, range safety analysis report, armorer's records, and exercise plans were reviewed. The quality of PTI documentation and recordkeeping systems is excellent.

The PTI Firearms Safety Program is clearly on the road to becoming a model for other facilities throughout the DOE community. The recent hiring of a new General Manager, Compliance Director, and Training Director, and the promotion of the ES&H Manager, has greatly improved the Firearms Safety Program at PTI. It is clear to this appraisal Team that PTI management is committed to excellence in the implementation of the DOE Firearms Safety Program.

The PTI Firearms Training Facility is well managed, as well as safely designed and constructed. The Rangemaster and firearms training staff conducted range operations in an excellent manner. Centralization and standardization of the PTI firearms training has clearly improved the PTI Firearms Safety Program. PTI area managers and Security Inspectors conducted themselves in a professional manner during all appraisal Team tours and interviews. All protective force officers demonstrated both a technical and practical knowledge of procedures and security operations.

The PTI SRT program and SRT members are well trained and equipped, and are clearly among the leaders in accomplishing the SRT mission in the DOE community. The appraisal team is concerned that written SRT weapons handling procedures are not consistently implemented by SRT management. PTI management is commended for its prompt aggressive action to correct this concern. Four of the SRT Members have been promoted to SRT Safety Sergeant and report to the ES&H manager; this will assist PTI in having better safety oversight of SRT activities.

PTI explosives storage magazines are not in compliance with the DOE Explosive Safety Manual. A concerted effort by PTI management to comply with the manual requirements, and audit their performance, is necessary.

Radiological and Environmental Sciences Laboratory

The appraisal of the Firearms Safety Program at RESL included a review of all seven performance objectives. The appraisal process included a review of the handling, use, and storage of firearms, ammunition, and related equipment. RESL employees use firearms to collect animals for specimen sampling. Six RESL Health Physics and laboratory staff have been authorized by their management to use firearms to collect animal specimens. The RESL self-assessment does not include a firearms safety program. ID has never conducted a firearms safety appraisal of RESL as required by DOE 5480.16. At least one employee that uses the firearms was unaware of the existence of the DOE Firearms Safety Order. Some of the deficiencies/ violations found during this appraisal include the improper storage of weapons and ammunition, improper handling procedures for specific firearms, lack of a risk assessment for specific firearm use, lack of semi-annual firearm inspection/certification by a certified armorer, failure to clean and inspect firearms following use, improper transportation of ammunition, lack of a written agreement between RESL and PTI concerning firearm disposition and training, and lack of knowledge of the DOE Firearms Safety Order.

Argonne National Laboratory-West

The appraisal of the Firearms Safety program at ANL-W included all seven performance objectives.

The appraisal process involved detailed inspections of firearms and ammunition storage areas, firearm maintenance areas, duty posts, vehicular patrols, and shift change operations. An inspection and review of live-fire operations was conducted at the ANL-W outdoor firing range. In-depth interviews were conducted with the physical security manager, rangemaster, firearms instructors, security inspectors, industrial hygienist, industrial safety department, and medical staff. ANL-W procedures, policies, lesson plans, training records, armorer's records, certifications, risk analysis document, and blood lead and airborne lead test documents were reviewed.

The ANL-W Protective Force Firearms Safety Program is moving progressively towards compliance with DOE 5480.16. The recent promotion of the Physical Security Manager and the Rangemaster have contributed significantly to this effort. Range operations were reviewed and the ANL-W firearms instructors and security inspectors conducted range operations in a safe and consistent manner with ANL-W procedures and DOE 5480.16. ANL-W protective force officers, training instructors, and management personnel conducted themselves in an exemplary manner during all appraisal Team interviews. The personnel clearly demonstrated outstanding job knowledge and commitment to continue building an excellent Firearms Safety Program.

Although the ANL-W Protective Force Firearms Safety Program is moving toward compliance with DOE 5480.16, there remain some considerable deficiencies.

The ANL-W "Live-Fire Range Risk Analysis" was developed in 1987 prior to the implementation of DOE 5480.16. The risk analysis document was prepared by a previous Protective Force Physical Security Manager; at that time he received

minimal Safety Department assistance. The ANL-W Industrial Safety Department is not involved in annual internal firearms safety appraisals of the ANL-W protective force.

EG&G Idaho, Inc.

During the appraisal of the Firearms and Explosives Safety Program at PTI, it was discovered that EG&G Idaho handles all weapons and munitions of commercial truck drivers and contractors that request access to the site. It was also discovered that during hunting season, employees are instructed to turn in their weapons at Bldg. B-27-603-2 before entering the site. No bullet containment device is used to clear these weapons.

EG&G Idaho has two explosives storage magazines located near Auxiliary Reactor Area Four. These explosives storage magazines are not in compliance with the DOE Explosives Safety Manual.

The EG&G Idaho Explosives Safety Engineer has developed several explosives safety training programs on his own endeavor. EG&G Idaho has not taken advantage of these excellent training courses.

4.5.3.17.2 Findings and Concerns

FS.1 ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE: Security and safety organization and administration shall ensure the effective implementation and control of the firearms safety program.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Written firearms safety policies controlling firearms by RESL employees to collect animal samples have not been implemented consistent with DOE 5480.16.
 - Firearms and ammunition are not being stored, as required by the DOE Firearms Safety Order.
 - Procedures for handling specific firearms and ammunition have not been developed.
 - Firearms are not being inspected or certified semi-annually, as required by the DOE Firearms Safety Order.
 - Employees responsible for the safe handling, use, and storage of firearms are not being trained according to the requirements of the DOE Firearms Safety Order.
 - When the deficiencies in the RESL firearms program were reported to ID Safety and Security personnel, the weapons and ammunition were removed from the RESL building, and the use of firearms by RESL personnel was discontinued.
 - This concern was not addressed in the RESL self-assessment.

CONCERN:
(FS.1-1)
(H2/C1)

Radiological and Environmental Sciences Laboratory employees handle firearms, but the Radiological and Environmental Sciences Laboratory has not established a firearms safety program, as required by DOE 5480.16.

FS.2 PROCEDURES AND DOCUMENTATION

PERFORMANCE OBJECTIVE: Procedures and documentation shall be formalized, provide appropriate direction, records, and support for the Firearms Safety Program.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- PTI weapons handling procedures state that M-16s will use orange safety plugs, and all weapons will be handled and stored with the safety selector off and firing pin in the forward position.
 - An inspection of the Special Response Team weapons storage vault revealed:
 - Weapons stored in various conditions (on safe, semi-automatic, and full-automatic).
 - Two M-16 assault rifles were stored with broken safety plugs and two others had no safety plugs at all.
 - Weapons were stored too close together with weapon slings overlapping, magazines taped together, and other equipment attached to the weapons. This clearly affects the safe issue and turn-in of the weapons. The weapons storage racks appear to be inadequate to store weapons with the additional attached equipment.
 - One M-60 light machinegun (with ammunition) was on the floor in front of the weapons rack. This weapon did not have a rack designed for it.
 - Weapons targeted for surplus were stored in the Armorer's Vault, stacked on top of one another, with the cylinder closed. PTI is awaiting approval from ID to surplus these.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: Protection Technology of Idaho, Inc. weapons handling procedures are not consistently implemented and do not comply with DOE 5480.16.
(FS.2-1)
(H1/C1)

FS.3 FIREARMS SAFETY APPRAISAL PROGRAM

PERFORMANCE OBJECTIVE: Annual appraisals shall cover procedures, responsibilities, and duty assignments within the firearms safety program to ensure that overall objectives and performance criteria are being met.

Radiological and Environmental Sciences Laboratory

- FINDINGS:**
- Formal appraisals of the safety and health aspects of the safeguards and security program do not include firearms safety, as required by DOE 5480.16.
 - No risk assessment has been performed to cover specific firearms use.
 - This concern was not addressed in the RESL self-assessment.
 - This concern was not addressed in the ID self-assessment.

CONCERN:
(FS.3-1)
(H2/C1) The Radiological and Environmental Sciences Laboratory does not conduct annual appraisals of firearms safety, as required by DOE 5480.16.

CONCERN:
(FS.3-2)
(H2/C1) DOE Field Office, Idaho does not conduct annual appraisals of Radiological and Environmental Sciences Laboratory firearms safety, as required by DOE 5480.16.

Argonne National Laboratory-West

- FINDINGS:**
- ANL-W does not have procedures in place for the safe handling of firearms taken from commercial truck drivers making deliveries at the site.
 - A bullet containment device is not available for commercial truck drivers to clear weapons they may possess before entering the site.
 - Commercial truck drivers are allowed to clear weapons without a bullet containment device.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(FS.3-3)
(H1/C1) Argonne National Laboratory-West does not have procedures or a bullet containment device for handling commercial truck drivers weapons, as required by DOE 5480.16.

- FINDINGS:**
- ANL-W protective forces use a conventional office-type metal trash can, filled with sand, as a bullet containment device.

- These metal trash cans are located in the weapons issuance room and weapons cleaning room.
- This concern was a finding in a previous DOE Field Office, Chicago (CH) appraisal dated April 23-27, 1990.
- This concern was not addressed in the ANL-W self-assessment.

CONCERN: The bullet containment device presently in use at the weapons
(FS.3-4) issuance and weapons cleaning room at Argonne National
(H1/C1) Laboratory-West would not contain a round discharged into it, as
required by DOE 5480.16.

EG&G Idaho, Inc.

FINDINGS:

- Workers are trained, but written procedures are not in place for the safe handling of firearms from commercial truck drivers and site employee hunters arriving at EG&G Idaho main access gate.
- A bullet containment device is not available for commercial truck drivers to clear weapons they may possess before entering the site.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN: EG&G Idaho, Inc. procedures for handling commercial truck drivers
(FS.3-5) weapons are not in place, and a bullet containment device is not
(H1/C1) used, as required by DOE 5480.16.

FS.5 RANGE OPERATIONS AND PROCEDURES

PERFORMANCE OBJECTIVE: Firearms Range Operations and Procedures are in compliance with DOE requirements.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- An inspection of the Surface Danger Zone (SDZ) revealed no barrier in place on the T-2 road that cut through the SDZ approximately 1 mile down range. Army Regulation 385-63, Chapter 2, Section 2-6, "Range Guards or Barriers" requires this barrier and signs.
 - This concern was not addressed in the PTI self-assessment.

CONCERN:
(FS.5-1)
(H2/C1)
Protection Technology of Idaho, Inc.'s T-2 road is open for security and necessary operations vehicle traffic; however, a road barrier is not provided, as required by Army Regulation 385-63, Chapter 2, Section 2-6.

Argonne National Laboratory-West

- FINDINGS:**
- Firearms instructors training records revealed that only basic first-aid training had been received.
 - Firearms instructors have not received special training for handling of gunshot wounds.
 - This concern was a recommendation in a previous CH appraisal dated April 23-27, 1990.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(FS.5-2)
(H2/C1)
Argonne National Laboratory-West firearms instructors have not received special training in the handling of gunshot wounds, as required by DOE 5480.16.

- FINDINGS:**
- Interviews and reviews of procedures revealed that protective force officers routinely unload their handguns in the weapons cleaning area, and that the ammunition remains with them during weapons cleaning.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(FS.5-3)
(H2/C1)
Live ammunition is allowed in the Argonne National Laboratory-West weapons cleaning area, contrary to DOE 5480.16.

- FINDINGS:**
- The ANL-W live-fire range is in full use.
 - The ANL-W live-fire range has not been approved by the CH.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN:
(FS.5-4)
(H3/C1)

Argonne National Laboratory-West does not have written approval from the DOE Field Office, Chicago for the location and use of their live-fire range, as required by DOE 5480.16.

FS.6 EXERCISES

PERFORMANCE OBJECTIVE: Exercises shall be conducted in an approved safe manner with all identified safety hazards analyzed and mitigated.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- An inspection of the Engagement Simulation System (ESS) weapons and equipment revealed blank ammunition magazines that were not clearly marked. No uniform color coding was in place and magazines were either red, green, or orange in color.
 - ESS MP-5 submachinegun magazines are not distinctively marked.
 - This concern was not addressed in the PTI self-assessment.

CONCERN: Protection Technology of Idaho, Inc.'s blank ammunition magazines are not distinctively color-coded, as required by DOE 5480.16.
(FS.6-1)
(H2/C1)

Argonne National Laboratory-West

- FINDINGS:**
- Inspection of Engagement Simulation System weapons for exercises revealed eight M-16 rifles with plugged barrels not clearly marked as exercise weapons.
 - This concern was not addressed in the ANL-W self-assessment.

CONCERN: Weapons involved in Argonne National Laboratory-West exercises are not clearly marked as exercise weapons, as required by DOE 5480.16.
(FS.6-2)
(H2/C1)

FS.7 TRANSPORTATION, HANDLING, AND STORAGE OF MUNITIONS

PERFORMANCE OBJECTIVE: The transportation, handling, and storage of munitions shall conform to all DOE prescribed safety standards.

Protection Technology of Idaho, Inc.

- FINDINGS:**
- Explosive storage Magazines B21-608 and CF-609, are not placarded with fire hazard symbols, as required by the DOE Explosives Safety Manual, Ch. II, 22.1.
 - Placards are not posted on or near each door of the magazines, specifying explosive and personnel limits that should be observed during work in the magazine, as required by DOE Explosives Safety Manual, Ch. II, 17.1.
 - There is no storage review committee designated to review and approve storage intervals for explosives, as recommended by the DOE Explosives Safety Manual, Ch II, 17.3.
 - The ID directed the contractor not to comply with the DOE Explosives Safety Manual requirements for identification of explosive storage magazines. They felt it was better for security not to identify the magazines. There is no record of an exemption granted by the Assistant Secretary for ES&H.
 - This concern was not addressed in the PTI self-assessment.

CONCERN:
(FS.7-1)
(H2/C1)

The Protection Technology of Idaho, Inc. explosives storage Magazines, Buildings B21-608 and CF-609, are not placarded with fire hazard symbols and personnel limits, nor maintained in compliance with the DOE Explosives Safety Manual, Chapter II.

- FINDINGS:**
- Magazine CF-639 exterior is in very poor condition. The concrete is spalling and the retaining wall has been forced from its position by pressure from the earth embankment. It is at a precipitous angle and has reinforcing bars in plain sight. This magazine was built by the Navy during World War II and it appears that no maintenance has been accomplished since then. PTI indicated that they had requested repair of the magazine on June 28, 1991.
 - This concern was not addressed in the PTI self-assessment.

CONCERN:
(FS.7-2)
(H2/C2)

The deteriorated physical condition of the Protection Technology of Idaho, Inc. Magazine CF-639 may cause an injury to personnel or damage to stored items. This is a violation of DOE Property Management Regulation 109-28.001-51(a).

- FINDINGS:**
- Magazine B21-608 and B21-609 are above ground and of metal construction. These magazines are not grounded, as required by the DOE Explosives Safety Manual Ch II, 7.1.
 - An electrical storm or incident may cause injury and/or damage to personnel or property.
 - This concern was addressed in the PTI self-assessment.

CONCERN:
(FS.7-3)
(H2/C1)

Protection Technology of Idaho, Inc. Magazines B21-608 and B21-609 are not grounded as required by Chapter II, 7.1 of the DOE Explosives Safety Manual.

- FINDINGS:**
- Examination of the PTI Special Response Team tactical equipment bag revealed two submachinegun magazines loaded with blank ammunition in the same bag with four loaded live ammunition magazines. Approximately 30 rounds of 9 millimeter ammunition were also found loose in the bottom of this bag.
 - One military red smoke grenade was found loose in a SRT bag.
 - One round of 5.56 millimeter, one round of 7.62 millimeter, and 10 rounds of 9 millimeter ammunition were discovered stored together loose in a box on a four drawer file cabinet in the SRT weapons storage vault.
 - This concern was not addressed in the PTI self-assessment.

CONCERN:
(FS.7-4)
(H1/C1)

The Protection Technology of Idaho, Inc. Ammunition Handling and Storage Program does not comply with DOE 5480.16.

EG&G Idaho, Inc.

- FINDINGS:**
- Explosive storage magazines in Auxiliary Reactor Area Four are not placarded with fire hazard symbols, as required by the DOE Explosives Safety Manual, Ch. II, 22.1.
 - Placards are not posted on, or near each door of the magazines, specifying explosive and personnel limits that should be observed during work in the magazine, as required by the DOE Explosives Safety Manual, Ch. II, 17.1.
 - Vegetation growth around the storage magazines is uncontrolled. A fire break at least 15 meters wide and free of combustible material should be maintained around each above ground magazine, as required by the DOE Explosives Safety Manual, Ch. VI, 5.1.

- There is no storage review committee designated to review and approve storage intervals for explosives, as recommended by Ch II, 17.3 of the DOE Explosives Safety Manual.
- The ID directed the contractor not to comply with the DOE Explosives Safety Manual requirements for identification of explosive storage magazines. They felt it was better for security not to identify the magazines. There is no record of an exemption granted by the Assistant Secretary for ES&H.
- This concern was not addressed in the EG&G Idaho self-assessment.

CONCERN:
(FS.7-5)
(H2/C1)

The EG&G Idaho, Inc. explosives storage magazines are not placarded with fire hazard symbols and personnel limits, nor maintained in compliance with Chapter II of the DOE Explosives Safety Manual.

4.6 NOTEWORTHY PRACTICES

Noteworthy Practices are exceptional ways of accomplishing a Performance Objective or some aspect of it. Other DOE facilities are encouraged to adopt these practices when they are applicable to their operation.

4.6.1 EG&G Idaho, Inc.

TC.10 TRAINING FOR SUPERVISORS, MANAGERS, AND TECHNICAL STAFF

PERFORMANCE OBJECTIVE: Training programs for supervisors, managers, and the technical staff should broaden overall knowledge of processes and equipment and develop supervisory and management skills.

NOTEWORTHY PRACTICE: EG&G Idaho has established a mandatory Unit Manager Development Program. Unit Managers are EG&G Idaho's first line managers/supervisors. This program includes the Requirements Awareness Program (RAP), tailored to each individual manager's responsibilities. Managers of heavily regulated activities in nuclear and industrial environments participate in the advanced workshop (118 hours). The basic workshop (44 hours), typically conducted in an office environment, is designed for managers of lightly regulated activities. The eight disciplines covered by the RAP are:

Emergency Preparedness	Industrial Safety
Environmental Protection	Nuclear Safety
Fire Safety	Quality
Industrial Hygiene	Radiological Control

To ensure that all requirements are covered, the participants use a reference listing of requirements. As they review the requirements, the participants use the checklist to identify those requirements that apply for the activities they manage. As a result of this process, each manager creates a customized listing of requirements for his/her organization.

The Unit Manager Development Program is characterized by strong top management commitment to and involvement in the program. Courses are typically taught by the senior manager or cognizant professional in each discipline. For example the topic on manager's responsibilities is typically taught by the General Manager.

PP.3 MANAGEMENT OF HEALTH AND SAFETY CONCERNS

PERFORMANCE OBJECTIVE: Chemical, physical, and/or other environmental stresses arising in the workplace should be identified, evaluated, and controlled.

NOTEWORTHY PRACTICE: Nonsupervisory employees of the INEL Supercomputing Center (ISC) have initiated an employee based self-inspection program. The program enlists the services of 5-person teams of employees who perform walk-throughs of ISC facilities on a scheduled basis. All areas are inspected, including those occupied by facility supervisory and management personnel; no

areas are excluded. Inspections are based on predefined checklists compiled by the employees themselves (not supervision), and items of current interest suggested by ES&Q. The owner of an area inspected is responsible for meeting all the requirements on the checklist and, if there are no deficiencies noted for six consecutive inspections, the owner is awarded a jacket commemorating his or her performance. Awards are funded by EG&G through an existing quality improvement initiative.

To make the inspections an enjoyable event, the employee inspectors wear tiger ears and their inspection reports are printed on a form with a tiger paw background. Employees rotate inspection duty so that everyone participates. Inspections are always done on a certain day of the week.

All findings identified by employee teams during the inspections are logged and tracked to completion in a computerized data base system which addresses Assigned Actions, Priority, Assigned Responsibility, Scheduled and Actual Completion Date, and Status.

Because this is an effective example of employee participation in the self-assessment process and reflective of the effort to have employees become more involved in health and safety within the workplace, it should be considered at other DOE sites and facilities.

4.6.2 Argonne National Laboratory-West

No Noteworthy Practices were identified in the appraisal of Argonne National Laboratory-West.

4.6.3 Selected Contractors, INEL

RP.3 RADIOLOGICAL PROTECTION PROCEDURES AND POSTING

PERFORMANCE OBJECTIVE: Radiation protection procedures for the control and use of radioactive materials and radiation generating devices should provide for safe operations and for clearly identified areas of potential consequences.

NOTEWORTHY PRACTICE: The Waste Management organization at Rockwell-INEL has developed a poster showing examples and names of the types of potentially contaminated waste items and the type of container used for each category. These graphic depictions were observed on walls near waste generating locations throughout the plant. Several sizes were noted from 8.5 inches by 11 inches to about 16 inches x 20 inches. The posters were yellow and black to attract attention and framed to maintain a neat appearance.

Locating these posters at waste generating and packaging sites could be a very helpful reminder to waste handlers and packagers.

A copy of the poster is attached.

FS.4 FIREARMS SAFETY TRAINING

PERFORMANCE OBJECTIVE: Firearms safety training programs have been established and implemented to ensure compliance with DOE prescribed standards.

NOTEWORTHY PRACTICE: Basic and advanced training meet the safety requirements of DOE 5480.16. DOE 5480.16, Chapter I, Section 2.c.(8), requires basic firearms safety training on the hazards associated with the impact of bullets and other projectiles into nuclear explosives, nuclear weapons, explosives, and other possible items that could result in a significant release of energy or toxic substances.

Protection Technology of Idaho, Inc. (PTI), incorporates the above training into their training exercises that involve the use of engagement simulation systems (ESS) at the sites. No-fire zones are incorporated into this training that allow the PTI security force to apply this training in the actual areas where hazards are present. This exceeds the requirements of DOE 5480.16, and greatly enhances the protective force capabilities to safely and efficiently utilize live weapons in sensitive areas, should the need arise.

Figure 4.6-1

SEGREGATION OF COMMON CONTAMINATED WASTE ITEMS WASTE MANAGEMENT 6-6513 OR 6-6557

4.7 SYSTEM FOR CATEGORIZING CONCERNS

Each concern contained in this report has been characterized using the following three sets of criteria.

