Environment, Safety and Health Compliance Assessment

Feed Materials Production Center
Fernald, Ohio

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MASTER

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Assistant Secretary for Environment, Safety and Health
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Executive Summary

In an announcement on June 27, 1989, the Secretary of Energy established independent Tiger Teams to conduct environment, safety, and health (ES&H) compliance assessments at U.S. Department of Energy (DOE) facilities. This report presents the assessment of the Feed Materials Production Center (FMPC) at Fernald, Ohio.

The purpose of the assessment at FMPC is to provide the Secretary with information regarding current ES&H compliance status, specific ES&H noncompliance items, evaluation of the adequacy of the ES&H organizations and resources (DOE and contractor), and root causes for noncompliance items. Areas reviewed included performance under Federal, state, and local agreements and permits; compliance with Federal, state and DOE orders and requirements; adequacy of operations and other site activities, such as training, procedures, document control, quality assurance, and emergency preparedness; and management and staff, including resources, planning, and interactions with outside agencies.

The FMPC has been producing uranium for DOE programs since the 1950s. The original facilities are still being used, and until recently, only modest improvements have been made. During this same time, FMPC facilities and related practices have not kept pace with changing regulatory and DOE ES&H requirements.

As a result, when Westinghouse Materials Company of Ohio (WMCO) took over the contract to operate the FMPC for DOE in 1986, the site was in noncompliance with several ES&H statutes and regulations. Although DOE and WMCO initiated a number of actions to address many of the problems confronting the site and progress has been made, the goal of full compliance has yet to be achieved.

This assessment includes a number of ES&H findings, many of which were known by DOE and WMCO management prior to the assessment. For some of these findings, corrective actions are planned or under way; for others, corrective actions have not yet been identified.

The major findings of the assessment are discussed below. The FMPC does not meet all of the requirements of the Federal environmental statutes and regulations or all of the DOE environmental requirements. Also, the FMPC is not in complete compliance with agreements it has made with the U.S. Environmental Protection Agency (EPA) and the Ohio Environmental Protection Agency (OEPA). Those statutes and regulations where requirements are not being fully met include:

- Resource Conservation and Recovery Act
- Comprehensive Environmental Response, Compensation and Liability Act/Superfund Amendments Reauthorization Act
- Clean Air Act
- Clean Water Act
- National Environmental Policy Act
- DOE Order 5400.1, General Environmental Protection Program.

Examples of areas where environmental requirements are not being met include: incomplete hazardous waste characterization, inadequate hazardous waste storage, incomplete characterization and monitoring of air emission sources, inadequate treatment of wastewater streams, lack of timely implementation of the sitewide remedial investigation work plan, and inappropriate National Environmental Policy Act process.

It is the opinion of the Compliance Assessment Team that the areas where environmental requirements are not being met

do not currently constitute an imminent threat to public health or welfare. However, the EPA Region V disagrees with this conclusion and considers the six removal actions being undertaken at the FMPC to be the result of an endangerment to public health and welfare. The removal actions generally involve remediation of contaminated groundwater, control of runoff from waste pits, cleanup of contaminated soil, and work on the K-65 silos. The discrepancy is due to the difference between the use of the term "imminent threat" and the EPA definition of "endangerment to public health and welfare." The use of "imminent threat" refers to situations where acute, near-term health effects will result if no remedial action occurs. The EPA use of the phrase "endangerment to public health and welfare" is much broader, pursuant to its statutory authority under SARA Section 105(a). It includes long-term, chronic health effects and the potential for those impacts as well as their actual occurrence.

In regard to safety, although approved standard operating procedures are used extensively and the FMPC has a below DOE-average injury rate, it is clear that over the years, the FMPC has not kept pace with changing safety and health requirements. As a result, the production facilities do not meet all of the DOE safety regulations governing facility operations.

Specifically, the analytical process to establish the safety envelope and operating parameters for the FMPC is not in accordance with DOE requirements (i.e., the necessary safety analyses or safety assessments have not been prepared and the operational safety requirements that are based on the analyses or assessments are not defined). Based on the available analytical data, the Compliance Assessment Team was unable to determine the adequacy of the safety envelope associated with the operation of the FMPC.

In addition, DOE orders require that existing nuclear facilities be compared to current design criteria and that such facilities be modified as necessary. The Compliance Assessment Team concluded that the FMPC production facilities have not been compared to current design criteria and could find only limited evidence of the facilities being evaluated against any previous criteria in the past.

One condition at the site where the relative risk needs updating involves the two K-65 storage silos. These aboveground concrete structures contain approximately 26,000 drum equivalents (55 gallons per drum) of semisolid radioactive waste. A 1986 study indicates that the silo domes were considered to be structurally unsound and could possibly fail at anytime, and that the walls of the structures had a useful life expectancy from 5 to 10 years. As a result of the study, WMCO completed actions to mitigate effects of dome failure. At the time of this assessment