- A. CATEGORY I: Addresses a situation for which a clear and present danger exists to workers or members of the public. A concern in this category is to be immediately conveyed to the managers of the facility for action. If a clear and present danger exists, the Assistant Secretary for Environment, Safety and Health, or his/her designee, is to be informed immediately so that consideration may be given to exercising the Secretary's facility shutdown authority or directing other immediate mitigation measures.

CATEGORY II: Addresses a significant risk or substantial noncompliance with DOE Orders but does not involve a situation for which a clear and present danger exists to workers or members of the public. A concern in this category is to be conveyed to the manager of the facility no later than the appraisal closeout meeting for immediate attention. Category II concerns have a significance and urgency such that the necessary field response should not be delayed until the preparation of a final report or the routine development of an action plan. Again, consideration should be given to whether compensatory measures, mitigation, or facility shutdown are warranted under the circumstances.

CATEGORY III: Addresses significant noncompliance with DOE Orders, or the need for improvement in the margin of safety, but is not of sufficient urgency to require immediate attention.

- B. Hazard Level 1: Has the potential for causing a severe occupational injury, illness, or fatality, or the loss of the facility.
- Hazard Level 2: Has the potential for causing minor occupational injury or illness or major property damage, or has the potential for resulting in, or contributing to, unnecessary exposure to radiation or toxic substances.
- Hazard Level 3: Has little potential for threatening safety, health, or property.
- C. Compliance Level 1: Does not comply with DOE Orders, prescribed policies or standards, or documented accepted practices. The latter is a professional judgement based on the acceptance and applicability of national consensus standards not prescribed by DOE requirements.

Compliance Level 2:

Does not comply with DOE references, standards or guidance, or with accepted practice (as derived from industry experience, but not based on national consensus standards).

Compliance Level 3:

Has little or no compliance considerations. These concerns are based on professional judgement in pursuit of excellence in design or practice, i.e., these are improvements for their own sake and are not deficiency driven.

4.8 CATEGORIZATION AND TABULATION OF CONCERNS

4.8.1 EG&G Idaho, Inc.

4.8.1.1 Categorization of Concerns

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
OA.1-1	3	2
OA.1-2	2	2
OA.1-3	2	1
OA.1-4	1	1
OA.2-1	3	2
OA.2-2	2	1
OA.2-3	1	1
OA.2-4	2	2
OA.3-1	2	1
OA.5-1	3	1
OA.5-2	1	1
OA.5-3	2	1
OA.7-1	2	1
QV.1-1	3	1
QV.1-2	3	2
QV.2-1	3	1
QV.2-2	3	2
QV.2-3	2	1
QV.3-1	3	1
QV.4-1	2	1
QV.4-2	3	2
QV.5-1	2	1
QV.5-2	2	2
QV.6-1	3	2
QV.6-2	3	2

**** Designates a Category I Concern**

*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
QV.6-3	3	1
QV.7-1	3	1
OP.2-1	2	2
OP.2-2	2	1
OP.3-1	3	1
OP.3-2	2	1
OP.4-1	2	2
OP.4-2	3	1
OP.4-3	3	1
OP.7-1	3	1
OP.7-2	3	1
OP.8-1	3	2
MA.1-1	3	1
MA.1-2	3	1
MA.1-3	3	1
MA.1-4	3	1
MA.2-1*	1	1
MA.2-2	3	1
MA.2-3	2	1
MA.2-4	3	1
MA.3-1	2	2
MA.3-2	3	1
MA.3-3	2	1
MA.3-4	3	1
MA.4-1	3	1
MA.4-2	3	1
MA.5-1	3	1
MA.6-1	3	1

**** Designates a Category I Concern**
*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
MA.7-1	3	1
MA.8-1	2	1
MA.8-2	2	1
MA.8-3	2	1
TC.1-1	2	2
TC.1-2	2	2
TC.1-3	2	2
TC.1-4	3	2
TC.4-1	2	1
TC.4-2*	1	1
TC.5-1	2	1
TC.7-1	2	2
AX.1-1	3	2
AX.1-2	3	2
AX.2-1	2	2
AX.4-1	1	2
AX.5-1	2	1
AX.6-1	3	1
EP.1-1	2	1
EP.2-1	2	1
EP.3-1	2	1
EP.4-1	2	1
EP.4-2	3	1
EP.4-3	2	2
EP.4-4	2	2
EP.5-1	2	1
EP.6-1	1	2

**** Designates a Category I Concern**

*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
EP.6-2	2	2
EP.6-3	3	2
EP.7-1	2	2
TS.2-1	2	1
TS.2-2	3	2
TS.2-3	2	1
TS.4-1	3	2
PT.1-1	2	1
PT.1-2	3	1
PT.2-1	2	1
PT.3-1	2	1
PT.5-1	1	1
CS.1-1	2	1
CS.1-2	2	1
CS.1-3	2	1
CS.1-4	2	1
CS.1-5	2	1
CS.1-6	2	1
CS.1-7	2	1
CS.3-1	1	1
CS.3-2	3	1
CS.4-1	3	1
CS.4-2	2	1
CS.5-1	2	1
CS.5-2	1	1
CS.5-3	2	1
CS.5-4	2	1

**** Designates a Category I Concern**
*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
CS.5-5	1	2
SS.4-1	2	1
SS.4-2	2	1
EA.1-1	2	2
EA.2-1	2	2
EA.2-2	2	2
EA.3-1	2	2
FR.1-1	2	1
FR.1-2	2	2
FR.3-1	2	1
FR.3-2	2	2
FR.4-1	2	1
FR.5-1	2	1
FR.5-2	2	2
FR.6-1	2	2
RP.1-1	2	1
RP.1-2	2	3
RP.2-1	2	1
RP.2-2	2	1
RP.2-3	2	1
RP.3-1	2	1
RP.3-2	1	1
RP.3-3	2	1
RP.3-4	1	1
RP.5-1	2	1
RP.5-2	2	2

**** Designates a Category I Concern**
*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
RP.5-3	2	2
RP.5-4	2	1
RP.5-5	2	2
RP.7-1	2	1
RP.7-2	2	1
RP.7-3	2	1
RP.8-1	2	1
RP.8-2	2	1
RP.8-3	2	2
RP.8-4	2	2
RP.9-1	2	1
RP.10-1	2	1
RP.10-2	2	2
RP.10-3	2	2
RP.10-4	2	2
RP.10-5	2	1
RP.12-1	2	1
RP.12-2	2	1
RP.12-3	2	1
RP.12-4	2	1
PP.1-1	3	2
PP.2-1	2	1
PP.2-2	2	1
PP.2-3*	1	1
PP.2-4	2	2
PP.2-5	3	2
PP.2-6	1	1
PP.4-1	2	1

**** Designates a Category I Concern**

*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
WS.3-1	2	1
WS.4-1	2	1
WS.4-2	2	1
WS.4-3*	1	1
WS.4-4	2	1
WS.4-5	2	1
WS.4-6	2	1
WS.4-7	2	1
WS.4-8	2	1
WS.5-1	2	1
WS.6-1	2	1
WS.6-2	2	1
FP.1-1	2	2
FP.1-2	2	1
FP.2-1	2	1
FP.3-1	2	1
FP.4-1	3	1
FP.4-2	3	1
FP.5-1	3	1
FP.5-2	3	1
FP.6-1	2	1
FP.6-2	2	1
FP.6-3	2	1
FP.7-1	2	1
FP.7-2	2	1
FP.7-3	2	1
FP.7-4	2	1
FP.7-5	3	1
FP.7-6	2	1

**** Designates a Category I Concern**
*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
MS.1-1	1	1
MS.1-2	2	1
MS.3-1	3	1
MS.3-2	2	1
MS.3-3	2	2
MS.3-4	2	2
MS.4-1	2	2
MS.5-1	2	2

**** Designates a Category I Concern**
*** Designates a Category II Concern**

4.8.1.2 Tabulation of Concerns

4.5.1.1 Organization and Administration

- CONCERN: The information feedback practices of the EG&G Idaho, Inc. self-assessment program do not ensure that all contributing organizations receive copies of the self-assessment reports.
(OA.1-1)
(H3/C2)
- CONCERN: Memoranda of Understanding between Idaho National Engineering Laboratory contractors, essential to some phases of operations, are not in place.
(OA.1-2)
(H2/C2)
- CONCERN: Contrary to the requirements of DOE 5483.1A, environment, safety, and health requirements stipulated for EG&G Idaho, Inc. employees are not being uniformly imposed upon either onsite subcontractor employees or employees of other Idaho National Engineering Laboratory prime contractors who work at EG&G Idaho, Inc. facilities.
(OA.1-3)
(H2/C1)
- CONCERN: EG&G Idaho, Inc. management does not monitor internal communications to ensure necessary flow of environment, safety, and health related information, which results in failure to comply with some Federal regulations (e.g., DOE 5480.19).
(OA.1-4)
(H1/C1)
- CONCERN: There is no centralized control system for managing preparation, review, update, and approval of Safety Analysis Reports.
(OA.2-1)
(H3/C2)
- CONCERN: EG&G Idaho, Inc. management does not provide central control over many vital company-wide activities, resulting in reduced efficiency and noncompliance with DOE Orders such as DOE 5480.3.
(OA.2-2)
(H2/C1)
- CONCERN: EG&G Idaho, Inc. management has not uniformly provided effective training to support company environment, safety, and health program elements, resulting in noncompliance with Federal regulations such as 29 CFR 1910.178.
(OA.2-3)
(H1/C1)
- CONCERN: The DOE policy guidance to EG&G Idaho, Inc. management is not always complete and unequivocal.
(OA.2-4)
(H2/C2)
- CONCERN: Not all departments have formal written safety program plans, as required by the EG&G Idaho, Inc. Safety Manual.
(OA.3-1)
(H2/C1)
- CONCERN: The company-wide EG&G Idaho, Inc. self-assessment reporting system is not readily auditable, as required by DOE 5482.1B.
(OA.5-1)
(H3/C1)
- CONCERN: The EG&G Idaho, Inc. management oversight programs do not consistently assure independent review where it is required by DOE Orders such as DOE 5480.5 and DOE 5482.1B.
(OA.5-2)
(H1/C1)

CONCERN: EG&G Idaho, Inc. management assessment systems do not
(OA.5-3) consistently require tracking and trending of performance
(H2/C1) indicators, resulting in noncompliance with DOE Orders such as
DOE 4330.4A.

CONCERN: EG&G Idaho, Inc. management does not effectively control all
(OA.7-1) aspects of preparation, review, and implementation of procedures,
(H2/C1) resulting in noncompliance with DOE Orders such as DOE 4330.4A.

4.5.1.2 Quality Verification

CONCERN: Some requirements of the EG&G Idaho, Inc. Quality Manual, such as
(QV.1-1) those related to controlling quality assurance records and
(H3/C1) documents, reporting and correcting adverse conditions, and
legibility of recorded information, have not been fully
implemented.

CONCERN: The EG&G Idaho, Inc. Quality Assurance Program has not adopted
(QV.1-2) applicable commercial industry best practices related to methods
(H3/C2) for recording or correcting information in quality assurance
records, protection of quality assurance records, and control of
computer software.

CONCERN: The standard procurement quality assurance clauses and the
(QV.2-1) Evaluated Supplier's List are not controlled, as required by the
(H3/C1) EG&G Idaho, Inc. Quality Manual.

CONCERN: EG&G Idaho, Inc. has not adopted industry good practices for the
(QV.2-2) procurement and use of commercial grade items for safety-related
(H3/C2) applications.

CONCERN: EG&G Idaho, Inc. has not fully implemented the minimum
(QV.2-3) requirements contained in the March 8, 1991, memorandum from the
(H2/C1) Assistant Secretary for Nuclear Energy regarding
suspect/counterfeit parts.

CONCERN: EG&G Idaho, Inc. has not fully implemented some of the measures
(QV.3-1) required by the EG&G Idaho, Inc. Quality Manual to verify the
(H3/C1) validity of supplier certifications. (Also see Concern PT.1-3.)

CONCERN: Evaluations of the impacts on items inspected or tested using
(QV.4-1) calibrated equipment that is subsequently found to be
(H2/C1) out-of-tolerance are not being documented, as required by the
EG&G Idaho, Inc. Quality Manual.

CONCERN: EG&G Idaho, Inc. has not adopted many industry accepted practices
(QV.4-2) for the calibration and control of installed plant instruments
(H3/C2) and controls.

CONCERN: The technical justifications provided in EG&G Idaho, Inc.
(QV.5-1) nonconformance reports that are used to support accept-as-is
(H2/C1) dispositions, are not always in accordance with the EG&G Idaho,
Inc. Quality Manual.

CONCERN: EG&G Idaho, Inc. nonconformance reports, which are dispositioned
(QV.5-2) accept-as-is or repair, are not afforded a review equivalent to
(H2/C2) the review of the original specifications by independent safety
personnel.

CONCERN: EG&G Idaho, Inc. Advanced Test Reactor Inservice Inspection Plans
(QV.6-1) lack the rigor of an inservice inspection program at a commercial
(H3/C2) nuclear reactor.

CONCERN: The DOE has not established a clearly defined policy to direct
(QV.6-2) the inservice inspection activities at the Advanced Test Reactor.
(H3/C2)

CONCERN: Some of the personnel qualification and certification
(QV.6-3) requirements specified in the EG&G Idaho, Inc. Quality Manual
(H3/C1) have not been fully implemented.

CONCERN: No procedure exists that prescribes the process for qualifying
(QV.7-1) EG&G Idaho, Inc. standard procedures for nondestructive
(H3/C1) examination, as required by the EG&G Idaho, Inc. Quality Manual.

4.5.1.3 Operations

CONCERN: The filter bags used in the Waste Experimental Reduction Facility
(OP.2-1) incinerator filter house do not have the maximum available fire
(H2/C2) rating.

CONCERN: Advanced Test Reactor management has not implemented a safety
(OP.2-2) program which ensures safety in the workplace is in accordance
(H2/C1) with the EG&G Idaho, Inc. Safety Manual.

CONCERN: Test Reactor Area management has not implemented an operator aid
(OP.3-1) program to ensure that all operator aids reflect current plant
(H3/C1) information, as required by DOE 5480.19.

CONCERN: EG&G Idaho Inc. has not implemented a document control system
(OP.3-2) which ensures that operations are conducted using current and
(H2/C1) correct procedures, drawings, and other references, as required
by DOE 5480.19. (Also see Concern MA.8-2.)

CONCERN: No provision exists to detect or to monitor leaks on the outside
(OP.4-1) of the Test Area North Hot Shop water pool.
(H2/C2)

CONCERN: The conduct of operations requirements specified in DOE 5480.19
(OP.4-2) have not been fully implemented.
(H3/C1)

CONCERN: The Advanced Test Reactor Technical Specifications do not
(OP.4-3) prescribe the actions to be taken when a surveillance requirement
(H3/C1) is not met.

CONCERN: The Advanced Test Reactor facility log keeping practices do not
(OP.7-1) meet the requirements of DOE 5480.19 with regard to timeliness,
(H3/C1) accuracy, and review.

CONCERN: Advanced Test Reactor management has not implemented a shift
(OP.7-2) turnover process which ensures that an accurate picture of
(H3/C1) facility status is communicated between shifts, as required by
DOE 5480.19.

CONCERN: EG&G Idaho, Inc. has not implemented a coding convention program
(OP.8-1) which is consistent with generally accepted industrial practices.
(H3/C2)

4.5.1.4 Maintenance

CONCERN: EG&G Idaho, Inc. does not have documents which are readily
(MA.1-1) available to the staff which define responsibility and authority
(H3/C1) of each management, supervisory, and professional maintenance
position as required by DOE 4330.4A. (Also see Concern PP.1-1.)

CONCERN: EG&G Idaho, Inc. has not integrated a graded approach into the
(MA.1-2) development and implementation of maintenance programs, as
(H3/C1) required by DOE 4330.4A.

CONCERN: EG&G Idaho, Inc. has not established maintenance goals and is not
(MA.1-3) trending maintenance performance in all areas required by
(H3/C1) DOE 4330.4A. (Also see Concern TS.4-1.)

CONCERN: EG&G Idaho, Inc. has not established technical standards for the
(MA.1-4) performance of maintenance, as required by DOE 4330.4A.
(H3/C1)

CONCERN: EG&G Idaho, Inc. has not implemented controls in preventive
(MA.2-1) maintenance programs which minimize exposure of personnel to
(H1/C1) significant hazards during the performance of work, as required
CAT. II by DOE 4330.4A.

CONCERN: Certification of satisfactory completion of maintenance work and
(MA.2-2) traceability of the certifier is not included in many EG&G Idaho,
(H3/C1) Inc. corrective and preventive maintenance procedures, as
required by DOE 4330.4A.

CONCERN: Lockouts/tagouts are not being performed in a manner which
(MA.2-3)

(H2/C1) ensures the safety of individuals conducting work, as required by DOE 4330.4A and 29 CFR 1910.147.

CONCERN: EG&G Idaho, Inc. has not established a program to increase
(MA.2-4) maintenance effectiveness through the identification,
(H3/C1) documentation, and analysis of rework, as required by DOE 4330.4A.

CONCERN: EG&G Idaho, Inc. maintenance management is not controlling
(MA.3-1) facility work areas in accordance with generally accepted
(H2/C2) industrial practices to ensure the safety of personnel in those areas. (Also see Concern WS.4-1.)

CONCERN: The EG&G Idaho, Inc. hoisting and rigging program does not ensure
(MA.3-2) all equipment available in the workplace has been tested and
(H3/C1) inspected in accordance with 29 CFR 1910, Subpart N; DOE 4330.4A; and the Department of Energy Hoisting and Rigging Manual, Issue No. 3, Revision 10-87. (Also see Concerns WS.4-7 and PP.4-1.)

CONCERN: Personnel safety equipment postings and procedure requirements
(MA.3-3) are not being adhered to by EG&G Idaho, Inc. maintenance
(H2/C1) personnel as required by DOE 4330.4A and the EG&G Idaho, Inc. Safety Manual, Revision 37, April 15, 1991. (Also see Concern WS.3-1.)

CONCERN: In some work areas, EG&G Idaho, Inc. maintenance management is
(MA.3-4) not ensuring housekeeping is maintained in accordance with the
(H3/C1) requirements of DOE 4330.4A and 29 CFR 1910.22.

CONCERN: EG&G Idaho, Inc. has not established a post-maintenance testing
(MA.4-1) program which specifies acceptance criteria, testing
(H3/C1) requirements, and verification of satisfactory test performance, as required by DOE 4330.4A.

CONCERN: Contrary to the requirements of DOE 4330.4A, maintenance backlog
(MA.4-2) at EG&G Idaho, Inc., is not controlled and continues to increase.
(H3/C1)

CONCERN: EG&G Idaho, Inc. management has not established a method to mark
(MA.5-1) deficiencies in the workplace to indicate they have been
(H3/C1) identified and entered into the work control system, as required by DOE 4330.4A.

CONCERN: Management in some EG&G Idaho, Inc. departments has not
(MA.6-1) established a policy which ensures preventive maintenance for
(H3/C1) equipment that is past due receives elevated scheduling priority, as required by DOE 4330.4A.

CONCERN: EG&G Idaho, Inc. has not established a predictive maintenance
(MA.7-1) program, as required by DOE 4330.4A. (Also see Concern TS.4-1.)
(H3/C1)

CONCERN: EG&G Idaho, Inc. preventive maintenance procedures do not include
(MA.8-1) detailed instructions to accomplish work in a safe and controlled
(H2/C1) manner, as required by DOE 4330.4A.

CONCERN: EG&G Idaho, Inc. does not have current as-built drawings to
(MA.8-2) support maintenance activities, as required by DOE 4330.4A.
(H2/C1) (Also see Concern OP.3-2.)

CONCERN: Revisions to maintenance documents are not properly controlled,
(MA.8-3) as required by DOE 4330.4A.
(H2/C1)

4.5.1.5 Training and Certification

CONCERN: The quality of the design, development, conduct, and evaluation
(TC.1-1) of training programs among some EG&G Idaho, Inc. organization
(H2/C2) units does not meet generally accepted industry practices.

CONCERN: In some cases, the testing and certification process does not
(TC.1-2) provide meaningful assessment of knowledge or performance.
(H2/C2)

CONCERN: The EG&G Idaho, Inc. company-wide training tracking system is not
(TC.1-3) being maintained as an effective tool for managers and
(H2/C2) supervisors.

CONCERN: The DOE Field Office, Idaho, has not established standards for
(TC.1-4) the development, conduct, or evaluation of Idaho National
(H3/C2) Engineering Laboratory training, including that provided by EG&G
Idaho, Inc.

CONCERN: During some training classes, safe work practices required by the
(TC.4-1) EG&G Idaho, Inc. Safety Manual were neither consistently
(H2/C1) emphasized nor followed.

CONCERN: The equipment operator certification process does not ensure that
(TC.4-2) certified personnel are proficient in all aspects of the relevant
(H1/C1) operation, or that recertification is properly conducted, as
CAT. II required by 29 CFR 1910.178, 179, 180 and 181.

CONCERN: The Facilities and Maintenance Department is not meeting its
(TC.5-1) established schedule for implementation of the performance-based
(H2/C1) training required by DOE 4330.4A.

CONCERN: Not all EG&G Idaho, Inc. training facilities effectively support
(TC.7-1) training activities.
(H2/C2)

4.5.1.6 Auxiliary Systems

- CONCERN:** The DOE has not provided guidelines for consistency in defining what constitutes auxiliary systems.
(AX.1-1)
(H3/C2)
- CONCERN:** EG&G Idaho, Inc. has not provided definitions of what constitutes auxiliary systems.
(AX.1-2)
(H3/C2)
- CONCERN:** At the Central Facilities Area Medical Facility, methods for collection, sampling, removal, and disposal of water in the tank used to collect water from treatment of injured and contaminated personnel and periodic verification of diversion valve integrity have not been specified.
(AX.2-1)
(H2/C2)
- CONCERN:** The pH level of water in the pool where Three Mile Island fuel fragments are stored is not controlled to prevent aluminum corrosion of the storage racks resulting in an added potential for criticality.
(AX.4-1)
(H1/C2)
- CONCERN:** Contrary to the requirements of DOE 6430.1A, the configuration of the ventilation system in Building CF-625 is such that there is potential for release of radioactivity to clean areas or to the environment.
(AX.5-1)
(H2/C1)
- CONCERN:** A procedure has not been provided for testing the backup diesel generator in Building TAN-607, as required by DOE 5480.19.
(AX.6-1)
(H3/C1)

4.5.1.7 Emergency Preparedness

- CONCERN:** Interfaces between various parts of the EG&G Idaho, Inc. emergency response organizations are not clearly defined, as required by DOE 5500.3A.
(EP.1-1)
(H2/C1)
- CONCERN:** Not all emergency plans contain the essential emergency preparedness elements required by DOE 5500.3A.
(EP.2-1)
(H2/C1)
- CONCERN:** Hazardous material emergency response training required by 29 CFR 1910.120 has not been effective with respect to the relative threats of radiological and nonradiological hazards. (Also see Concern FP.6-3)
(EP.3-1)
(H2/C1)
- CONCERN:** Emergency exercises are not being conducted at a frequency sufficient to maintain a proficiency in Idaho National Engineering Laboratory-wide emergency response, which is contrary to the requirements of DOE 5500.3A.
(EP.4-1)
(H2/C1)

CONCERN: In emergency drills and exercises realistic physical simulations
(EP.4-2) are not performed as required by DOE 5500.3A.
(H3/C1)

CONCERN: Emergency operations checklists are not always used during
(EP.4-3) emergency exercises.
(H2/C2)

CONCERN: Dose projections during emergency exercises are not timely.
(EP.4-4)
(H2/C2)

CONCERN: Emergency facilities, equipment, and resources necessary to
(EP.5-1) support planned emergency response functions do not meet the
(H2/C1) requirements of DOE 5500.3A.

CONCERN: Emergency Operating Procedures for the Advanced Test Reactor do
(EP.6-1) not include Emergency Action Levels.
(H1/C2)

CONCERN: Accident consequence assessment and protective action
(EP.6-2) recommendations are not based on available and sufficient
(H2/C2) information.

CONCERN: Methods for estimating releases and doses from unmonitored
(EP.6-3) pathways are not included in the Test Reactor Area EG&G Idaho,
(H3/C2) Inc. emergency plans.

CONCERN: The potential benefits of shelter-in-place for high wind speed,
(EP.7-1) puff releases of hazardous materials to the atmosphere is not
(H2/C2) explicitly considered in the emergency plans.

4.5.1.8 Technical Support

CONCERN: Safety Analysis Reports and Operational Safety Requirements for
(TS.2-1) major operating facilities do not meet DOE 5480.5, DOE 5480.6,
(H2/C1) and DOE 5481.1B requirements in respect to documentation of
assumptions in accident bases, action response plans, assurance
of design code compliance, and completeness of accident analyses.

CONCERN: The Safety Analysis Report status data base does not provide
(TS.2-2) current and correct information to allow management to assess
(H3/C2) status of Safety Analysis Report developments and updates.

CONCERN: The Central Facilities Area Chemistry Laboratory and Bldg. TAN-
(TS.2-3) 666, Liquid Waste Facility, are operating without existing Safety
(H2/C1) Analysis Reports, as required by DOE 5480.5 and 5481.1B, and
without documented management acceptance of the risks.

CONCERN: There are no formalized trending systems for monitoring
(TS.4-1) performance of safety equipment and for enhancing performance of
(H3/C2) operations.

4.5.1.9 Packaging and Transportation

CONCERN: The overall organization and management system does not provide
(PT.1-1) control over packaging and transportation activities at EG&G
(H2/C1) Idaho, Inc., as required by DOE 5480.3

CONCERN: There is no independent safety oversight of packaging and
(PT.1-2) transportation activities, as required by DOE 5480.1B and
(H3/C1) DOE 5482.1B.

CONCERN: The formal training and qualification program for packaging and
(PT.2-1) transportation employees does not meet all requirements of
(H2/C1) DOE 5480.3 and 49 CFR 100-199, 391, 392, 393 and 396.

CONCERN: Quality assurance verification of new packages and some quality
(PT.3-1) assurance plans for packaging and transportation do not meet
(H2/C1) requirements of DOE 5700.6B and 49 CFR 173.24

CONCERN: Detailed procedures for emergency communications and accident
(PT.5-1) response for offsite transportation of hazardous materials have
(H1/C1) not been prepared, as required by 49 CFR 172.600.

4.5.1.10 Nuclear Criticality Safety

CONCERN: Documented requirements for qualifications of criticality
(CS.1-1) personnel at EG&G Idaho, Inc. are not sufficient to satisfy
(H2/C1) requirements of ANSI/ANS-8.1-1983, Section 4.1.1 and DOE 5480.5,
Section 10.

CONCERN: The Science and Technology Department independent review system
(CS.1-2) does not have a criticality safety capability, as required to
(H2/C1) satisfy DOE 5480.5, Section 9.d.

CONCERN: The Safety Analysis Reports for EG&G Idaho, Inc. fissile material
(CS.1-3) control areas do not fully consider criticality safety issues, as
(H2/C1) required by DOE 5480.5, Section 8.a., and DOE 5481.1B.

CONCERN: The EG&G Idaho, Inc. Criticality Safety training program fails to
(CS.1-4) satisfy some requirements of DOE 5480.20, Chapter I, Section 8,
(H2/C1) and DOE 5480.6, Section 8.e.

CONCERN: The DOE Field Office, Idaho, is not maintaining the frequency of
(CS.1-5) its criticality safety functional appraisals as set forth in its
(H2/C1) ES&H Oversight Manual, February 11, 1991, Section ES&H0-40
(para. 5, p. 2).

CONCERN: The EG&G Idaho, Inc. independent criticality safety review and
(CS.1-6) appraisal program does not satisfy all requirements of
(H2/C1) DOE 5480.5, Section 9, and ANSI/ANS-8.1-1983, Section 4.1.6.

- CONCERN:** Power Reactor Programs Department criticality procedures are not
(CS.1-7) required to be reviewed and renewed annually, as required by
(H2/C1) ANSI/ANS-8.1-1983, Section 4.1.6.
- CONCERN:** ID 5480.5A, Chapter I, Section 4.b.(2) does not provide clear
(CS.3-1) guidance for use of water in fighting fires involving fissile
(H1/C1) material.
- CONCERN:** Primary documentation of criticality safety evaluations is not
(CS.3-2) stored in compliance with requirements of ASME NQA-1-1989,
(H3/C1) Supplement 17S-1.
- CONCERN:** Mass limit postings at EG&G Idaho, Inc. do not satisfy applicable
(CS.4-1) requirements of DOE 5480.5, Section 13.b.(4).
(H3/C1)
- CONCERN:** Persons performing the primary criticality safety evaluations at
(CS.4-2) EG&G Idaho, Inc. do not review the resulting operational
(H2/C1) procedures, as called for by DOE 5480.5, Sections 9.d. and 9.e.
- CONCERN:** EG&G Idaho, Inc. has not incorporated in the Safety Analysis
(CS.5-1) Reports, as required by DOE 5480.5, Section 8.a., the DOE
(H2/C1) exemption to omit the criticality alarm systems for fuel loading
operations at the Advanced Test Reactor and the Power Burst
Facility.
- CONCERN:** The criticality alarm systems at the Test Reactor Area fail to
(CS.5-2) satisfy ANSI/ANS-8.3-1986, Sections 4.5.1 and 5.3, and DOE 5480.5
(H1/C1) Section 11.c.(3)(h).
- CONCERN:** Criticality evacuation drills are not held annually contrary to
(CS.5-3) requirements of ANSI/ANS-8.3-1986, Section 7.3, and DOE 5480.5,
(H2/C1) Section 11.c.(3)(g).
- CONCERN:** EG&G Idaho, Inc. criticality emergency planning fails to satisfy
(CS.5-4) applicable requirements of DOE 5480.5, Section 8.k.
(H2/C1)
- CONCERN:** The EG&G Idaho, Inc. criticality evacuation signs fail to satisfy
(CS.5-5) accepted practices with respect to the design of such signs.
(H1/C2)

4.5.1.11 Security/Safety Interface

- CONCERN:** Training on EG&G Idaho, Inc. facility-specific hazards, as
(SS.4-1) required by 29 CFR 1920.1200 has not been enforced for Protection
(H2/C1) Technology of Idaho, Inc. Security Inspectors who are assigned to
these facilities.

CONCERN: Security Inspectors assigned to Treatment, Storage, and Disposal
(SS.4-2) sites have not been provided the hazardous materials training
(H2/C1)) required by EG&G Idaho, Inc., 29 CFR 1910.120, and 40 CFR 265 for
unescorted access to these sites.

4.5.1.12 Experimental Activities

CONCERN: The Standing Directives for experiments do not define shared
(EA.1-1) safety responsibilities where two or more experimental groups
(H2/C2) share the responsibility for a given experiment.

CONCERN: The radiological aspects of the NPR/MHTGR ATR-1 Experiment have
(EA.2-1) not been reviewed by the Safety Operations Review Committee or
(H2/C2) the Document Review Committee.

CONCERN: The Safety Operations Review Committee lacks an independent
(EA.2-2) review member obtained outside of the Power Reactor Program
(H2/C2) Department for health physics.

CONCERN: Radiological information, including dose calculations relevant to
(EA.3-1) cask transfers of source material, is not formally documented and
(H2/C2) transmitted to cognizant experimental groups or the Safety
Operations Review Committee for safety evaluation.

4.5.1.13 Site/Facility Safety Review

CONCERN: Independent reviews and appraisals, required by DOE 5482.1B, of
(FR.1-1) Idaho National Engineering Laboratory activities in areas outside
(H2/C1) individual contractor operated facilities have not been
performed. (Also see Concern PT.1-1.)

CONCERN: Top level management within EG&G Idaho, Inc. has not issued
(FR.1-2) requirements for committee structure and committee operating
(H2/C2) procedures such that compliance with the requirement of
DOE 5480.5, DOE 5480.6 and DOE 5482.1B can be achieved.

CONCERN: The EG&G Idaho, Inc. line management method of operation is
(FR.3-1) allowing safety review committees to function as technical
(H2/C1) support staffs, thereby, not complying with the full intent of
DOE 5480.5, DOE 5480.6, and 5482.1B.

CONCERN: The understanding among department managers is unclear with
(FR.3-2) respect to whether the Nuclear Safety Review Group or the Line
(H2/C2) Management Independent Review System is responsible for the
safety reviews that satisfy the requirements of DOE 5480.5,
DOE 5480.6 and DOE 5482.1B.

CONCERN: Annual appraisals, required by DOE 5480.5, DOE 5480.6 and
(FR.4-1) DOE 5482.1B, are conducted as audits rather than appraisals.
(H2/C1)

- CONCERN: EG&G Idaho, Inc. is not in total compliance with DOE 5480.5,
(FR.5-1) DOE 5480.6, and DOE 5482.1B which requires triennial reviews of
(H2/C1) all DOE activities.
- CONCERN: EG&G Idaho, Inc. has not provided timely and complete
(FR.5-2) implementation of the recommendations made by the 1985 and 1988
(H2/C2) triennial appraisal teams.
- CONCERN: EG&G Idaho, Inc. has not established a centralized, comprehensive
(FR.6-1) program that would provide for collection of operating
(H2/C2) experiences, evaluating them, and making them available to its
operating groups.

4.5.1.14 Radiological Protection

- CONCERN: Line management is not effectively discharging its responsibility
(RP.1-1) for compliance with DOE 5480.11 requirements nor using available
(H2/C1) company resources to achieve a comprehensive radiological
protection program.
- CONCERN: The concept and use of the Cognizant Professional is ineffective
(RP.1-2) in that the Radiation Safety cognizant professional does not have
(H2/C3) authority and recognition commensurate with his responsibilities
as perceived by management.
- CONCERN: There are no professional Health Physicists directly assigned to
(RP.2-1) the Environment, Safety and Quality Department oversight function
(H2/C1) performing audits and surveillance, and the scope, depth and
quality of the oversight functions is seriously impaired and not
in compliance with DOE 5480.11, Section 9.r. and DOE 5482.1B,
Section 9.d.(2)(f).
- CONCERN: The EG&G Idaho, Inc. independent oversight program is seriously
(RP.2-2) flawed, ineffective and not in compliance with DOE 5482.1B.
(H2/C1)
- CONCERN: The DOE Field Office, Idaho, radiological safety oversight
(RP.2-3) program is not conducted in sufficient frequency to ensure the
(H2/C1) effectiveness of the EG&G Idaho, Inc. radiological protection
program and is not in noncompliance with DOE 5482.1B.
- CONCERN: The EG&G Idaho, Inc. Radiological Controls Manual which
(RP.3-1) implements the requirements of DOE 5480.11 are not consistently
(H2/C1) applied within EG&G Idaho, Inc. organizations.
- CONCERN: Posting of radiological areas was not consistent throughout EG&G
(RP.3-2) Idaho, Inc. and in some cases was not in compliance with
(H1/C1) DOE 5480.11, Section 9.k.
- CONCERN: The location of radioactive sources are not maintained current on
(RP.3-3)

- (H2/C1) inventories as required by the EG&G Idaho, Inc. Radiological Controls Manual.
- CONCERN:
(RP.3-4)
(H1/C1) The installation of radiation generating devices is not independently reviewed by qualified staff outside the operating organization to ensure compliance with the mandatory standards of DOE 5480.4.
- CONCERN:
(RP.5-1)
(H2/C1) The nuclear accident dosimetry program is not in compliance with the performance requirements for fixed and personnel nuclear accident dosimeters specified in DOE 5480.11, Section 9.q.(2) and (3).
- CONCERN:
(RP.5-2)
(H2/C2) Plans for the location of alternate counting facilities for the nuclear accident dosimeter foils have not been developed.
- CONCERN:
(RP.5-3)
(H2/C2) Documented floor plans indicating the location of nuclear accident dosimeter systems and methods for retrieving them have not been developed.
- CONCERN:
(RP.5-4)
(H2/C1) The personnel dosimetry program is not in compliance with DOE 5480.15 and DOE 5480.11, Section 9.g.(3).
- CONCERN:
(RP.5-5)
(H2/C2) The technical support functions provided by the DOE, Idaho Radiological and Environmental Sciences Laboratory to the routine dosimetry processing program are in conflict with the role of the Radiological and Environmental Sciences Laboratory as the Performance Evaluation Laboratory for the DOE Laboratory Accreditation Program for Personnel Dosimetry.
- CONCERN:
(RP.7-1)
(H2/C1) The technical bases for the EG&G Idaho, Inc. internal dosimetry programs is not well documented, and compliance with DOE 5480.11 Section 9.g.(2) can not be demonstrated.
- CONCERN:
(RP.7-2)
(H2/C1) Internal dose assessments are not consistently performed within a time period necessary to demonstrate compliance with DOE 5480.11, Section 9.b. or to identify internal exposures requiring investigation.
- CONCERN:
(RP.7-3)
(H2/C1) Bioassay program documentation needed to demonstrate compliance with DOE 5480.11, Section 9.g.(2), is incomplete.
- CONCERN:
(RP.8-1)
(H2/C1) The existing radiation protection instrument calibration facility does not meet the requirements of DOE 5480.11, Section 9.g(3), ANSI N323, and accepted industry practice.
- CONCERN:
(RP.8-2)
(H2/C1) Acceptance criteria have not been defined for all types of radiation protection instrumentation and committee review of instrument purchases has not been performed pursuant to the

requirements of the EG&G Idaho, Inc. Radiological Controls Manual.

- CONCERN:
(RP.8-3)
(H2/C2) Trend analysis of radiation protection instrument performance is not performed.
- CONCERN:
(RP.8-4)
(H2/C2) There is no program to identify problems and improve the response of radiation protection instrumentation to meet the needs of specific applications.
- CONCERN:
(RP.9-1)
(H2/C1) The air monitoring program at the Power Reactor Programs Department, Test Area North Hot Shop and other facilities do not satisfy the requirements of DOE 5480.11.
- CONCERN:
(RP.10-1)
(H2/C1) Contamination control practices are not in compliance with the requirements of DOE 5480.11, the EG&G Idaho, Inc. Radiological Controls Manual, or accepted industry practice.
- CONCERN:
(RP.10-2)
(H2/C2) There is a lack of health physics technician training on the use of the Personnel Contamination Monitor 1-B.
- CONCERN:
(RP.10-3)
(H2/C2) There is a lack of worker training on the use of the Personnel Contamination Monitor 1-B.
- CONCERN:
(RP.10-4)
(H2/C2) Clothing worn in the Subsurface Disposal Area at the Radioactive Waste Management Complex where there is a potential for contamination are allowed to be worn outside the area requiring its use.
- CONCERN:
(RP.10-5)
(H2/C1) The Central Laundry and Respirator Facility can not demonstrate that it has stayed within its alpha contamination operating limit for the acceptance of laundry at the facility.
- CONCERN:
(RP.12-1)
(H2/C1) Maintenance and retention of occupational exposure records is not in compliance with ASME NQA-1-1989 and DOE 5480.11, Section 9.m.
- CONCERN:
(RP.12-2)
(H2/C1) Records of the internal dosimetry program are not in compliance with DOE 5480.11.
- CONCERN:
(RP.12-3)
(H2/C1) Occupational exposure reports are not in compliance with DOE 5484.1 for Calendar Year 1990.
- CONCERN:
(RP.12-4)
(H2/C1) Reports of occupational exposure to radiation workers are not in compliance with DOE 5480.11, Section 9.n. for Calendar Year 1990.

4.5.1.15 Personnel Protection

- CONCERN:** Formalized management guidance defining the administrative responsibilities and authorities of safety professionals in line organizations has not been prepared.
(PP.1-1)
(H3/C2)
- CONCERN:** The EG&G Idaho, Inc., program addressing Occupational Exposure to Hazardous Chemicals in Laboratories does not meet the requirements of 29 CFR 1910.1450.
(PP.2-1)
(H2/C1)
- CONCERN:** Procedures and practices for the use of carcinogens in other than laboratory areas do not fulfill the requirements of DOE 5480.10 or the EG&G Idaho, Inc. Carcinogen Control Program.
(PP.2-2)
(H2/C1)
- CONCERN:** The Laser Safety Program, developed and implemented by EG&G Idaho, Inc., does not satisfy the requirements of ANSI Z136.1-1986 or ensure that basic principles of personnel protection will be observed.
(PP.2-3)
(H1/C1)
CAT. II
- CONCERN:** The EG&G Idaho, Inc. pressure safety program has not been effective in controlling pressure safety related hazards.
(PP.2-4)
(H2/C2)
- CONCERN:** Health and Safety Program requirements are ineffectively organized, inconsistently translated into lower tier documents and no means exist to ensure that employees can know they are using a current and complete compilation of health and safety requirements.
(PP.2-5)
(H3/C2)
- CONCERN:** EG&G Idaho, Inc. has not established health and safety requirements for service subcontractors, as required by DOE 5483.1A.
(PP.2-6)
(H1/C1)
- CONCERN:** Frequent inspection of hoisting and rigging equipment was not being performed in accordance with 29 CFR 1910.179.
(PP.4-1)
(H2/C1)

4.5.1.16 Worker Safety and Health (OSHA) Compliance

- CONCERN:** EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart I, Personal Protective Equipment.
(WS.3-1)
(H2/C1)
- CONCERN:** EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart E, Means of Egress.
(WS.4-1)
(H2/C1)

CONCERN: (WS.4-2) (H2/C1)	EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart K, Medical and First Aid.
CONCERN: (WS.4-3) (H1/C1) CAT.II	EG&G Idaho, Inc. does not comply with 29 CFR 1910.212 (a)(1), Point of Operation or 29 CFR 1910.212 (a)(3)(iii), Hand Tool Usage.
CONCERN: (WS.4-4) (H2/C1)	EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart O, Machinery and Machine Guarding, or 29 CFR 1910, Subpart P, Hand and Portable Powered Tools and Other Equipment.
CONCERN: (WS.4-5) (H2/C1)	EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart S, Electrical.
CONCERN: (WS.4-6) (H2/C1)	EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart D, Walking-Working Surfaces or 29 CFR 1910, Subpart E, Personal Protective Equipment.
CONCERN: (WS.4-7) (H2/C1)	EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart H, Hazardous Materials.
CONCERN: (WS.4-8) (H2/C1)	EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart N, Materials Handling and Storage.
CONCERN: (WS.5-1) (H2/C1)	EG&G Idaho, Inc. does not comply with 29 CFR 1926.21, Subpart B, General Interpretations and 29 CFR 1926.556, Subpart N, Cranes, Derricks, Hoist, Elevators, and Conveyors.
CONCERN: (WS.6-1) (H2/C1)	EG&G Idaho, Inc. does not comply with 29 CFR 1910.1200, Subpart Z, Toxic and Hazardous Substances.
CONCERN: (WS.6-2) (H2/C1)	EG&G Idaho, Inc. does not comply with 29 CFR 1910, Subpart J, General Environmental Controls, or Section 5(a)(1) of the Occupational Safety and Health Act, "General Duty Clause."

4.5.1.17 Fire Protection

- CONCERN:** The EG&G Idaho, Inc. fire protection organization and administration is not well defined or implemented.
(FP.1-1)
(H2/C2)
- CONCERN:** Needed fire protection improvements and upgrades at EG&G Idaho, Inc. have not been made to meet the required level of fire protection, as defined by DOE 5480.7.
(FP.1-2)
(H2/C1)
- CONCERN:** Formal detailed program requirements and implementation strategies have not been established by EG&G Idaho, Inc. to ensure full compliance with DOE 5480.7 and NFPA 101, Life Safety Code, requirements.
(FP.2-1)
(H2/C1)
- CONCERN:** Proper fire protection systems as required by DOE 5480.7 have not been provided to prevent any added threat to the public as the result of a fire at the EG&G Idaho, Inc. Radioactive Waste Management Complex.
(FP.3-1)
(H2/C1)
- CONCERN:** Fire protection evaluations, required by DOE 5480.7, to assess the vulnerability of EG&G Idaho, Inc. facilities to unacceptable program delays and shutdowns have not been completed.
(FP.4-1)
(H3/C1)
- CONCERN:** The EG&G Idaho, Inc. Advanced Test Reactor and the Radioactive Waste Management Complex facilities have a credible fire loss potential that exceed the program interruption limitations specified in DOE 5480.7.
(FP.4-2)
(H3/C1)
- CONCERN:** Fire protection evaluations to assess the maximum credible fire loss of all EG&G Idaho, Inc. managed facilities have not been completed, as required by DOE 5480.7.
(FP.5-1)
(H3/C1)
- CONCERN:** Due to the lack of required fire protection systems, a maximum credible fire loss at the EG&G Idaho, Inc. Advanced Test Reactor and at the Radioactive Waste Management Complex facilities could exceed the property value limitations as defined in DOE 5480.7.
(FP.5-2)
(H3/C1)
- CONCERN:** The DOE Field Office, Idaho, Fire Department does not meet the staffing and resource levels specified in NFPA 1500 and 1410.
(FP.6-1)
(H2/C1)
- CONCERN:** Not all DOE Field Office, Idaho, Fire Department facilities comply with the requirements of NFPA 1500 and DOE/EP-0108.
(FP.6-2)
(H2/C1)
- CONCERN:** Most EG&G Idaho, Inc. fire brigades are not meeting the training and interface requirements of NFPA 1500, 29 CFR 1910.120, and ID 0550.
(FP.6-3)
(H2/C1)

- CONCERN:** As required by DOE 5480.7 and the EG&G Idaho, Inc. Safety Manual, many specific fire protection program requirements necessary to meet the improved risk level of fire protection are not in place.
(FP.7-1)
(H2/C1)
- CONCERN:** Not all program requirements for fire protection engineering reviews and approvals at EG&G Idaho, Inc., are documented, and some reviews have not been performed, as required by DOE 5480.7.
(FP.7-2)
(H2/C1)
- CONCERN:** Fire protection system inspection and testing practices at EG&G Idaho, Inc. are not being performed in full accordance with the National Fire Protection Association Codes and Standards.
(FP.7-3)
(H2/C1)
- CONCERN:** Fire protection audits, appraisals, and assessments at EG&G Idaho, Inc. are not being conducted to verify proper implementation of fire protection standards, as required by DOE 5480.7 and DOE 5482.1B.
(FP.7-4)
(H2/C1)
- CONCERN:** A formal program for requesting and documenting exemptions to fire protection codes and standards, as required by DOE 5480.4 and DOE 5480.7, is not in place at EG&G Idaho, Inc.
(FP.7-5)
(H3/C1)
- CONCERN:** Some fire protection system design features and fire protection programs at the Idaho Field Office Headquarters Building (IF-606) do not meet requirements of DOE 6430.1A, ID 12044, DOE/EP-0108, and NFPA 13 and 101.
(FP.7-6)
(H2/C1)

4.5.1.18 Medical Services

- CONCERN:** EG&G Idaho, Inc. has no comprehensive system for ensuring identification of employees who require specially mandated examinations; this is not in compliance with DOE 5480.8.
(MS.1-1)
(H1/C1)
- CONCERN:** The Medical Director does not have access to top management for all contractors with regard to health concerns; this is not in compliance with DOE 5480.8.
(MS.1-2)
(H2/C1)
- CONCERN:** Space allocation for medical care is not adequate to meet the required standards of DOE 5480.8 nor acceptable industry standards.
(MS.3-1)
(H3/C1)
- CONCERN:** Contrary to requirements of DOE 5480.8 the medical department does not receive notifications of transfers or terminations of employees.
(MS.3-2)
(H2/C1)
- CONCERN:** Consideration of unusual circumstances, required by DOE 5480.8 for numbers of professionals in the medical program, have not been applied to the Medical Program.
(MS.3-3)
(H2/C2)
- CONCERN:** Inappropriate assignments of administrative duties. The lack of appropriate staff, dilutes the effectiveness of the medical program. Failure to comply with 5480.8 ie. wellness program and provide professional site visits.
(MS.3-4)
(H2/C2)

CONCERN:
(MS.4-1)
(H2/C2)

There is no formal review and audit program that allows the timely identification of deficiencies and deviations from prescribed practices, such as routine care, training, administration of compliance, and emergency exercise drills.

CONCERN:
(MS.5-1)
(H2/C2)

There is no organized Idaho National Engineering Laboratory health education (wellness) program.

4.8.2 Argonne National Laboratory-West

4.8.2.1 Categorization of Concerns

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
OA.1-1	2	1
OA.1-2	2	2
OA.2-1	2	1
OA.2-2	2	2
OA.3-1	2	1
OA.5-1	2	1
OA.7-1	2	1
OA.8-1	2	2
OA.8-2	2	2
QV.1-1	2	1
QV.1-2	2	1
QV.1-3	2	1
QV.2-1	2	1
QV.3-1	2	1
QV.4-1	2	1
QV.4-2	2	1
QV.5-1	2	1
QV.5-2	2	1
QV.5-3*	1	1
QV.5-4	2	1
QV.5-5	2	1
QV.6-1*	1	1
QV.7-1	2	1
QV.7-2	2	2
OP.1-1	1	2
OP.2-1	2	1
OP.2-2	3	2

**** Designates a Category I Concern**

*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
OP.2-3	3	2
OP.3-1	2	2
OP.3-2	2	1
OP.3-3	2	1
OP.3-4	2	2
OP.4-1	3	1
OP.4-2	3	1
OP.5-1	3	1
OP.5-2	2	2
OP.8-1	2	2
MA.1-1	1	1
MA.7-1	3	1
MA.8-1	2	2
TC.1-1	2	1
TC.1-2	2	2
TC.4-1	2	1
TC.4-2	2	2
TC.5-1	2	2
TC.7-1	3	2
TC.9-1	2	1
TC.9-2	2	1
AX.2-1	2	1
AX.5-1	2	1
AX.5-2	2	2
AX.6-1	3	1
EP.1-1	2	1

**** Designates a Category I Concern**
*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
EP.2-1	1	1
EP.3-1	2	1
EP.4-1	2	1
EP.4-2*	1	1
EP.4-3*	1	1
EP.5-1	2	1
TS.1-1	2	2
TS.1-2	2	2
TS.2-1	2	1
TS.2-2	2	1
TS.2-3	2	1
TS.3-1	2	2
TS.3-2	2	1
TS.4-1	2	1
TS.5-1	2	2
TS.5-2	2	1
PT.1-1	2	2
PT.1-2	2	2
PT.1-3	2	2
PT.2-1	2	1
PT.3-1	2	2
PT.3-2	2	2
PT.4-1	2	2
PT.5-1	2	2
PT.6-1	2	2
PT.7-1	2	1
PT.10-1	2	2
PT.11-1	2	2

**** Designates a Category I Concern**

*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
CS.1-1	3	2
CS.1-2	2	2
CS.4-1	2	2
CS.5-1	1	1
CS.5-2	2	2
SS.1-1	3	2
EA.3-1	2	1
FR.3-1	3	1
FR.4-1	2	1
FR.4-2	2	1
FR.5-1	3	1
FR.6-1	3	2
RP.1-1	2	1
RP.1-2	2	1
RP.1-3	2	1
RP.2-1	2	1
RP.3-1	3	1
RP.3-2	2	1
RP.5-1	2	1
RP.6-1	2	1
RP.7-1	2	1
RP.8-1	2	1
RP.8-2	2	1
RP.9-1	2	1
RP.10-1	2	1
RP.10-2	2	1
RP.11-1	2	1
RP.12-1	3	1

**** Designates a Category I Concern**

*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
PP.1-1	2	1
PP.1-2	2	2
PP.2-1*	1	1
PP.2-2	1	1
PP.2-3	1	1
PP.2-4	1	1
PP.3-1	2	2
PP.3-2*	1	1
PP.3-3*	1	1
PP.4-1	1	1
PP.4-2	1	1
PP.5-1	2	1
WS.3-1	1	1
WS.4-1	1	1
WS.4-2	1	1
WS.4-3	1	1
WS.4-4**	1	1
WS.5-1	1	1
WS.6-1	1	1
FP.1-2	2	2
FP.3-1	3	2
FP.4-1	2	1
FP.6-1	1	2
FP.7-1	2	1
FP.7-2	2	1

**** Designates a Category I Concern**

*** Designates a Category II Concern**

4.8.2.2 Tabulation of Concerns

4.5.2.1 Organization and Administration

- CONCERN:** Authorities are not well documented, defined, delegated, or
(OA.1-1) understood, as required by DOE 5480.19.
(H2/C1)
- CONCERN:** There is no uniform policy or prescribed frequency for holding
(OA.1-2) safety meetings.
(H2/C2)
- CONCERN:** Argonne National Laboratory-West does not have a fully
(OA.2-1) institutionalized self-assessment program, as required by
(H2/C1) DOE 5480.19 and the Secretary of Energy Notices.
- CONCERN:** Management procedures and guidance do not always promote
(OA.2-2) consistent and uniform safety programs within Argonne National
(H2/C2) Laboratory-West.
- CONCERN:** There is no program for promoting a unified effort to achieve
(OA.3-1) quantitative safety goals at Argonne National Laboratory-West, as
(H2/C1) required by DOE 5480.19.
- CONCERN:** The frequency of management presence in the workplace and the
(OA.5-1) purpose of walkthrough inspections is not consistently
(H2/C1) prescribed, as required by DOE 5480.19.
- CONCERN:** Many documents are out of date and there is no overview function
(OA.7-1) to assure that procedures and manuals are expeditiously reviewed
(H2/C1) or that controlled manuals are actually up to date, as required
 by DOE 5480.19.
- CONCERN:** Not all aspects of the Argonne National Laboratory Substance
(OA.8-1) Abuse Policy are well understood by employees, and random drug
(H2/C2) screening does not now occur.
- CONCERN:** No random substance abuse testing is planned for those
(OA.8-2) subcontractors performing work on vital equipment, nor do
(H2/C2) responsible Argonne National Laboratory-West personnel receive
 special training on detecting substance abuse by those
 subcontractor employees.

4.5.2.2 Quality Verification

- CONCERN:** Plans and actions to assure and verify quality achievement have
(QV.1-1) not been developed and effectively implemented for all activities
(H2/C1) and facilities at the Argonne National Laboratory-West site, as
 required by DOE 5700.6B.

CONCERN: A training and qualification program for quality verification
(QV.1-2) personnel has not been effectively implemented, as required by
(H2/C1) ASME NQA-1-1989 and ASNT TC-1A.

CONCERN: Software quality assurance and computer program testing programs
(QV.1-3) have not been developed for computer-controlled reactors at
(H2/C1) Argonne National Laboratory-West that meet the requirements of
ASME NQA-1-1989.

- CONCERN:** Not all items and services are procured under controlled conditions, as required by the Argonne National Laboratory-West Quality Assurance Program and ASME NQA-1-1989, including procurement review, purchases from approved suppliers, and documented selection of approved suppliers.
(QV.2-1)
(H2/C1)
- CONCERN:** Contrary to ASME NQA-1-1989, critical attributes of items are not always verified and documented evidence of conformance to technical requirements is not always available at Argonne National Laboratory-West before items are installed or used.
(QV.3-1)
(H2/C1)
- CONCERN:** Measuring and test equipment used for inspection and testing at Argonne National Laboratory-West cannot always be traced to usage; no evaluation can therefore be made of the validity of previous inspection or test results or of the acceptability of items previously inspected or tested, as required by ASME NQE-1-1989.
(QV.4-1)
(H2/C1)
- CONCERN:** Measuring and test equipment at Argonne National Laboratory-West is not always calibrated according to approved procedures against current certified standards having known valid relationships to nationally recognized standards, as required by ASME NQA-1-1989.
(QV.4-2)
(H2/C1)
- CONCERN:** Not all items at Argonne National Laboratory-West are identified and controlled to preclude use of items whose shelf life or operating life has expired, as required by ASME NQA-1-1989.
(QV.5-1)
(H2/C1)
- CONCERN:** A program to identify, control, monitor and resolve items and services that do not meet specified requirements has not been effectively implemented at Argonne National Laboratory-West, as required by the Argonne National Laboratory-West quality assurance manual and ASME NQA-1-1989.
(QV.5-2)
(H2/C1)
- CONCERN:** Dispositions to identified nonconformances at Argonne National Laboratory-West including fuel materials and reactor building piping are not always technically justified or correct, as required by ASME NQA-1-1989.
(QV.5-3)
(H1/C1)
CAT. II
- CONCERN:** Control and storage of code and safety related material and parts do not always assure traceability of material and preclude misuse, as required by ASME NQA-1-1989.
(QV.5-4)
(H2/C1)

- CONCERN:** No comprehensive status indicating system has been implemented for control of items at Argonne National Laboratory-West, as required by ASME NQA-1-1989.
(QV.5-5)
(H2/C1)
- CONCERN:** Inspections to verify conformance of items or activities including fuel material and fabrication are not always effectively implemented, as required by ASME NQA-1-1989 and the ANL-W Quality Assurance Program.
(QV.6-1)
(H1/C1)
CAT. II
- CONCERN:** Not all special processes used at Argonne National Laboratory-West are conducted using qualified procedures and by qualified personnel, as required by American Society of Mechanical Engineers and American Welding Society codes and Argonne National Laboratory-West procedures.
(QV.7-1)
(H2/C1)
- CONCERN:** Personnel performing some special processes at Argonne National Laboratory-West do not follow accepted practices for conduct of operations.
(QV.7-2)
(H2/C2)

4.5.2.3 Operations

- CONCERN:** Existing work control practices do not provide adequate work control for activities being performed by maintenance personnel for operational facilities.
(OP.1-1)
(H1/C2)
- CONCERN:** Assessments of the quality of the Experimental Breeder Reactor-II containment process have not provided assurance of compliance with Technical Specifications.
(OP.2-1)
(H2/C1)
- CONCERN:** Experimental Breeder Reactor-II has not implemented the fifth shift of reactor operators to facilitate training.
(OP.2-2)
(H3/C2)
- CONCERN:** Proper and complete records are not maintained at the Interbuilding Cask Washstation, as required in Procedure OMM 9171 and supervisory checks are not performed to assure records quality.
(OP.2-3)
(H3/C2)
- CONCERN:** At Experimental Breeder Reactor-II Operating Information Bulletins (temporary changes to operating procedures) are not canceled in accordance with procedure.
(OP.3-1)
(H2/C2)
- CONCERN:** The low hazard class determination and the nonnuclear facility designation assigned by Argonne National Laboratory-West for fuel manufacturing operations do not acknowledge the onsite impacts of a criticality accident, when considering criteria in DOE 5480.5 and DOE 5481.1B.
(OP.3-2)
(H2/C1)
- CONCERN:** DOE Field Office, Chicago, has not provided clear guidelines for designating nuclear facilities and hazard classes consistent with DOE 5480.5 and DOE 5481.1B.
(OP.3-3)
(H2/C1)

- CONCERN:**
(OP.3-4)
(H2/C2) A Fuel Cycle Division schedule for procedure revision, with milestones, does not exist to assure there will be adequate resources and priority to update operation and maintenance procedures.
- CONCERN:**
(OP.4-1)
(H3/C1) At the Neutron Radiography Facility, locks and tags used for status control are not being applied, as required by Chapter IX of DOE 5480.19.
- CONCERN:**
(OP.4-2)
(H3/C1) Narrative logs are not maintained and routinely reviewed by supervisors at the Fuel Cycle Division and Fuels and Processes Division operational facilities, as required in DOE 5480.19.
- CONCERN:**
(OP.5-1)
(H3/C1) At Experimental Breeder Reactor-II functional labels have not been affixed to valves and equipment, as required by DOE 5480.19, Chapter XVIII.
- CONCERN:**
(OP.5-2)
(H2/C2) A cost/benefit analysis has not been performed to determine if the priority of the Interbuilding Cask replacement should be emphasized for as-low-reasonably-achievable radiation policy considerations.
- CONCERN:**
(OP.8-1)
(H2/C2) The loss-of-flow audible alarm cannot be heard by personnel working within the Fuel Manufacturing Facility to give instant notice that ventilation is lost to the hoods and gloveboxes.

4.5.2.4 Maintenance

- CONCERN:**
(MA.1-1)
(H1/C1) A uniform work control procedure governing maintenance activities at Argonne National Laboratory-West is not implemented which would meet the requirements of DOE 4330.4A.
- CONCERN:**
(MA.7-1)
(H3/C1) Maintenance data are not being used effectively to enhance reliability, safety, or operability of plant equipment including root cause analysis per DOE 4330.4A.
- CONCERN:**
(MA.8-1)
(H2/C2) Maintenance work control procedures are not always effectively reviewed for conditions which could affect safety and for proper definitions of the practices to be used.

4.5.2.5 Training and Certification

- CONCERN:**
(TC.1-1)
(H2/C1) The Argonne National Laboratory-West Training Program is not comprehensive or formally implemented, as required by DOE 5480.4 orders in areas including, but not limited to, fire protection, radiation protection, worker safety, emergency preparedness, quality verification, technical support, and packaging and transportation.

- CONCERN:**
(TC.1-2)
(H2/C2) Analyses of job requirements are not routinely performed at Argonne National Laboratory-West and the level of training provided to all employees is not commensurate with the requirements of their jobs.
- CONCERN:**
(TC.4-1)
(H2/C1) The Argonne National Laboratory-West personnel protection training program is not in full compliance with DOE 5480.1B and various Occupational Safety and Health Administration regulations for areas including hazard communication, laser safety, and working in confined spaces.
- CONCERN:**
(TC.4-2)
(H2/C2) Argonne National Laboratory-West does not routinely use hands-on demonstrations or visual representations in general employee and personnel protection training.
- CONCERN:**
(TC.5-1)
(H2/C2) Training requirements are not formally established for maintenance personnel in the Plant Services Organization.
- CONCERN:**
(TC.7-1)
(H3/C2) Training facilities and equipment do not effectively support training activities.
- CONCERN:**
(TC.9-1)
(H2/C1) Argonne National Laboratory-West does not have a training or retraining program for radiation protection personnel including As-Low-As-Reasonably-Achievable, as required by DOE 5480.11.
- CONCERN:**
(TC.9-2)
(H2/C1) The Argonne Area Office-West is not providing oversight to assure radiation protection training activities at Argonne National Laboratory-West are in accordance with DOE 5480.11.

4.5.2.6 Auxiliary Systems

- CONCERN:**
(AX.2-1)
(H2/C1) Effluents released through the various ventilation systems are not measured accurately for the Zero Power Physics Reactor, Sodium Components Maintenance Shop, and Hot Fuel Examination Facility in accordance with ANSI N13.1.
- CONCERN:**
(AX.5-1)
(H2/C1) Ventilation systems at Argonne National Laboratory-West which employ high efficiency particulate air filters are not tested in accordance with ANSI-N510 requirements.
- CONCERN:**
(AX.5-2)
(H2/C2) Testing and verification of ventilation systems for conformance with procedural and environment safety and health requirements is not periodically performed and documented at the fuel manufacturing facility.
- CONCERN:**
(AX.6-1)
(H3/C1) Emergency power sources are not tested in accordance with NFPA 110 for nonreactor facilities.

4.5.2.7 Emergency Preparedness

- CONCERN:** The Argonne National Laboratory-West Emergency Preparedness Program is not fully in compliance with DOE 5500.1A and DOE 5500.3 in addressing credible emergencies, obtaining letters of agreements, and coordinating of offsite field monitoring activities.
(EP.1-1)
(H2/C1)
- CONCERN:** The Argonne National Laboratory-West Emergency Plan Implementing Procedures do not fully meet the requirements contained in DOE 5500.1A, DOE 5500.2A, DOE 5500.3, and DOE 5000.3A.
(EP.2-1)
(H1/C1)
- CONCERN:** Argonne National Laboratory-West Emergency Response training program for members of the emergency response organization did not fully meet the requirements of DOE 5500.3, DOE 5480.11, and industry accepted practices.
(EP.3-1)
(H2/C1)
- CONCERN:** The Argonne National Laboratory-West Emergency Exercise Program is not in full compliance with DOE 5500.1A, DOE 5500.2, DOE 5500.3, DOE 5500.4A, and DOE 5000.3A.
(EP.4-1)
(H2/C1)
- CONCERN:** Argonne National Laboratory-West does not have the capability for performing emergency classifications and making prompt notification to DOE Headquarters Emergency Operations Center and to offsite emergency management agencies, as required by DOE 5500.1A, DOE 5500.2A, DOE 5500.3, DOE 5500.4A, and DOE 5000.3A.
(EP.4-2)
(H1/C1)
CAT II
- CONCERN:** DOE Field Office, Idaho, did not provide sufficient written directions to ensure that effective command, control, and oversight is achieved during emergencies, as directed in DOE 5500.1A, DOE 5500.2A, DOE 5500.3A, DOE 5500.4A and DOE 5000.3A.
(EP.4-3)
(H1/C1)
CAT. II
- CONCERN:** The Argonne National Laboratory-West emergency response facilities do not fully meet the criteria established in DOE 5500.1A, DOE 5500.2, and DOE 5500.3.
(EP.5-1)
(H2/C1)

4.5.2.8 Technical Support

- CONCERN:** The Technical Support staff qualifications, experience and staffing requirements at the Argonne National Laboratory-West site are not being implemented in accordance with DOE 5480.20 and ANSI 3.1.
(TS.1-1)
(H2/C2)
- CONCERN:** The Argonne National Laboratory-West self-assessment for technical support did not receive technical and management reviews for completeness, accuracy and adequacy, nor follow the requirements under DOE 5482.1B.
(TS.1-2)
(H2/C2)
- CONCERN:** Not all safety analyses of moderate and high hazard facilities and activities at Argonne National Laboratory-West meet all of the requirements for format and content, as required by DOE 5481.1B.
(TS.2-1)
(H2/C1)

- CONCERN:**
(TS.2-2)
(H2/C1) Contrary to ASME NQA-1-1989, Criterion 5, and DOE 5700.6B, complete and current procedures for controlling activities, development of Technical Specification, Safety Analysis Reports and procedure controls on documents and drawings have not been developed and implemented.
- CONCERN:**
(TS.2-3)
(H2/C1) The control of critical system procedures, drawings and documents are not being maintained at the Emergency Operations Centers in accordance to DOE 1324.2, DOE 5500.1A, 5500.3A.
- CONCERN:**
(TS.3-1)
(H2/C2) No sitewide readiness review program exists at Argonne National Laboratory-West that assures compliance under DOE 5480.5, DOE 5480.6, 5481.1B, and DOE 5480.19.
- CONCERN:**
(TS.3-2)
(H2/C1) There is no Argonne National Laboratory-West requirement to consider DOE 6430.1A General Design Criteria in facility modifications and Safety Analysis Report amendments per DOE 481.1B.
- CONCERN:**
(TS.4-1)
(H2/C1) Equipment performance testing, monitoring, and trending programs are not in place within several divisions, as required by DOE 4330.4A.
- CONCERN:**
(TS.5-1)
(H2/C2) The effectiveness of the Argonne National Laboratory-West performance on minimizing releases to the environment has not been demonstrated.
- CONCERN:**
(TS.5-2)
(H2/C1) The Argonne National Laboratory-West waste management programs, including the Waste Management Plan, the Waste Minimization Program, and a sitewide systems performance assessment, are not in compliance with DOE 5820.2A and guidelines in DOE/LLW-63T.

4.5.2.9 Packaging and Transportation

- CONCERN:**
(PT.1-1)
(H2/C2) The Fuel Cycle Division operational and maintenance procedures are not reviewed on a periodic basis to assure inclusion of Procedural Change Notices, correct referenced information, and current regulations.
- CONCERN:**
(PT.1-2)
(H2/C2) Procedures and directives do not assure interaction communication and provide clear unambiguous instructions for performance of packaging and transportation tasks.
- CONCERN:**
(PT.1-3)
(H2/C2) There is no Argonne National Laboratory-West onsite transportation safety manual or a formal oversight program/group.
- CONCERN:**
(PT.2-1)
(H2/C1) The cask handler training program does not meet packaging and transportation training requirements of DOE 5480.3.

- CONCERN:** Operating and Maintenance Procedure 6202 has not been updated to
(PT.3-1) include outstanding procedure change notices and quality level
(H2/C2) classification, as required by the Fuel Cycle Quality Assurance Program.
- CONCERN:** Checklists are not used to assure that all packaging and
(PT.3-2) transportation activities are correct and recorded.
(H2/C2)
- CONCERN:** Argonne National Laboratory-West has not developed and
(PT.4-1) implemented a plan of action to address the need for upgraded
(H2/C2) casks, exemptions, and/or purchase of new casks.
- CONCERN:** There is no compilation of lessons learned identifying credible
(PT.5-1) packaging and transportation accidents or incidents nor are
(H2/C2) practice drills conducted.
- CONCERN:** Not all procedures include the engineered rigging requirements in
(PT.6-1) cask lifting procedures.
(H2/C2)
- CONCERN:** The above ground fuel burner oil tanks do not meet spill
(PT.7-1) abatement per 40 CFR 112.7.
(H2/C1)
- CONCERN:** Record requirements for hazardous material movement transfers and
(PT.10-1) shipment are not specified for Argonne National Laboratory-West
(H2/C2) supply.
- CONCERN:** A comprehensive surveillance or audit plan has not been developed
(PT.11-1) for packaging and transportation at Argonne National Laboratory-
(H2/C2) West.

4.5.2.10 Nuclear Criticality Safety

- CONCERN:** The nuclear criticality safety program does not have Argonne
(CS.1-1) National Laboratory-West sitewide policy and procedures to
(H3/C2) provide guidance and quality assurance for responsibilities and practices within the divisions.
- CONCERN:** There is no Argonne National Laboratory upper-level management
(CS.1-2) plan that addresses the future needs for and availability of
(H2/C2) nuclear criticality safety resources to effectively support the safety requirements of all Argonne National Laboratory-West facilities.
- CONCERN:** There is no Argonne National Laboratory-West formal requirement
(CS.4-1) for thorough periodic review of all Criticality Hazards Control
(H2/C2) Statements, including the analyses supporting limits and controls.

CONCERN: A criticality accident alarm system is not installed in the Zero
(CS.5-1) Power Physics Reactor assembly cell in accordance with DOE 5480.5
(H1/C1) and ANSI 8.3-1986.

CONCERN: Argonne National Laboratory-West criticality accident alarm
(CS.5-2) systems are not tested at least monthly for radiation response,
(H2/C2) as recommended by ANSI 8.3-1986.

4.5.2.11 Security/Safety Interface

CONCERN: Argonne National Laboratory-West does not have a formal system
(SS.1-1) for tracking to resolution action items resulting from safety
(H3/C2) reviews of security projects.

4.5.2.12 Experimental Activities

CONCERN: No formal procedures, directives, or guides are in place that
(EA.3-1) clearly delineate the role of an independent environment, safety
(H2/C1) and health function in the design, review, or conduct of
experiments within the Engineering Research Divisions of Argonne
National Laboratory-West, as required by DOE 5480.5 and
DOE 5482.1B.

4.5.2.13 Site/Facility Safety Review

CONCERN: The Argonne National Laboratory Office of Nuclear Safety, in its
(FR.3-1) role of independent review and appraisal, does not report to a
(H3/C1) level of management sufficiently high to assure necessary
corrective actions, as required by DOE 5480.5 and DOE 5480.6.

CONCERN: The independent review and appraisal system does not ensure
(FR.4-1) review of the overall operation of nonnuclear and low-hazard
(H2/C1) facilities to assure environment, safety, and health coverage, as
required by DOE 5482.1B.

CONCERN: Annual operating reviews of reactors and nonreactor nuclear
(FR.4-2) facilities do not fully address all areas of environment, safety,
(H2/C1) and health, as required by DOE 5482.1B.

CONCERN: Triennial appraisals of the site/facility safety review system do
(FR.5-1) not fully address environment, safety, and health coverage, as
(H3/C1) required by DOE 5482.1B.

CONCERN: There is no Argonne National Laboratory-West sitewide program to
(FR.6-1) gather, evaluate, and trend operating experience data to improve
(H3/C2) safety and reliability.

4.5.2.14 Radiological Protection

- CONCERN:**
(RP.1-1)
(H2/C1) Argonne National Laboratory-West has not fully delineated authorities, responsibilities, and conduct of operations for radiation protection to effectively implement a radiation protection program, as required by DOE 5482.1B.
- CONCERN:**
(RP.1-2)
(H2/C1) The Argonne National Laboratory-West has not maintained adequate surveillance of the implementation of DOE 5480.11 to assure compliance with its requirements, as required by DOE 5700.6B.
- CONCERN:**
(RP.1-3)
(H2/C1) The Argonne Area Office has not maintained adequate surveillance of the implementation of DOE 5480.11 to assure compliance with its requirements, as required by DOE 5700.6B.
- CONCERN:**
(RP.2-1)
(H2/C1) Internal audits of Argonne National Laboratory-West Radiation Protection Program do not meet requirements of DOE 5480.11 and DOE 5482.1B for an independent review of all of the elements of the program.
- CONCERN:**
(RP.3-1)
(H3/C1) Procedures and radiation safety documentation are not all readily available and comprehensive, as required by DOE 5480.11.
- CONCERN:**
(RP.3-2)
(H2/C1) Controlled and radiation areas are not consistently posted using the terminology and including the information specified by DOE 5480.11.
- CONCERN:**
(RP.5-1)
(H2/C1) The use of multiple dosimeters and the manner in which they are worn do impact the accuracy with which personnel radiation exposures can be determined, as required by the Argonne National Laboratory-West Radiation Safety Manual.
- CONCERN:**
(RP.6-1)
(H2/C1) Internal radiation exposure controls in the Hot Fuel Examination Facility coffee preparation and dispensing area do not assure that internal exposures are minimized, as required by DOE 5480.11.
- CONCERN:**
(RP.7-1)
(H2/C1) The internal radiation dosimetry program does not include a quality control program or baseline data for all persons who may be exposed to airborne radioactivity and therefore is not in compliance with DOE 5480.11.
- CONCERN:**
(RP.8-1)
(H2/C1) Argonne National Laboratory-West Remote Area Gamma Monitoring System instrumentation has not been evaluated for radiological and nonradiological characteristics and extracameral effects, as required by ANSI N323.
- CONCERN:**
(RP.8-2)
(H2/C1) Not all fixed and portable radiological protection instruments used at Argonne National Laboratory-West are not calibrated, response or operability checked, as required by the Environment, Safety, and Health Manual, ANSI N323, and DOE 5480.11. (Also see concern QV.5-2.)

- CONCERN:** Not all of the Argonne National Laboratory-West air monitor
(RP.9-1) systems, through location and calibration, ensure reliable
(H2/C1) estimates of air activity for radiological control purposes, as
required by ANSI N317-1980 and DOE 5480.11. (Also see
Concern QV.5-2.)
- CONCERN:** The minimum detection capability of the hand and foot monitors
(RP.10-1) used throughout Argonne National Laboratory-West has not been
(H2/C1) determined, as required by Section 5.3.2 of ANSI N317-1980.
- CONCERN:** The radiation monitoring and contamination control program does
(RP.10-2) not ensure by trending, monitoring, and calculations, that
(H2/C1) radiation exposures are minimized, as required by DOE 5480.11.
- CONCERN:** Argonne National Laboratory-West does not have a formally
(RP.11-1) structured, auditable program with established milestones to
(H2/C1) ensure that radiation exposures are maintained as low as
reasonably achievable, as required by DOE 5480.11.
- CONCERN:** Records related to radiation exposure are not readily available
(RP.12-1) in accordance with DOE 5480.11 and are not transferred to storage
(H3/C1) in accordance with DOE 1324.2A.

4.5.2.15 Personnel Protection

- CONCERN:** A line management safety program complemented by health and
(PP.1-1) safety oversight and support have not been fully developed and
(H2/C1) implemented, as required by DOE 5480.1B and DOE 5480.4.
- CONCERN:** Coordination and distribution of health and safety resources
(PP.1-2) between Argonne National Laboratory-West divisions and the
(H2/C2) Safety, Environment, and Safeguards department has not been
established to ensure effective oversight, support, and hazard
control.
- CONCERN:** Lockout/tagout procedures are not uniform across the Argonne
(PP.2-1) National Laboratory-West and do not comply with 29 CFR 1910.147,
(H1/C1) regarding lockout and key control, among others.
CAT. II
- CONCERN:** The respiratory protection program is not in compliance with
(PP.2-2) 29 CFR 1910.134, 29 CFR 1926.58, and ANSI Z88.2 regarding
(H1/C1) respirator selection, fit testing, maintenance, storage, and
protection factors, among others.
- CONCERN:** Argonne National Laboratory-West confined space entry procedures
(PP.2-3) do not comply with DRAFT 29 CFR 1910.146 and ANSI Z117.1-1989,
(H1/C1) regarding permit issuance, rescue provisions, training, and
classification, among others.

CONCERN: Numerous health and safety policies, procedures, requirements, and guidelines addressing such items as occupational noise, laser safety, hazard communication, personal protective equipment, carcinogens, hazard control, and quality control are not in conformance with regulations, are not applied and enforced, or are not available, as required by DOE 5480.1B, DOE 5480.4, DOE 5480.10, and Occupational Safety and Health Administration regulations.

(PP.2-4)
(H1/C1)

CONCERN: The health and safety functions of the Argonne National Laboratory-West Safety, Environment, and Safeguards department, line management, and division health and safety personnel are not coordinated to apply a systematic program to address health and safety issues.

(PP.3-1)
(H2/C2)

CONCERN: An effective work control program addressing health and safety hazards is not applied at Argonne National Laboratory-West, as required by DOE 5480.19, DOE 5480.1B, and Occupational Safety and Health Administration regulations, such as 29 CFR 1910.147 for lockout and 29 CFR 1910.210 for machine guarding.

(PP.3-2)
(H1/C1)
CAT. II

CONCERN: Management of asbestos materials and conduct of abatement activities are not performed in a manner to control exposures and prevent building contamination, contrary to DOE 5480.1B, DOE 5480.10, 29 CFR 1926.58, and Environmental Protection Agency guidelines.

(PP.3-3)
(H1/C1)
CAT. II

CONCERN: Effective programs are not in place to identify, evaluate, monitor, and control credible chemical, physical, and safety hazards, as required by DOE 5480.10, DOE 5480.1B, DOE 5480.4, and Occupational Safety and Health Administration regulations.

(PP.4-1)
(H1/C1)

CONCERN: The Construction Contractor Safety Program is not fully implemented into work controls to enforce safety requirements and to identify and control hazards, as required by DOE 5480.9 and DOE 5480.19.

(PP.4-2)
(H1/C1)

CONCERN: Argonne National Laboratory-West does not have a program to provide employees with safety and health training, including confined space entry, use of personal protective equipment, use of lasers, and others, as required by DOE 5480.4, DOE 5480.20, and various Occupational Safety and Health Administration regulations.

(PP.5-1)
(H2/C1)

4.5.2.16 Worker Safety and Health (OSHA) Compliance

CONCERN: Argonne National Laboratory-West does not fully comply with 29 CFR 1926.58, "Asbestos, Tremolite, Anthophyllite, and Actinolite."

(WS.3-1)
(H1/C1)

CONCERN: Argonne National Laboratory-West does not fully comply with
(WS.4-1) 29 CFR 1910.145, "Specifications for Accident Prevention Signs
(H1/C1) and Tags," in that tags are incorrectly used and safety signs are
not posted, as required.

CONCERN: Argonne National Laboratory-West does not fully comply with
(WS.4-2) 29 CFR 1910 Subpart O, "Machinery and Machine Guarding."
(H1/C1)

CONCERN: Argonne National Laboratory-West does not fully comply with
(WS.4-3) 29 CFR 1910 Subpart S, "Electrical."
(H1/C1)

CONCERN: Argonne National Laboratory-West does not fully comply with
(WS.4-4) 29 CFR 1910.147, "Control of Hazardous Energy (lockout/tagout)."
(H1/C1) Employees were exposed to imminent danger in the event of a
CAT. I startup of the diesel generator.

CONCERN: Argonne National Laboratory-West does not fully comply with
(WS.5-1) 29 CFR 1926 Subpart K, "Electrical."
(H1/C1)

CONCERN: Argonne National Laboratory-West does not fully comply with
(WS.6-1) 29 CFR 1910.1200, Hazard communication.
(H1/C1)

4.5.2.17 Fire Protection

CONCERN: Formal communication and interaction mechanisms are not
(FP.1-2) established between Argonne National Laboratory-West and the DOE
(H2/C2) Field Office, Idaho, Fire Department.

CONCERN: A formal fire hazard analysis report does not exist for Argonne
(FP.3-1) National Laboratory-West.
(H3/C2)

CONCERN: There are no backup water supply and pump system to minimize
(FP.4-1) damage to the Integral Fast Reactor Program, as required by
(H2/C1) DOE 5480.7 and DOE 6430.1A.

CONCERN: The DOE Field Office, Idaho, Fire Department Station 2 does not
(FP.6-1) have the ability to promptly terminate and mitigate the effects
(H1/C2) of a structural fire at Argonne National Laboratory-West, as
recommended by DOE 5480.7.

CONCERN: Fire inspections of the entire Argonne National Laboratory-West
(FP.7-1) facility do not meet requirements of DOE 5480.7.
(H2/C1)

CONCERN: Argonne National Laboratory-West fire fighting water supply
(FP.7-2) distribution systems do not meet requirements of DOE 6430.1A.
(H2/C1)

4.8.3 Selected Contractors, INEL

4.8.3.1 Categorization of Concerns

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
OA.1-1	2	1
OA.1-2	2	2
OA.1-3	2	2
OA.1-4	2	2
OA.1-5	2	2
OA.1-6	2	2
OA.1-7	2	2
OA.1-8	2	1
OA.1-9	2	2
OA.1-10	2	2
OA.2-1	2	1
OA.2-2	2	2
OA.3-1	2	2
OA.3-2	2	2
OA.3-3	2	2
OA.4-1	2	2
OA.5-1	2	2
OA.5-2	2	2
OA.6-1	2	2
OA.6-2	2	2
OA.7-1	2	1
OA.7-2	2	1
OA.7-3	2	1
OA.7-4	2	2
OA.7-5	2	2
OA.8-1	2	2
OA.8-2	2	2
OA.8-3	2	2

**** Designates a Category I Concern**

*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
OA.8-4	2	2
OA.8-5	2	2
QV.1-1	3	1
QV.1-2	3	1
QV.1-3	2	1
QV.1-4	2	1
QV.1-5	2	1
QV.1-6	2	1
QV.1-7	2	2
QV.1-8	3	1
QV.1-9	3	1
QV.1-10	3	1
QV.1-11	2	1
QV.1-12	2	1
QV.1-13	3	1
QV.1-14	2	1
QV.4-1	2	1
QV.5-1	2	1
QV.7-1	2	1
QV.7-2	2	1
QV.7-3	2	1
QV.7-4	2	1
OP.2-1	2	1
OP.3-1	2	1
OP.3-2	2	1
OP.3-3	2	1
OP.3-4	2	2
OP.3-5	2	2

**** Designates a Category I Concern**
*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
OP.4-1	2	1
OP.4-2	2	1
OP.4-3	2	2
OP.4-4	2	2
MA.2-1	2	2
MA.2-2	2	2
MA.4-1	2	1
MA.5-1	2	2
MA.7-1	2	1
MA.8-1	2	2
TC.1-1	2	2
TC.1-2	2	2
TC.1-3	2	2
TC.1-4	2	2
TC.3-1	2	1
TC.4-1	2	2
TC.4-2	2	1
TC.4-3	2	1
TC.5-1	2	1
TC.7-1	3	2
TC.9-1	2	1
TC.9-2	2	2
TC.10-1	2	2
TC.11-1	2	2
AX.1-1	2	2
AX.1-2	2	2
AX.1-3	2	2

**** Designates a Category I Concern**

*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
AX.1-4	2	2
AX.2-1	2	2
AX.2-2	2	2
AX.3-1	2	2
AX.3-2	3	2
AX.3-3	2	1
AX.5-1	2	2
AX.5-2	2	2
AX.5-3	2	1
AX.5-4	2	2
AX.6-1	2	2
AX.6-2	2	2
EP.1-1	2	1
EP.1-2	2	1
EP.1-3	2	1
EP.1-4	2	1
EP.1-5	2	1
EP.1-6	2	1
EP.1-7	2	1
EP.1-8	2	1
EP.2-1	2	1
EP.2-2	2	1
EP.2-3	2	1
EP.2-4	2	1
EP.2-5	2	1
EP.2-6	2	1
EP.2-7	2	1
EP.2-8	2	1
EP.3-1	2	1

**** Designates a Category I Concern**
*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
EP.3-2	2	1
EP.3-3	2	1
EP.3-4	2	1
EP.4-1	2	1
EP.4-2	2	1
EP.4-3	2	1
EP.5-1	2	1
EP.5-2	2	1
EP.5-3	2	1
EP.5-4	2	1
EP.5-5	2	1
EP.6-1	2	1
EP.6-2	2	1
EP.6-3	2	1
EP.7-1	2	1
TS.1-1	2	2
TS.2-1	2	1
TS.2-2	2	1
TS.2-3	2	2
TS.2-4	2	2
TS.3-1	2	2
TS.3-2	2	2
TS.3-3	2	2
TS.3-4	2	2
TS.3-5	2	1
TS.4-1	2	2
PT.1-1	2	1
PT.1-2	2	2

**** Designates a Category I Concern**

*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
PT.1-3	2	1
PT.1-4	2	1
PT.1-5	2	2
PT.1-6	2	2
PT.1-7	2	2
PT.1-8	2	2
PT.2-1	2	1
PT.2-2	2	1
PT.2-3	2	1
PT.2-4	2	1
PT.3-1	2	1
PT.4-1	2	1
PT.4-2	2	1
PT.4-3	2	1
PT.6-1	2	1
PT.6-2	2	2
PT.6-3	2	1
PT.6-4	2	1
PT.6-5	2	1
PT.6-6	3	1
PT.8-1	2	1
PT.9-1	2	1
PT.9-2	2	1
PT.10-1	2	1
PT.11-1	2	1
PT.11-2	2	1
PT.11-3	2	1
PT.12-1	3	1
FR.1-1	2	1

**** Designates a Category I Concern**

*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
FR.4-1	3	1
FR.4-2	2	1
FR.4-3	3	2
FR.4-4	2	1
FR.5-1	2	1
FR.5-2	2	1
FR.5-3	2	1
RP.1-1	2	1
RP.1-2	2	1
RP.1-3	2	1
RP.1-4	2	1
RP.2-1	2	1
RP.2-2	2	1
RP.2-3	2	2
RP.3-1	2	1
RP.3-2	2	1
RP.3-3	2	1
RP.3-4	2	2
RP.3-5	2	1
RP.3-6	2	1
RP.3-7	2	1
RP.4-1	2	1
RP.4-2	2	1
RP.5-1	2	1
RP.6-1	2	1
RP.7-1	2	1
RP.7-2	3	1
RP.7-3	3	1
RP.8-1	2	1

**** Designates a Category I Concern**
*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
RP.8-2	2	1
RP.8-3	2	1
RP.8-4	2	2
RP.9-1	2	1
RP.9-2	2	1
RP.10-1	2	1
RP.10-2	2	1
RP.11-1	2	1
RP.11-2	2	1
RP.11-3	2	1
RP.11-4	2	2
RP.12-1	3	1
RP.12-2	3	1
RP.12-3	2	1
PP.1-1	2	2
PP.1-2	2	1
PP.1-3	2	1
PP.1-4	2	2
PP.3-1	2	2
PP.3-2	2	1
PP.3-3	2	2
PP.4-1*	1	1
PP.4-2	1	1
PP.4-3	2	1
PP.4-4*	1	2
PP.4-5	2	1
PP.4-6	2	1
PP.4-7*	1	1
PP.4-8	1	1

**** Designates a Category I Concern**

*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
PP.4-9	1	1
PP.4-10	2	1
PP.5-1	2	2
PP.5-2	2	1
PP.5-3	1	1
PP.5-4	2	1
WS.3-1*	1	1
WS.3-2	2	1
WS.4-1	1	1
WS.4-2	1	1
WS.4-3*	1	1
WS.4-4*	1	1
WS.4-5*	1	1
WS.4-6*	1	1
WS.4-7*	1	1
WS.4-8	1	1
WS.5-1**	1	1
WS.5-2*	1	1
WS.5-3*	1	1
WS.5-4*	1	1
WS.5-5*	1	1
WS.5-6*	1	1
WS.5-7*	1	1
WS.5-8*	2	1
WS.5-9**	1	1
WS.5-10*	1	1
WS.5-11*	1	1
WS.5-12	1	1
WS.5-13*	1	1

**** Designates a Category I Concern**

*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
WS.5-14*	1	1
FP.1-1	2	1
FP.2-1	1	1
FP.2-2	2	1
FP.2-3	2	1
FP.7-1	2	1
FP.7-2	2	1
FP.7-3	2	1
FP.7-4	2	1
AS.1-1	2	1
AS.1-2	2	1
AS.1-3	2	1
AS.3-1	2	3
FS.1-1	2	1
FS.2-1	1	1
FS.3-1	2	1
FS.3-2	2	1
FS.3-3	1	1
FS.3-4	1	1
FS.3-5	1	1
FS.5-1	2	1
FS.5-2	2	1
FS.5-3	2	1
FS.5-4	3	1
FS.6-1	2	1
FS.6-2	2	1
FS.7-1	2	1

**** Designates a Category I Concern**

*** Designates a Category II Concern**

<u>Concerns Number</u>	<u>Potential Hazard Level</u>	<u>Compliance Level</u>
FS.7-2	2	2
FS.7-3	2	1
FS.7-4	1	1
FS.7-5	2	1

- ** Designates a Category I Concern**
*** Designates a Category II Concern**

4.8.3.2 Tabulation of Concerns

4.5.3.1 Organization and Administration

- CONCERN: Responsibilities for safety oversight positions at Morrison
(OA.1-1) Knudsen-Ferguson of Idaho Company and subcontractors are not
(H2/C1) defined, as required by DOE 5480.19.
- CONCERN: Morrison Knudsen-Ferguson of Idaho Company safety oversight of
(OA.1-2) construction work is not effective.
(H2/C2)
- CONCERN: Morrison Knudsen-Ferguson of Idaho Company Management is not
(OA.1-3) taking advantage of safety meetings to communicate information on
(H2/C2) safe practices and safety concerns to workers.
- CONCERN: The method of safety communications between Protection Technology
(OA.1-4) of Idaho, Inc. management and the guard force at posts has not
(H2/C2) been evaluated.
- CONCERN: The DOE Field Office, Idaho, is not ensuring that Protection
(OA.1-5) Technology of Idaho, Inc. facility concerns are promptly and
(H2/C2) effectively addressed by EG&G Idaho, Inc.
- CONCERN: Safety meetings as a means of communicating safety concerns from
(OA.1-6) management to the working levels are not being implemented at the
(H2/C2) Radiological and Environmental Sciences Laboratory.
- CONCERN: The DOE Field Office, Idaho, is not ensuring that Radiological
(OA.1-7) and Environmental Science Laboratory facility concerns are
(H2/C2) promptly and effectively addressed by EG&G Idaho, Inc.
- CONCERN: Rockwell-INEL has assigned some safety responsibility to a staff
(OA.1-8) person in violation of DOE 5480.5.
(H2/C1)
- CONCERN: The scope of internal audits at Rockwell-INEL is not broad enough
(OA.1-9) to include all valid safety concerns.
(H2/C2)
- CONCERN: Rockwell-INEL does not make optimum use of opportunities to
(OA.1-10) communicate and emphasize safety related matters with employees.
(H2/C2)
- CONCERN: Protection Technology of Idaho, Inc. does not have an independent
(OA.2-1) safety overview system, as required by DOE 5480.1A.
(H2/C1)
- CONCERN: There is a potential at Rockwell-INEL for Independent Safety
(OA.2-2) Review Committee members to act on matters for which they have a
(H2/C2) line responsibility, which is a conflict of interest.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company has not established
(OA.3-1) specific measurable safety objectives that can be used by
(H2/C2) management to improve safety performance.

CONCERN: Protection Technology of Idaho, Inc. has not established
(OA.3-2) realistic measurable safety goals nor assigned them to
(H2/C2) organizational units to be used for the improvement of safety
performance.

CONCERN: Specific measurable safety objectives are not established and
(OA.3-3) used to improve safety performance at Rockwell-INEL.
(H2/C2)

CONCERN: Protection Technology of Idaho, Inc. has not published a formal
(OA.4-1) policy statement that safety has priority over programmatic
(H2/C2) considerations.

CONCERN: Duplication of deficiency tracking systems at Morrison Knudsen-
(OA.5-1) Ferguson of Idaho Company can lead to difficulties in
(H2/C2) establishing priorities.

CONCERN: Monitoring and assessment of the safety of Radiological and
(OA.5-2) Environmental Sciences Laboratory operation is not effective.
(H2/C2)

CONCERN: Personnel planning and qualification activities at Morrison
(OA.6-1) Knudsen-Ferguson of Idaho Company are deficient.
(H2/C2)

CONCERN: Protection Technology of Idaho, Inc. personnel planning and
(OA.6-2) qualification activities are deficient.
(H2/C2)

CONCERN: Morrison Knudsen-Ferguson of Idaho Company document control
(OA.7-1) procedures do not ensure that valid documents are used to control
(H2/C1) work, as required by ASME NQA-1-1989.

CONCERN: The Protection Technology of Idaho, Inc. document control system
(OA.7-2) is deficient with regard to dating and approval of controlled
(H2/C1) documents and verification of removal of obsolete material from
controlled documents, as required by ASME NQA-1-1989.

CONCERN: Protection Technology of Idaho, Inc. does not comply with ASME
(OA.7-3) NQA-1-1989 with respect to identification and storage of vital
(H2/C1) records.

CONCERN: Radiological and Environmental Sciences Laboratory management has
(OA.7-4) little assurance that work is being performed in accordance with
(H2/C2) valid procedures.

- CONCERN:**
(OA.7-5)
(H2/C2) Auditing to ensure currency and validity of controlled documents and key drawings at Rockwell-INEL is deficient.
- CONCERN:**
(OA.8-1)
(H2/C2) A Fitness For Duty Program conforming to accepted industry practice is not in place at Morrison Knudsen-Ferguson of Idaho Company.
- CONCERN:**
(OA.8-2)
(H2/C2) There are no DOE requirements prohibiting substance abuse by DOE and contractor employees.
- CONCERN:**
(OA.8-3)
(H2/C2) A Fitness For Duty Program conforming to accepted industry practice is not completely in place at Protection Technology of Idaho, Inc.
- CONCERN:**
(OA.8-4)
(H2/C2) A Fitness For Duty Program meeting accepted industry practices does not exist at the Radiological and Environmental Sciences Laboratory.
- CONCERN:**
(OA.8-5)
(H2/C2) Rockwell-INEL assumes that Morrison Knudsen-Ferguson of Idaho Company personnel assigned to their facility are covered by a Fitness For Duty Program meeting accepted industry practices; however, they are not.

4.5.3.2 Quality Verification

- CONCERN:**
(QV.1-1)
(H3/C1) Morrison Knudsen-Ferguson of Idaho Company does not have a Quality Assurance Program that has been approved by DOE Field Office, Idaho, as required by ID 5700.6C and ID 4700.1.
- CONCERN:**
(QV.1-2)
(H3/C1) DOE Field Office, Idaho, was not responsive in reviewing the Morrison Knudsen-Ferguson of Idaho Company Quality Assurance Program, as required by ID 5700.6C and ID 4700.1.
- CONCERN:**
(QV.1-3)
(H2/C1) Morrison Knudsen-Ferguson of Idaho Company has not fully developed and implemented a quality program, which meets the requirements of DOE 5700.6B.
- CONCERN:**
(QV.1-4)
(H2/C1) Morrison Knudsen-Ferguson of Idaho Company does not have a quality program in place to ensure the implementation of the environmental, safety, and health compliance requirements of DOE 5700.6B.
- CONCERN:**
(QV.1-5)
(H2/C1) Morrison Knudsen-Ferguson of Idaho Company does not have a Quality Assurance Program to ensure independent verification of safety and health requirements of DOE 5700.6B and ID 5700.6c.
- CONCERN:**
(QV.1-6)
(H2/C1) Morrison Knudsen-Ferguson of Idaho Company has not addressed the formal quality assurance training requirements of DOE 5700.6B and DOE 5480.20.

CONCERN: Many of the elements required to support the Quality Assurance
(QV.1-7) Program are not being completed on schedule, as required by
(H2/C2) Morrison Knudsen-Ferguson of Idaho Company procedures.

CONCERN: Protection Technology of Idaho, Inc. does not have a Quality
(QV.1-8) Assurance Plan that has been reviewed and approved by the DOE
(H3/C1) Field Office, Idaho, as required by DOE 5700.6B, and ID 5700.6C.

CONCERN: The DOE Field Office, Idaho, has not reviewed and approved the
(QV.1-9) Protection Technology of Idaho, Inc. Quality Assurance Program,
(H3/C1) as required by ID 5700.6C and ID 4700.1.

CONCERN: The Protection Technology of Idaho, Inc. quality program is not
(QV.1-10) fully defined and implemented, as required by DOE 5700.6B.
(H3/C1)

CONCERN: Radiological and Environmental Sciences Laboratory has not
(QV.1-11) developed and implemented a quality program that meets the
(H2/C1) requirements of DOE 5700.6B.

CONCERN: Radiological and Environmental Sciences Laboratory does not have
(QV.1-12) a quality program in place to ensure the implementation of Safety
(H2/C1) and Health compliance requirements of DOE 5700.6B.

CONCERN: Rockwell-INEL does not have a Quality Assurance Plan which has
(QV.1-13) been reviewed and approved by DOE Field Office, Idaho, as
(H3/C1) required by ID 5700.6C and ID 4700.1.

CONCERN: The Rockwell-INEL quality program is not fully defined and
(QV.1-14) implemented, as required by DOE 5700.6B.
(H2/C1)

CONCERN: The calibration programs are not consistently implemented or
(QV.4-1) controlled at Radiological and Environmental Sciences Laboratory,
(H2/C1) as required by DOE 5700.6B and ASME NQA-1-1989.

CONCERN: Rockwell-INEL has not fully implemented the documents to define
(QV.5-1) the control of nonconforming materials, as required in
(H2/C1) DOE 5700.6B and ASME NQA-1-1989.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company does not have a formal
(QV.7-1) program for controlling special processes that relate to safety
(H2/C1) and health, as required by ASME NQA-1-1989.

CONCERN: Protection Technology of Idaho, Inc. does not have a formal
(QV.7-2) program for controlling special processes that relate to safety
(H2/C1) and health, as required by ASME NQA-1-1989.

CONCERN: Radiological and Environmental Sciences Laboratory does not have
(QV.7-3) a formal program for controlling special processes that relate to
(H2/C1) safety and health, as required by ASME NQA-1-1989.

CONCERN: Rockwell-INEL does not have a formal program for controlling

(QV.7-4)
(H2/C1) special processes that relate to safety and health, as required by ASME NQA-1-1989.

4.5.3.3 Operations

CONCERN: Implementation of conduct of operations at the Radiological and
(OP.2-1) Environmental Sciences Laboratory has not been extended to the
(H2/C1) working level, as required by DOE 5480.19.

CONCERN: A uniform system for issuing and reviewing operating procedures
(OP.3-1) is not employed at the Radiological and Environmental Sciences
(H2/C1) Laboratory, as required by DOE 5480.19.

CONCERN: No laboratory-wide system for effecting prompt or temporary
(OP.3-2) changes to management instructions or operating procedures exists
(H2/C1) at the Radiological Environmental Sciences Laboratory, as
required by DOE 5480.19.

CONCERN: Existing Rockwell-INEL documentation does not clearly require
(OP.3-3) periodic review of all Technical Procedures, as required by
(H2/C1) DOE 5480.19.

CONCERN: Document Change Requests are not incorporated into Rockwell-INEL
(OP.3-4) revised technical procedures promptly to meet the needs of the
(H2/C2) users.

CONCERN: Operational Safety Requirements are not incorporated into the
(OP.3-5) Rockwell-INEL operating procedures.
(H2/C2)

CONCERN: A complete lockout/tagout system is not in place for Protection
(OP.4-1) Technology of Idaho, Inc. facilities, as required by DOE 5480.19.
(H2/C1)

CONCERN: Caution tags are not used appropriately at the Radiological and
(OP.4-2) Environmental Sciences Laboratory, as required by DOE 5480.19.
(H2/C1)

CONCERN: Practices associated with operation of fume hoods at the
(OP.4-3) Radiological and Environmental Sciences Laboratory do not provide
(H2/C2) maximum available protection to workers.

CONCERN: Practices associated with the operation of fume hoods by
(OP.4-4) Rockwell-INEL do not provide maximum available protection to
(H2/C2) workers.

4.5.3.4 Maintenance

CONCERN: An effective system is not in place at the Radiological and
(MA.2-1) Environmental Sciences Laboratory to ensure that maintenance
(H2/C2) personnel check with the tenant before undertaking work.

CONCERN: Operational Safety Requirements are not incorporated into the
(MA.2-2) Rockwell-INEL maintenance documentation.
(H2/C2)

CONCERN: Post-maintenance testing performed by Rockwell-INEL does not meet
(MA.4-1) the requirements of DOE 4330.4A.
(H2/C1)

CONCERN: No seismic analysis has been performed to determine the need to
(MA.5-1) tie down heavy items at Rockwell-INEL facilities.
(H2/C2)

CONCERN: There is no formalized predictive maintenance program for the
(MA.7-1) Rockwell-INEL facilities, as required by DOE 4430.4A.
(H2/C1)

CONCERN: Pre-approved maintenance procedures are not employed by
(MA.8-1) Rockwell-INEL for complex recurring maintenance activities.
(H2/C2)

4.5.3.5 Training and Certification

CONCERN: Health and safety training for Morrison Knudsen-Ferguson of Idaho
(TC.1-1) Company workers is not based on a training needs analysis.
(H2/C2)

CONCERN: The detail contained in Morrison Knudsen-Ferguson of Idaho
(TC.1-2) Company lesson plans is insufficient to ensure quality training
(H2/C2) on a consistent basis.

CONCERN: The present staffing level for the DOE Field Office, Idaho,
(TC.1-3) Training and Development Branch does not support the development
(H2/C2) of a quality training program for the Radiological and
Environmental Sciences Laboratory and other branches.

CONCERN: The DOE Field Office, Idaho, training record system is out of
(TC.1-4) date and not being used as an effective management tool for
(H2/C2) assessing training needs or documenting training conducted for
the Radiological and Environmental Sciences Laboratory.

CONCERN: The Rockwell-INEL operator training program does not meet the
(TC.3-1) criteria of DOE 5480.20.
(H2/C1)

CONCERN: The scope of the Morrison Knudsen-Ferguson of Idaho Company
(TC.4-1) General Employee Training Program is insufficient for workers and
(H2/C2) others to recognize hazardous conditions or protective safety
tags.

CONCERN: Worker understanding of all safety and health information
(TC.4-2) presented in the Morrison Knudsen-Ferguson of Idaho Company
(H2/C1)

General Employee Training is not evaluated, as required by DOE 5480.20.

- CONCERN:
(TC.4-3)
(H2/C1) Rockwell-INEL does not evaluate the degree of trainee understanding of General Employee Training material, as required by DOE 5480.20.
- CONCERN:
(TC.5-1)
(H2/C1) Rockwell-INEL has not implemented a performance based maintenance training program for maintenance workers, as required by DOE 5480.20.
- CONCERN:
(TC.7-1)
(H3/C2) Morrison Knudsen-Ferguson of Idaho Company's lack of dedicated training classroom space inhibits the ability to conduct quality training.
- CONCERN:
(TC.9-1)
(H2/C1) The Rockwell-INEL Health Physics training program does not include classroom training, as required by DOE 5480.11.
- CONCERN:
(TC.9-2)
(H2/C2) Observed frisking practices do not demonstrate that the Rockwell-INEL Radiation Workers Training is effective.
- CONCERN:
(TC.10-1)
(H2/C2) Morrison Knudsen-Ferguson of Idaho Company does not provide training for managers, supervisors, and technical staff to broaden their knowledge and supervisory and management skills, as required by DOE 5480.19.
- CONCERN:
(TC.11-1)
(H2/C2) Radiological and Environmental Sciences Laboratory personnel may not be capable of performing required tasks during off-normal situations due to a lack of training and drills.

4.5.3.6 Auxiliary Systems

- CONCERN:
(AX.1-1)
(H2/C2) Protection Technology of Idaho, Inc. has no one with operating responsibility for their auxiliary systems to deal with EG&G Idaho, Inc. to ensure that the required tests are performed, that problems which arise are properly communicated and investigated, and that the safety status is known by the operating group.
- CONCERN:
(AX.1-2)
(H2/C2) Radiological and Environmental Sciences Laboratory Management does not recognize its operating responsibilities for the process ventilation system to ensure that the safety status of the system is known, and that safety problems are communicated to EG&G Idaho, Inc.

CONCERN: Rockwell-INEL does not have a system to report and evaluate minor events.
(AX.1-3)
(H2/C2)

CONCERN: Rockwell-INEL does not have a method of developing temporary procedures for auxiliary systems.
(AX.1-4)
(H2/C2)

CONCERN: The monitoring systems for Buildings TAN-629, TAN-679, and TAN-607A process ventilation stacks at Rockwell-INEL have features which inhibit reliable sampling, and no test has demonstrated that they will deliver a representative sample.
(AX.2-1)
(H2/C2)

CONCERN: No surveillance program is in effect to detect and measure age-related degradation of auxiliary systems at Rockwell-INEL.
(AX.2-2)
(H2/C2)

CONCERN: The Radiological and Environmental Sciences Laboratory has not implemented programs to minimize waste and to ship accumulated waste.
(AX.3-1)
(H2/C2)

CONCERN: Auxiliary system procedures at Rockwell-INEL contain sections for operations which have long been discontinued.
(AX.3-2)
(H3/C2)

CONCERN: The Rockwell-INEL waste management organization is not assigned complete responsibility for the waste system, as required by DOE 5480.5, Section 8.b.
(AX.3-3)
(H2/C1)

CONCERN: Protection Technology of Idaho, Inc. personnel do not have sufficient understanding of the firing range ventilation system or its testing requirements and cannot ensure that it is operating in a manner that will keep airborne pollutants below permissible limits.
(AX.5-1)
(H2/C2)

CONCERN: The need for gaseous effluent monitoring of fume hood ventilation systems at the Radiological and Environmental Sciences Laboratory has not been determined.
(AX.5-2)
(H2/C2)

CONCERN: Rockwell-INEL Operational Safety Requirements for Buildings TAN-629 and TAN-607-A do not contain all of the surveillances specified by the Safety Analysis Reports, as required by DOE 5480.5, and the surveillances are not being performed.
(AX.5-3)
(H2/C1)

CONCERN: Rockwell-INEL does not have documentation to demonstrate that high-efficiency particulate air filter tests provide accurate results.
(AX.5-4)
(H2/C2)

CONCERN: The testing of the diesel generators for Building TAN-629 and TAN-679 does not conform to the requirements of NFPA 110 for emergency generators, and Rockwell-INEL documents do not clearly define whether or not these are emergency generators.
(AX.6-1)
(H2/C2)

CONCERN: Rockwell-INEL does not test for formation of gum-like compounds
(AX.6-2) in diesel fuel stored for the TAN-629 and TAN-679 diesel
(H2/C2) generators.

4.5.3.7 Emergency Preparedness

CONCERN: The Morrison Knudsen-Ferguson of Idaho Company Emergency
(EP.1-1) Preparedness Program is not in accordance with DOE 5500.1B,
(H2/C1) DOE 5500.3A, and DOE 5500.10.

CONCERN: The DOE Field Office, Idaho, does not perform the required annual
(EP.1-2) appraisal of the Morrison Knudsen-Ferguson of Idaho Company
(H2/C1) emergency preparedness program, as required by DOE 5500.1B and
DOE 5500.3A.

CONCERN: The Protection Technology of Idaho, Inc., Emergency Preparedness
(EP.1-3) Program is not fully compliant and established in accordance with
(H2/C1) DOE 5500.1B, DOE 5500.3A, and DOE 5500.10.

CONCERN: The Radiological and Environmental Sciences Laboratory Emergency
(EP.1-4) Preparedness Program is not in accordance with DOE 5500.1B,
(H2/C1) DOE 5500.3A, and DOE 5500.10.

CONCERN: DOE Field Office, Idaho, has not performed the required annual
(EP.1-5) appraisal of the Radiological and Environmental Sciences
(H2/C1) Laboratory Emergency Preparedness Program, as required by
DOE 5500.3A.

CONCERN: The Rockwell-INEL Emergency Preparedness Program is not in
(EP.1-6) accordance with DOE 5500.1B, DOE 5500.3A, and DOE 5500.10.
(H2/C1)

CONCERN: Rockwell-INEL has not developed an effective internal emergency
(EP.1-7) preparedness assessment program that allows timely and effective
(H2/C1) tracking to ensure compliance with DOE 5500.1B and DOE 5500.3A.

CONCERN: DOE Field Office, Idaho, has not performed the annual appraisal
(EP.1-8) of the Rockwell-INEL Emergency Preparedness Program, as required
(H2/C1) by DOE 5500.3A.

CONCERN: The Morrison Knudsen-Ferguson of Idaho Company Emergency Plan
(EP.2-1) does not meet requirements established in DOE 5500.1B and
(H2/C1) DOE 5500.3A.

CONCERN: Implementing procedures for the Morrison Knudsen-Ferguson of
(EP.2-2) Idaho Company Emergency Preparedness Program are not in
(H2/C1) compliance with DOE 5500.1B and DOE 5500.3A.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company has not performed a
(EP.2-3) job task analysis of their Emergency Response organization to
(H2/C1) identify roles and responsibilities as directed by DOE 5500.3A.

CONCERN: The Radiological and Environmental Sciences Laboratory emergency plan does not meet requirements established in DOE 5500.1B and DOE 5500.3A.
(EP.2-4)
(H2/C1)

CONCERN: The Radiological and Environmental Sciences Laboratory procedures do not meet requirements contained in DOE 5500.1B, DOE 5500.2B, and DOE 5500.3A.
(EP.2-5)
(H2/C1)

CONCERN: The Rockwell-INEL Plant Protection/Emergency Action Plan does not meet the requirements established in DOE 5500.1B and DOE 5500.3A.
(EP.2-6)
(H2/C1)

CONCERN: The Rockwell-INEL technical procedures for emergency preparedness do not meet requirements contained in DOE 5500.1B and DOE 5500.3A.
(EP.2-7)
(H2/C1)

CONCERN: The DOE Field Office, Idaho, draft Idaho National Engineering Laboratory Emergency Plan is not in compliance with DOE 5500.1B and DOE 5500.3A.
(EP.2-8)
(H2/C1)

CONCERN: Morrison Knudsen-Ferguson of Idaho Company Emergency Preparedness Training Program is not properly documented and maintained in compliance with the requirements in DOE 5500.1B and DOE 5500.3A.
(EP.3-1)
(H2/C1)

CONCERN: The Protection Technology of Idaho, Inc. Emergency Training Program is not properly documented and maintained in compliance with the requirements of DOE 5500.1B and DOE 5500.3A.
(EP.3-2)
(H2/C1)

CONCERN: The Radiological and Environmental Sciences Laboratory Emergency Preparedness Training Program is not properly documented and maintained, as required by DOE 5500.1B and DOE 5500.3A.
(EP.3-3)
(H2/C1)

CONCERN: The Rockwell-INEL Emergency Preparedness Training Program is not been properly documented and maintained, as required by DOE 5500.1B and DOE 5500.3A.
(EP.3-4)
(H2/C1)

CONCERN: The Morrison Knudsen-Ferguson of Idaho Company Emergency Preparedness Exercise and Drill Program is not in compliance with DOE 5500.1B and DOE 5500.3A.
(EP.4-1)
(H2/C1)

CONCERN: Development, conduct, and critique efforts of the Radiological and Environmental Sciences Laboratory Emergency Preparedness Exercise and Drill Program are not in compliance with DOE 5500.1B and DOE 5500.3A.
(EP.4-2)
(H2/C1)

CONCERN: The Rockwell-INEL Emergency Preparedness Exercise and Drill Program is not well documented, tracked, upgraded, and maintained in compliance with DOE 5500.1B and DOE 5500.3A.
(EP.4-3)
(H2/C1)

CONCERN: The emergency response facilities, equipment, and resources at Morrison Knudsen-Ferguson of Idaho Company are not in compliance with DOE 5500.1B, DOE 5500.2B, and DOE 5500.3A.
(EP.5-1)
(H2/C1)

CONCERN: Morrison Knudsen-Ferguson of Idaho Company Emergency Notification
(EP.5-2) System does not comply with DOE 5500.1B.
(H2/C1)

CONCERN: Radiological and Environmental Sciences Laboratory emergency
(EP.5-3) response assets are not in compliance with DOE 5500.1B and
(H2/C1) DOE 5500.3A.

CONCERN: The Rockwell-INEL emergency response facilities, equipment, and
(EP.5-4) resources are not in compliance with DOE 5500.1B, DOE 5500.2B,
(H2/C1) DOE 5500.3A.

CONCERN: Rockwell-INEL's Emergency Notification and Alerting System does
(EP.5-5) not comply with DOE 5500.1B and DOE 5500.3A.
(H2/C1)

CONCERN: Radiological and Environmental Sciences Laboratory has not
(EP.6-1) established the appropriate systems, procedures, and/or program
(H2/C1) to effectively assess, notify, and recommend appropriate
emergency actions in accordance with DOE 5500.1B and DOE 5500.3A.

CONCERN: Rockwell-INEL has not developed Emergency Action Levels, and
(EP.6-2) their emergency classifications are not in accordance with
(H2/C1) DOE 5500.1B and DOE 5500.3A.

CONCERN: Rockwell-INEL Emergency Action Plan does not meet the
(EP.6-3) requirements for notifications and reporting of emergencies in
(H2/C1) accordance with DOE 5500.1B and DOE 5500.3A.

CONCERN: Radiological and Environmental Sciences Laboratory emergency
(EP.7-1) preparedness personnel protection procedures do not comply with
(H2/C1) DOE 5500.1B and DOE 5500.3A.

4.5.3.8 Technical Support

CONCERN: Analyses at the Radiological and Environmental Sciences
(TS.1-1) Laboratory are not being scheduled to meet the users' needs.
(H2/C2)

CONCERN: The Safety Analysis document for Building CF-638 does not
(TS.2-1) accurately describe the current configuration and operations, and
(H2/C1) its format and content are not consistent with the guidance of
ID 5481.1A, Chapter I, Section 4.

CONCERN: The Radiological and Environmental Sciences Laboratory does not
(TS.2-2) have a Safety Analysis document, as required by DOE 5481.1B and
(H2/C1) by ID 5481.1A, paragraphs 6.e.(3) and 6.e.(4), for
Building CF-690.

CONCERN: The Safety Analysis Reports and Operational Safety Requirements
(TS.2-3) for Rockwell-INEL operations are deficient in technical content
(H2/C2) and are not fully consistent with current operations.

CONCERN: Rockwell-INEL operating, maintenance, and testing procedures do not clearly identify which items are related to Operational Safety Requirements compliance.
(TS.2-4)
(H2/C2)

CONCERN: Protection Technology of Idaho, Inc., has not completed Tenant Interface Agreements with the site service contractor of the Idaho National Engineering Laboratory facilities it uses to clearly define specific safety-related physical and activity interfaces.
(TS.3-1)
(H2/C2)

CONCERN: The Radiological and Environmental Sciences Laboratory does not have either a written policy or procedure to direct readiness reviews.
(TS.3-2)
(H2/C2)

CONCERN: The Radiological and Environmental Sciences Laboratory has not prepared Tenant Interface Agreements with the site service contractor of Buildings CF-638 and CF-690 to clearly define specific safety-related physical and activity interfaces.
(TS.3-3)
(H2/C2)

CONCERN: Rockwell-INEL has a substantial backlog of key drawings that are not in as-built status.
(TS.3-4)
(H2/C2)

CONCERN: Rockwell-INEL does not ensure that relevant requirements of DOE 5480.4 and DOE 6430.1A are incorporated into engineering designs produced by its staff.
(TS.3-5)
(H2/C1)

CONCERN: Rockwell-INEL Engineering is not monitoring the performance of safety-related equipment.
(TS.4-1)
(H2/C2)

4.5.3.9 Packaging and Transportation

CONCERN: Morrison Knudsen-Ferguson of Idaho Company does not have packaging and transportation policies or implementing procedures, as required by DOE 5480.3, Section 10.
(PT.1-1)
(H2/C1)

CONCERN: Protection Technology of Idaho, Inc. management does not support the packaging and transportation activity.
(PT.1-2)
(H2/C2)

CONCERN: Protection Technology of Idaho, Inc. does not provide its hazardous materials shipping coordinators with training that is necessary to develop the level of expertise required by DOE 5480.19, Chapter 5.
(PT.1-3)
(H2/C1)

CONCERN: The Radiological and Environmental Sciences Laboratory shipping coordinators do not receive changes to operating procedures mandated by DOE through such mechanisms as Immediate Actions Directives and Memoranda, as required by DOE 5480.3, Section 6, or from lessons learned at other DOE installations.
(PT.1-4)
(H2/C1)

CONCERN: Radiological and Environmental Sciences Laboratory management
(PT.1-5) support and direction for packaging and transportation activities
(H2/C2) is not documented and demonstrated.

CONCERN: The lack of support in the packaging and transportation area
(PT.1-6) delays removal of hazardous materials from the Radiological and
(H2/C2) Environmental Sciences Laboratory.

CONCERN: There is no defined system or process to resolve technical
(PT.1-7) questions or review findings in packaging and transportation
(H2/C2) activities at the Radiological and Environmental Sciences
Laboratory.

CONCERN: The divisions of responsibilities between Rockwell-INEL and EG&G
(PT.1-8) Idaho, Inc. for packaging and transportation are not clearly
(H2/C2) defined and documented.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company has no initial or
(PT.2-1) recurrent training for packaging and transportation personnel, as
(H2/C1) required by 49 CFR 171.825 and by the EG&G Idaho, Inc. Hazardous
Materials Transportation Manual.

CONCERN: The Radiological and Environmental Sciences Laboratory does not
(PT.2-2) document training and qualification requirements for individuals
(H2/C1) involved in the packaging and transportation of hazardous
materials, as required by ID 5480.3, Chapter II.

CONCERN: The Radiological and Environmental Sciences Laboratory does not
(PT.2-3) provide its hazardous materials shipping coordinators with
(H2/C1) training that is necessary to provide the level of expertise
required by DOE 5480.19, Chapter 5.

CONCERN: Rockwell-INEL does not specify training and qualification for
(PT.2-4) packaging and transportation personnel, as required by ID 5480.3,
(H2/C1) Chapter II.

CONCERN: There is no Radiological and Environmental Sciences Laboratory
(PT.3-1) program for audit and appraisal of packaging and transportation
(H2/C1) activities, as required by DOE 5480.3, Section 9, and
DOE 5700.6B.

CONCERN: ID 5480.3 is not consistent with DOE 5480.3 and other packaging
(PT.4-1) and transportation requirements specified in Title 10 and
(H2/C1) Title 49 regulations and DOE Memoranda.

CONCERN: DOE Field Office, Idaho, does not conduct a formal review of the
(PT.4-2) Hazardous Materials Transportation Manual, as required by
(H2/C1) DOE 5480.19, Section 6.e.3 and Chapter I.C.1.

CONCERN: The EG&G Idaho, Inc. Hazardous Materials Transportation Manual is
(PT.4-3) not consistent with DOE 5480.3, ID 5480.3, or other instructions
(H2/C1) of the DOE.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company does not have
(PT.6-1) procedures for the movement of hazardous wastes, as required by
(H2/C1) DOE 5480.3, Section 10.

CONCERN: Hazardous waste instructions by the Morrison Knudsen-Ferguson of
(PT.6-2) Idaho Company to its subcontractors are not consistent.
(H2/C2)

CONCERN: Morrison Knudsen-Ferguson of Idaho Company hazardous waste
(PT.6-3) procedures suggest the use of vermiculite which is contrary to
(H2/C1) the Energy Research and Development Administration, Immediate
Action Directive No. 44.

CONCERN: Packaging and transportation operating procedures for Protection
(PT.6-4) Technology of Idaho, Inc., are not documented, reviewed, and
(H2/C1) approved, as required by DOE 5480.3, Section 10.

CONCERN: Movements and transfers of hazardous materials at the
(PT.6-5) Radiological and Environmental Sciences Laboratory are made under
(H2/C1) procedures that do not have sufficient detail to ensure
compliance with DOE 5480.3.

CONCERN: Qualification of key Rockwell-INEL personnel involved in loading
(PT.6-6) and handling operations is not verified before each operation to
(H3/C1) ensure compliance with DOE 5480.3 and ID 5480.3.

CONCERN: Rockwell-INEL does not have current and approved hazardous
(PT.8-1) materials packaging and transportation procedures for transfers
(H2/C1) within the Test Area North fence, as required in DOE 5700.6B.

CONCERN: Incoming packages of hazardous materials to the Radiological and
(PT.9-1) Environmental Sciences Laboratory are not checked for breakage
(H2/C1) and/or leakage, nor are vehicles checked before release from the
facility, as required in DOE 1540.1, Chapter II, Section 7.

CONCERN: Shipments of radioactive materials to Rockwell-INEL are being
(PT.9-2) received without being surveyed by Health Physics for possible
(H2/C1) contamination, as required in DOE 1540.1, Chapter II, Section 7.

CONCERN: The Radiological and Environmental Sciences Laboratory training
(PT.10-1) records on packaging and transportation qualification are not
(H2/C1) complete and accurate, making it impossible to audit for
compliance to DOE 5480.3 and 5480.19, Chapter V.

CONCERN: Morrison Knudsen-Ferguson of Idaho company is not conducting
(PT.11-1) periodic safety appraisals/audits of packaging and transportation
(H2/C1) activities, as required by DOE 5480.3.

- CONCERN:** The DOE Field Office, Idaho, is not conducting periodic safety appraisals/audits of packaging and transportation activities at Morrison Knudsen-Ferguson of Idaho Company, as required by DOE 5480.3.
(PT.11-2)
(H2/C1)
- CONCERN:** Packaging and transportation activities at the Radiological and Environmental Sciences Laboratory are not included in the routine periodic safety appraisals by the DOE Field Office, Idaho, as required by DOE 5480.3 and DOE 5482.1B, Section 8.
(PT.11-3)
(H2/C1)
- CONCERN:** Rockwell-INEL compliance documentation demonstrating the appropriate design, procurement, use, and maintenance of packaging used for shipping product materials is not maintained and readily retrievable, as required by DOE 1540.2, Chapter 1.
(PT.12-1)
(H3/C1)

4.5.3.10 Security/Safety Interface

No concerns were identified in this technical area.

4.5.3.11 Site/Facility Safety Review

- CONCERN:** An independent safety review and appraisal function for the Radiological and Environmental Sciences Laboratory that meets the requirements of DOE 5482.1B, Section 9.d., does not exist.
(FR.1-1)
(H2/C1)
- CONCERN:** The Protection Technology of Idaho, Inc. internal appraisal system is not readily auditable, as required by DOE 5482.1B, paragraph 9.d.(2)(c), with respect to the appraisal scope.
(FR.4-1)
(H3/C1)
- CONCERN:** Periodic internal safety reviews required by DOE 5482.1B, Section 9.d, are not being performed for the Radiological and Environmental Sciences Laboratory.
(FR.4-2)
(H2/C1)
- CONCERN:** The Rockwell-INEL procedures for annual internal facility safety appraisals required by DOE 5480.5, paragraphs 9.g and 9.h, do not preclude individuals who review safety questions from participating in the appraisals.
(FR.4-3)
(H3/C2)
- CONCERN:** Rockwell-INEL has not performed annual appraisals of the Specific Manufacturing Capability operations, as required by DOE 5480.5, paragraph 9.g.
(FR.4-4)
(H2/C1)
- CONCERN:** Protection Technology of Idaho, Inc., management has not reviewed the internal appraisal system every 3 years or less, as required by DOE 5482.1B, paragraph 9.d.(2)(d).
(FR.5-1)
(H2/C1)
- CONCERN:** Triennial reviews of the internal environmental, safety, and health appraisal system required by DOE 5482.1B are not being performed for the Radiological and Environmental Sciences Laboratory.
(FR.5-2)
(H2/C1)

CONCERN: Rockwell-INEL management has not reviewed the performance of the
(FR.5-3) internal independent review and appraisal program at least every
(H2/C1) 3 years, as required by DOE 5480.5 and DOE 5482.1B.

4.5.3.12 Radiological Protection

CONCERN: Not all of the elements necessary for implementation of the
(RP.1-1) Protection Technology of Idaho Inc., Radiation Protection Program
(H2/C1) are provided, as required by DOE 5480.11.

CONCERN: Radiological and Environmental Sciences Laboratory does not
(RP.1-2) ensure effective radiological protection, as required by
(H2/C1) DOE 5480.11.

CONCERN: The Health Physics Technician at the Radiological and
(RP.1-3) Environmental Sciences Laboratory is not trained and qualified in
(H2/C1) accordance with DOE 5480.11 and DOE 5480.20.

CONCERN: Radiological and Environmental Sciences Laboratory has not
(RP.1-4) formally defined site service contractor-user responsibilities to
(H2/C1) ensure the Health Physics Program will be efficiently
implemented, as required by DOE 5480.11.

CONCERN: The Radiological and Environmental Sciences Laboratory does not
(RP.2-1) conduct internal audits of the Radiation Protection Program, as
(H2/C1) required by DOE 5482.1B and DOE 5480.11.
Rockwell-INEL

CONCERN: The Rockwell-INEL Internal Radiation Protection Audit Program
(RP.2-2) does not meet the independence and/or expertise requirements of
(H2/C1) DOE 5482.1B and DOE 5480.11.

CONCERN: Rockwell-INEL Health Physics is not included in the investigation
(RP.2-3) and review of off-normal incidents and unusual occurrences
(H2/C2) involving radiation and radioactive materials.

CONCERN: The Radiological and Environmental Sciences Laboratory document
(RP.3-1) control system does not ensure maintenance of current procedures
(H2/C1) in the workplace, as required by DOE 5480.19 and the Radiological
and Environmental Sciences Laboratory Manual.

CONCERN: Radiological posting at Radiological and Environmental Sciences
(RP.3-2) Laboratory does not meet the requirements of DOE 5480.11.
(H2/C1)

CONCERN: The procedures for radiological work at Radiological and
(RP.3-3) Environmental Sciences Laboratory do not effectively implement
(H2/C1) the requirements of DOE 5480.11.

CONCERN: Radiological and Environmental Sciences Laboratory does not ensure that sources are inventoried and leak tested semi-annually, as required by ESB-HP.3, Radioactive Material Storage and Accountability.
(RP.3-4)
(H2/C2)

CONCERN: Radiological and Environmental Sciences Laboratory does not ensure personnel will be made aware of radiological conditions so as to maintain exposure as low as reasonably achievable, as required by DOE 5480.11.
(RP.3-5)
(H2/C1)

CONCERN: The Radiological and Environmental Sciences Laboratory does not ensure that Radiological Science Branch technicians are properly trained on the use of radiation survey instruments, as required by DOE 5480.11.
(RP.3-6)
(H2/C1)

CONCERN: Procedures for some Rockwell-INEL radiation protection activities are not provided, as required by DOE 5480.11.
(RP.3-7)
(H2/C1)

CONCERN: Radiological and Environmental Sciences Laboratory does not ensure that radiation survey instruments of the required sensitivity, type, and dose rate range will be used for entry to the Calibration Laboratory irradiation area, as required by DOE 5480.11.
(RP.4-1)
(H2/C1)

CONCERN: Radiological and Environmental Sciences Laboratory, contrary to DOE 5480.11, does not ensure that unauthorized entry to Building CF-638 and the irradiation rooms will be prevented.
(RP.4-2)
(H2/C1)

CONCERN: Rockwell-INEL has not verified that its radiation dosimetry meets the DOE Laboratory Accreditation Program criteria, as required by DOE 5480.11.
(RP.5-1)
(H2/C1)

CONCERN: Rockwell-INEL personnel may enter an airborne radioactivity area without airborne concentration measurements being made to assure that the selected respiratory protection is appropriate, as required by DOE 5480.11 and ANSI Z-88.2 (1980).
(RP.6-1)
(H2/C1)

CONCERN: Radiological and Environmental Sciences Laboratory does not ensure that potential internal personnel exposures are measured, as required by DOE 5480.11.
(RP.7-1)
(H2/C1)

CONCERN: The quality assurance of the analysis and the data collected for Rockwell-INEL internal dose evaluations does not ensure accurate internal dose determination, as required by DOE 5480.11.
(RP.7-2)
(H3/C1)

CONCERN: Analytical results, required to assure control of radiation exposures to Rockwell-INEL personnel, are not provided in a timely manner, as required by DOE 5480.11.
(RP.7-3)
(H3/C1)

CONCERN: Radiological and Environmental Sciences Laboratory does not have
(RP.8-1) an effective program to ensure calibration of portable survey
(H2/C1) instruments in use, as required by DOE 5480.11 and
ANSI N323-1978.

CONCERN: The Radiological and Environmental Sciences Laboratory, contrary
(RP.8-2) to ANSI N323-1978, does not perform operability checks of
(H2/C1) radiation survey instruments.

CONCERN: The Rockwell-INEL testing and calibration of radiation
(RP.8-3) measurement instruments does not meet the requirements of
(H2/C1) ANSI N323-1978.

CONCERN: The radiation detection portal monitors used by Rockwell-INEL at
(RP.8-4) Building TAN-676, Gate House, are not sufficiently sensitive to
(H2/C2) provide contamination control.

CONCERN: The Radiological and Environmental Sciences Laboratory does not
(RP.9-1) routinely measure airborne radioactivity concentrations to which
(H2/C1) personnel are exposed, as required by DOE 5480.11.

CONCERN: The Rockwell-INEL radiological air sampling program does not
(RP.9-2) ensure timely and representative airborne activity measurements
(H2/C1) in the workplace, as required by DOE 5480.11.

CONCERN: Radiological and Environmental Sciences Laboratory, contrary to
(RP.10-1) DOE 5480.11, does not have an effective personnel contamination
(H2/C1) monitoring program.

CONCERN: Radiological and Environmental Sciences Laboratory does not have
(RP.10-2) an effective program to assure the timely identification and
(H2/C1) control of radioactive contamination, as required by DOE 5480.11.

CONCERN: Morrison Knudsen-Ferguson of Idaho Company does not have an As
(RP.11-1) Low as Reasonably Achievable Program, as required by DOE 5480.11.
(H2/C1)

CONCERN: The Radiological and Environmental Sciences Laboratory does not
(RP.11-2) have an As Low As Reasonably Achievable Program, as required by
(H2/C1) DOE 5480.11.

CONCERN: Plans and programs to document the Rockwell-INEL As Low as
(RP.11-3) Reasonably Achievable Program were not available, as required by
(H2/C1) DOE 5480.11.

CONCERN: The Rockwell-INEL configuration control system does not ensure
(RP.11-4) health physics organization review and evaluation as recommended
(H2/C2) in DOE Publication PNL-6577.

CONCERN: Radiological and Environmental Sciences Laboratory, contrary to
(RP.12-1) DOE 1324.2A and ASME NQA-1-1989, does not ensure health physics
(H3/C1) records are properly stored, protected from loss, and
disposed.

CONCERN: The Radiological and Environmental Sciences Laboratory does not
(RP.12-2) ensure documentation of the conditions of individual radiation
(H3/C1) exposure, as required by ANSI N13.6-1966 (R-1972).

CONCERN: Documentation of radiation surveys and sample counting at
(RP.12-3) Rockwell-INEL does not meet the requirements of ANSI N13.6-1966
(H2/C1) (R-1972).

4.5.3.13 Personnel Protection

CONCERN: Morrison Knudsen-Ferguson of Idaho Company has been assigned
(PP.1-1) health protection responsibilities for construction activities by
(H2/C2) DOE Field Office, Idaho, but does not have the professional
resources to effectively fulfill them.

CONCERN: Industrial hygiene services provided to Protection Technology of
(PP.1-2) Idaho, Inc. do not meet the requirements of DOE 5480.10 and
(H2/C1) DOE 5480.4.

CONCERN: Engineering controls are not always preferred over personnel
(PP.1-3) protective equipment in Rockwell-INEL operations, as required by
(H2/C1) 29 CFR 1910.95, Subpart B, 1910.1000, Subpart E, and ANSI Z88.2.

CONCERN: The Rockwell-INEL Hazardous Work Permit approval process does not
(PP.1-4) ensure review of hazardous work by the appropriate safety
(H2/C2) disciplines.

CONCERN: Industrial Hygiene monitoring results are not always provided to
(PP.3-1) Morrison Knudsen-Ferguson of Idaho Company subcontractors in a
(H2/C2) timely manner to facilitate employee protection.

CONCERN: Radiological and Environmental Sciences Laboratory is not
(PP.3-2) monitoring for personnel exposure to chemicals, as required by
(H2/C1) DOE 5480.10 and DOE 5483.1A.

CONCERN: Rockwell-INEL has not informed its employees of the presence of a
(PP.3-3) listed carcinogen in the sanitary water system or provided an
(H2/C2) alternative water source.

CONCERN: Morrison Knudsen-Ferguson has not taken effective corrective
(PP.4-1) action (such as curtailing construction activities) to correct
(H1/C1) serious health or safety conditions, as required by DOE 5483.1A.
CAT. II

CONCERN: Contrary to the requirements of DOE 5484.1, Morrison Knudsen-
(PP.4-2) Ferguson has not notified the DOE Field Office, Idaho, of the
(H1/C1)

need to investigate a series of occupational illnesses that constitute a Type B occurrence.

CONCERN:
(PP.4-3)
(H2/C1)

The Protective Technology of Idaho, Inc. Respiratory Protection Program does not meet the requirements of ANSI Z88.2.

CONCERN:
(PP.4-4)
(H1/C2)
CAT. II

The potential for buildup of shock sensitive explosives in perchloric acid duct work at Radiological and Environmental Sciences Laboratory has not been effectively addressed.

CONCERN:
(PP.4-5)
(H2/C1)

Contrary to the requirements of DOE 5484.1, Rockwell-INEL has not notified DOE Field Office, Idaho, of the need for a Type B investigation of a series of occupational illnesses.

CONCERN:
(PP.4-6)
(H2/C1)

DOE Field Office, Idaho, personnel have not enforced the investigation requirements of DOE 5484.1.

CONCERN:
(PP.4-7)
(H1/C1)
CAT. II

The Rockwell-INEL Respiratory Protection Program does not ensure the quality of breathing air and does not comply with ANSI Z88.2.

CONCERN:
(PP.4-8)
(H1/C1)

Rockwell-INEL employees who use and maintain the laser systems are not protected by all of the elements required by ANSI Z135.1-1986.

CONCERN:
(PP.4-9)
(H1/C1)

Rockwell-INEL has no program to perform health monitoring or to maintain records of previous health monitoring, as required by DOE 5483.1A, DOE 5480.10 and ANSI Z88.2.

CONCERN:
(PP.4-10)
(H2/C1)

Rockwell-INEL has no effective program to ensure employee participation in identifying health and safety health concerns, as required by DOE 5483.1A.

CONCERN:
(PP.5-1)
(H2/C2)

The Morrison Knudsen-Ferguson of Idaho, Company Construction Material Safety Data Sheet list does not ensure that workers are not exposed to hazardous materials.

CONCERN:
(PP.5-2)
(H2/C1)

Use of chemical carcinogens at Radiological and Environmental Sciences Laboratory is not in compliance with the requirements of DOE 5480.10 in that carcinogen control areas have not been established.

CONCERN:
(PP.5-3)
(H1/C1)

The Rockwell-INEL Hazard Communications Program required by 29 CFR 1200 does not effectively inform employees of the hazards to which they are exposed.

CONCERN:
(PP.5-4)
(H2/C1)

Rockwell-INEL employees are permitted to consume food and beverages in areas exposed to toxic materials in violation of 29 CFR 1910.141.

4.5.3.14 Worker Safety and Health (OSHA) Compliance

- CONCERN:** Hearing conservation and ventilation control at Protection
(WS.3-1) Technology of Idaho, Inc. do not comply with 29 CFR 1910.94 and
(H1/C1) 1910.95, Occupational Health and Environmental Control.
CAT. II
- CONCERN:** Training for persons exposed to airborne lead at Protection
(WS.3-2) Technology of Idaho, Inc. does not comply with 29 CFR 1910.1025,
(H2/C1) Toxic and Hazardous Substances.
- CONCERN:** Machines operating at the Radiological and Environmental Sciences
(WS.4-1) Laboratory are not guarded according to 29 CFR 1910.212,
(H1/C1) Subpart O.
- CONCERN:** Electrical installations at Radiological and Environmental
(WS.4-2) Sciences Laboratory do not comply with 29 CFR 1910.303, 1910.304,
(H1/C1) and 1910.305 of Subpart S.
- CONCERN:** Machine guarding at Rockwell-INEL does not comply with
(WS.4-3) 29 CFR 1910.212 and 1910.213, Machinery and Machine Guarding.
(H1/C1)
CAT. II
- CONCERN:** Forklift and crane operations at Rockwell-INEL do not comply with
(WS.4-4) 29 CFR 1910.178 and 1910.179, Materials Handling and Storage.
(H1/C1)
CAT. II
- CONCERN:** Guarding of energized electrical equipment at Rockwell-INEL does
(WS.4-5) not comply with 29 CFR 1910.303, Electrical.
(H1/C1)
CAT. II
- CONCERN:** Flammable liquid storage at Rockwell-INEL does not comply with
(WS.4-6) 29 CFR 1910.106, Hazardous Materials.
(H1/C1)
CAT. II
- CONCERN:** Asbestos sampling and employee notification at Rockwell-INEL do
(WS.4-7) not comply with 29 CFR 1910.1001, Toxic and Hazardous Substances.
(H1/C1)
CAT. II
- CONCERN:** The DOE Field Office, Idaho, electrical equipment was not free
(WS.4-8) from recognized hazards that are likely to cause death or serious
(H1/C1) physical harm to employees, as required by 29 CFR 1910.303.

CONCERN: Ladders and scaffolding in use on Morrison Knudsen-Ferguson of
(WS.5-1) Idaho Company managed construction sites do not comply with
(H1/C1) 29 CFR 1926.450 and 1926.451, Ladders and Scaffolding.
CAT. I

CONCERN: Construction housekeeping at Morrison Knudsen-Ferguson of Idaho
(WS.5-2) Company construction sites does not comply with 29 CFR 1926.25,
(H1/C1) General Safety and Health Provisions.
CAT. II

CONCERN: Unprotected reinforcement bars at Morrison Knudsen-Ferguson of
(WS.5-3) Idaho Company construction sites expose employees to impalement
(H1/C1) hazards in violation of 29 CFR 1926.701, Concrete and Masonry
CAT. II Construction.

CONCERN: Electrical disconnect access and labeling at Morrison Knudsen-
(WS.5-4) Ferguson of Idaho Company construction sites do not comply with
(H1/C1) 29 CFR 1926.400 and 1926.403, Electrical.
CAT. II

CONCERN: Respirator use at Morrison Knudsen-Ferguson of Idaho Company
(WS.5-5) construction sites does not comply with 29 CFR 1926.103,
(H1/C1) Respiratory Protection.
CAT. II

CONCERN: Training for persons responsible for identifying and correcting
(WS.5-6) safety and health issues on Morrison Knudsen-Ferguson of Idaho
(H1/C1) Company construction sites does not comply with 29 CFR 1926.20,
CAT. II General Safety and Health Provisions.

CONCERN: Training for employees in the recognition and avoidance of
(WS.5-7) hazardous conditions on Morrison Knudsen-Ferguson of Idaho
(H1/C1) Company construction sites does not comply with 29 CFR 1926.21,
CAT. II General Safety and Health Provisions.

CONCERN: Fire extinguishers at the Morrison Knudsen-Ferguson of Idaho
(WS.5-8) Company construction site do not comply with 29 CFR 1926.150,
(H2/C1) Fire Protection and Prevention.
CAT. II

CONCERN: Missing and defective railings and walkways expose workers at
(WS.5-9) Morrison Knudsen-Ferguson of Idaho Company construction sites in
(H1/C1) violation of 29 CFR 1926.500, Floor and Wall Openings, and
CAT. I Stairways.

CONCERN: Welding, cutting, and compressed gas cylinder storage and use at
(WS.5-10) Morrison Knudsen-Ferguson of Idaho Company construction sites
(H1/C1) does not comply with 29 CFR 1926.350, Welding and Cutting.
CAT. II

- CONCERN:** Propane storage and dispensing at Morrison Knudsen-Ferguson of Idaho Company construction sites does not comply with 29 CFR 1910.110, as incorporated by 29 CFR 1926, Subpart H, Hazardous Materials.
(WS.5-11)
(H1/C1)
CAT. II
- CONCERN:** Load ratings on floors at Morrison Knudsen-Ferguson of Idaho Company construction sites do not comply with 29 CFR 1926.250, Materials Handling Use and Disposal.
(WS.5-12)
(H1/C1)
- CONCERN:** The inspection and guarding of pits and excavations at Morrison Knudsen-Ferguson of Idaho Company construction sites does not comply with 29 CFR 1926.651, Excavation.
(WS.5-13)
(H1/C1)
CAT. II
- CONCERN:** Fall prevention devices are not always used at Morrison Knudsen-Ferguson of Idaho Company construction sites in violation of 29 CFR 1926.103, Personal Protective Equipment and Life Saving Equipment.
(WS.5-14)
(H1/C1)
CAT. II

4.5.3.15 Fire Protection

- CONCERN:** Morrison Knudsen-Ferguson of Idaho Company has not established an organization for fire protection activities, as required by DOE 5840.7.
(FP.1-1)
(H2/C1)
- CONCERN:** There is no program in place to ensure that Morrison Knudsen-Ferguson of Idaho Company facilities include NFPA 101, "Life Safety Code," requirements, at the Fuel Processing Restoration construction site, as required by DOE 5480.7.
(FP.2-1)
(H1/C1)
- CONCERN:** Audible building alarm omission at Protection Technology of Idaho, Inc. Buildings CF-608 and CF-609 presents a life safety problem.
(FP.2-2)
(H2/C1)
- CONCERN:** Rockwell-INEL's Building TAN-628 contains high hazard storage without adequate exits and an inaccurate posted evacuation plan required by DOE 5480.7.
(FP.2-3)
(H2/C1)
- CONCERN:** There are no recorded fire protection equipment tests at Protection Technology of Idaho, Inc. facilities, as required by DOE 5480.7.
(FP.7-1)
(H2/C1)
- CONCERN:** There are no recorded fire protection equipment tests at Radiological and Environmental Sciences Laboratory facilities, as required by DOE 5480.7.
(FP.7-2)
(H2/C1)
- CONCERN:** In-depth fire protection engineering surveys have not been made for Radiological and Environmental Sciences Laboratory Buildings CF-690 and CF-638, as required by DOE 5480.7.
(FP.7-3)
(H2/C1)

CONCERN: In-depth fire protection engineering surveys have not been made
(FP.7-4) for major Rockwell-INEL facilities, as required by DOE 5480.7.
(H2/C1)

4.5.3.16 Aviation Safety

CONCERN: The hangar has not been maintained by EG&G Idaho, Inc. to permit
(AS.1-1) the sheltering of the government owned helicopters. This is a
(H2/C1) violation of DOE Property Management Regulation 109-28.001-51(a)
requiring adequate housing of government property.

CONCERN: DOE Field Office, Idaho has failed to ensure prompt resolution of
(AS.1-2) hangar deficiencies and has not fulfilled its independent review
(H2/C1) responsibilities, as required by ID 1120.A3, Part 1, Section 1.

CONCERN: Contrary to ID 5480.1, Chapter XIII, DOE Field Office, Idaho does
(AS.1-3) not perform aviation safety oversight.
(H2/C1)

CONCERN: Protection Technology of Idaho, Inc.'s excessive helicopter
(AS.3-1) engine problems are a potential threat to flight safety.
(H2/C3)

4.5.3.17 Firearms Safety

CONCERN: Radiological and Environmental Sciences Laboratory employees
(FS.1-1) handle firearms, but the Radiological and Environmental Sciences
(H2/C1) Laboratory has not established a firearms safety program, as
required by DOE 5480.16.

CONCERN: Protection Technology of Idaho, Inc. weapons handling procedures
(FS.2-1) are not consistently implemented and do not comply with
(H1/C1) DOE 5480.16.

CONCERN: The Radiological and Environmental Sciences Laboratory does not
(FS.3-1) conduct annual appraisals of firearms safety, as required by
(H2/C1) DOE 5480.16.

CONCERN: DOE Field Office, Idaho does not conduct annual appraisals of
(FS.3-2) Radiological and Environmental Sciences Laboratory firearms
(H2/C1) safety, as required by DOE 5480.16.

CONCERN: Argonne National Laboratory-West does not have procedures or a
(FS.3-3) bullet containment device for handling commercial truck drivers
(H1/C1) weapons, as required by DOE 5480.16.

CONCERN: The bullet containment device presently in use at the weapons
(FS.3-4) issuance and weapons cleaning room at Argonne National
(H1/C1) Laboratory-West would not contain a round discharged into it, as
required by DOE 5480.16.

CONCERN: EG&G Idaho, Inc. procedures for handling commercial truck drivers

(FS.3-5)
(H1/C1) weapons are not in place, and a bullet containment device is not used, as required by DOE 5480.16.

CONCERN:
(FS.5-1)
(H2/C1) Protection Technology of Idaho, Inc.'s T-2 road is open for security and necessary operations vehicle traffic; however, a road barrier is not provided, as required by Army Regulation 385-63, Chapter 2, Section 2-6.

CONCERN:
(FS.5-2)
(H2/C1) Argonne National Laboratory-West firearms instructors have not received special training in the handling of gunshot wounds, as required by DOE 5480.16.

CONCERN:
(FS.5-3)
(H2/C1) Live ammunition is allowed in the Argonne National Laboratory-West weapons cleaning area, contrary to DOE 5480.16.

CONCERN:
(FS.5-4)
(H3/C1) Argonne National Laboratory-West does not have written approval from the DOE Field Office, Chicago for the location and use of their live-fire range, as required by DOE 5480.16.

CONCERN:
(FS.6-1)
(H2/C1) Protection Technology of Idaho, Inc.'s blank ammunition magazines are not distinctively color-coded, as required by DOE 5480.16.

CONCERN:
(FS.6-2)
(H2/C1) Weapons involved in Argonne National Laboratory-West exercises are not clearly marked as exercise weapons, as required by DOE 5480.16.

CONCERN:
(FS.7-1)
(H2/C1) The Protection Technology of Idaho, Inc. explosives storage Magazines, Buildings B21-608 and CF-609, are not placarded with fire hazard symbols and personnel limits, nor maintained in compliance with the DOE Explosives Safety Manual, Chapter II.

CONCERN:
(FS.7-2)
(H2/C2) The deteriorated physical condition of the Protection Technology of Idaho, Inc. Magazine CF-639 may cause an injury to personnel or damage to stored items. This is a violation of DOE Property Management Regulation 109-28.001-51(a).

CONCERN:
(FS.7-3)
(H2/C1) Protection Technology of Idaho, Inc. Magazines B21-608 and B21-609 are not grounded, as required by Chapter II, 7.1 of the DOE Explosives Safety Manual.

CONCERN:
(FS.7-4)
(H1/C1) The Protection Technology of Idaho, Inc. ammunition handling and storage program does not comply with DOE 5480.16.

CONCERN:
(FS.7-5)
(H2/C1)

The EG&G Idaho, Inc. explosives storage magazines are not placarded with fire hazard symbols and personnel limits, nor maintained in compliance with Chapter II of the DOE Explosives Safety Manual.

4.9 SAFETY AND HEALTH SUBTEAM COMPOSITION AND AREAS OF RESPONSIBILITY

Safety and Health Subteam

<u>Area of Responsibility</u>	<u>Name/Organization</u>
EH Senior Manager	Richard J. Serbu Office of Safety Appraisals Department of Energy
Safety and Health Team Leader	Bal M. Mahajan Office of Safety Appraisals Department of Energy
Team Advisor	Bernard KoKenge Private Consultant
TSA No. 1 Team Leader	Bal M. Mahajan Office of Safety Appriasals Department of Energy
TSA No. 2 Team Leader	Charles Grua Office of Safety Appriasals Department of Energy
TSA No. 3 Team Leader	Albert D. Morrongiello Office of Safety Appriasals Department of Energy
TSA No. 4 Team Leader	Joseph A. Hopkins, Jr. Office of Safety Appriasals Department of Energy

4.9.1 TSA Team No. 1 EG&G Idaho, Inc.

<u>Area of Responsibility</u>	<u>Name/Organization</u>
Organization and Administration	Leon H. Meyer The LHM Corporation
Quality Verification	Howard F. Rew, Jr. Westinghouse Hanford Company
Operations	J. R. Barkman Oak Ridge Chemical Consultants, Inc. Thomas L. Van Witbeck TOMA Enterprises
Maintenance	Thomas L. Van Witbeck TOMA Enterprises Shelby J. Turner Westinghouse Hanford Company
Training and Certification	Thomas J. Mazour Private Consultant Denelle E. Friar Westinghouse Hanford Company
Auxiliary Systems	Woodson B. Daspit W.B.D. Consulting Corporation
Emergency Preparedness	James A. Martin Evergreen Innovations, Inc.
Technical Support	William J. Zielenbach Battelle Columbus O. Clinton Kolar Evergreen Innovations, Inc.
Packaging and Transportation	John W. Arendt John W. Arendt Associates, Inc.

<u>Area of Responsibility</u>	<u>Name/Organization</u>
Nuclear Criticality Safety	O. Clinton Kolar Evergreen Innovations, Inc.
Security/Safety Interface	Thomas J. Mazour Private Consultant

Experimental Activities

Edward J. Vallario
Applied Safety Technology, Inc.

Site/Facility Safety Review

Mayhue A. Bell
Private Consultant

Radiation Protection

Edward J. Vallario
Applied Safety Technology, Inc.

Bette L. Vallario
Applied Safety Technology, Inc.

Personnel Protection

Ronald E. Alexander
Environmental Management Associates

Workers Safety and Health
(OSHA) Compliance

Melvin E. Cassady
National BioSystems, Inc.

(See Section 4.9.4 for other Worker
Safety and Health (OSHA) Compliance
team members supporting this TSA Team)

Fire Protection

Richard J. Kobelski
Westinghouse Hanford Company

John S. Dale (Part-time)
Westinghouse Hanford Company

Bryan L. Stemen (Part-time)
Westinghouse Materials Company of Ohio

Area of Responsibility**Name/Organization**

Medical Services

Laurent P. LaRoche
Private ConsultantPaul B. Mossman
Private Expert**Report Support, Observers, and Liaison**

Coordinators

Barbara J. McKenzie
Lawrence Livermore National
LaboratoryStephanie G. West
Westinghouse Materials Company of Ohio

Technical Editor

L. Warren
Private Consultant

EH-40 Liaison for Medical Services

Kenneth O. Matthews
Office of Occupational Medicine
Department of Energy**4.9.2 TSA Team No. 2 Argonne National Laboratory-West**

Organization and Administration

Lorin C Brinkerhoff
Private Consultant

Quality Verification

John H. Johnson
Private Consultant

Operations

Robert W. Powell
Private ConsultantLance Cole
WASTREN, Inc.

Maintenance

Ernest W. Johnson
Private Consultant

Area of Responsibility**Name/Organization**

Training and Certification and
Security/Safety Interface

Robert W. Tayloe, Jr.
Battelle Columbus Operations

Auxiliary Systems

David M. Johnson
WASTREN, Inc.

Emergency Preparedness

George P. Bailey
Advanced Systems Technology

Technical Support

Phillip J. Grant
WASTREN, Inc.

Packaging and Transportation

Anthony N. Fasano
WASTREN, Inc.

Nuclear Criticality Safety and
Site/Facility Safety Review

Glen A. Whan
Private Consultant

Experimental Activities

Leo G. Faust
Battelle Pacific Northwest Laboratory

Radiological Protection

Carl M. Stroud
Battelle Pacific Northwest Laboratory

Donald J. Perrotti
Private Consultant

Diane K. Larsen (Trainee)
Health Physics Program Division
Department of Energy

Personnel Protection

Gary J. Gottfried
Apex Environmental

Worker Safety and Health
(OSHA) Compliance

Jack J. Janda
Comprehensive Environmental Health
Services, Inc.

(See Section 4.9.4 for other Worker
Safety and Health (OSHA) Compliance
Team Members supporting this TSA
team.)

Area of Responsibility**Name and Organization**

Fire Protection

George E. Weldon
Private Consultant

Report Support, Observers, and Liaisons

Coordinators	Olga G. Jones Lawrence Livermore National Laboratory
	Dorothy A. Kerr Princeton Area Office Department of Energy Field Office, Chicago
Technical Editor	Janis G. Ramey Private Consultant

4.9.3 TSA Team No. 3 Selected Contractors, INEL

Organization and Administration	Andrew J. Pressesky Private Consultant
Quality Verification	Robert L. Peterson Viking Systems International
Operations and Maintenance	James A. Buckham Private Consultant
Training and Certification	Floyd L. McManus COMEX Corporation
Auxiliary Systems	James A. Cox Private Consultant
Emergency Preparedness	Scott L. Davis Department of Energy Field Office, Oak Ridge
Technical Support and Site/Facility Safety Review	J. Kenneth Anderson Private Consultant
Packaging and Transportation	Robert M. Jefferson Private Consultant

Area of Responsibility

Name/Organization

Security/Safety Interface and Personnel Protection	Linda Munson Evergreen Innovations, Inc.
Radiation Protection	Leo H. Munson Battelle Pacific Northwest Laboratory
	Raymond Panciera General Dynamics Services Company
Workers Safety and Health	Richard H. Hayes

(OSHA) Compliance

Hayes Environmental Services, Inc.

(See Section 4.9.4 for other Worker Safety and Health (OSHA) Compliance team members supporting this TSA team.)

Fire Protection

Richard Handler, Jr.
Private Consultant

Aviation Safety

Robert D. Jones
Office of Quality and Safety
Department of Energy

Reuben P. Prichard
RPX, Incorporated

Firearms Safety

James D. Snodgrass
Martin Marietta Energy Systems, Inc.

Earl A. Maxie
Portsmouth Enrichment Office
Department of Energy Field Office,
Oak Ridge

Thomas M. McCoig
Martin Marietta Energy Systems, Inc.

Area of Responsibility**Name/Organization****Report Support, Observers, and Liaison**

Coordinators

Rita A. Bieri
Los Alamos National LaboratoryNancy L. Sanderson
EG&G Rocky Flats, Inc.

Technical Editor

Mark E. Baldwin
Martin Marietta Energy Systems, Inc.**4.9.4 TSA Team No. 4 Worker Safety and Health (OSHA) Compliance****Support for TSA Team #1 (EG&G Idaho, Inc.)**

Worker Safety

Melvin E. Cassady
National BioSystems, Inc.David M. Drury
Private ConsultantRonald D. Eimer
Sandia National LaboratoriesWilliam R. Murphy
Murphy & AssociatesJacqueline D. Rogers
Office of Health Physics/Industrial
Hygiene Programs
Department of Energy

Area of Responsibility**Name/Organization****Support for TSA Team #2 (Argonne National Laboratory-West)**

Worker Safety

Jack J. Janda
Comprehensive Environmental Health
Services, Inc.Leonard J. Owens
Nevada Operations Office
Department of Energy**Support for TSA Team #3 (Selected Contractors, INEL)**

Worker Safety

Richard H. Hayes
Hayes Environmental Services, Inc.
Department of EnergyRoy L. Krueger
Allied-Signal Aerospace CompanyEarl A. Maxie
Portsmouth Enrichment OfficeMichael F. Teresinski
Office of Energy Research
Department of Energy**Support Technicians**Scott C. Cassady
National BioSystems, Inc.Karen G. Rawlings
National BioSystems, Inc.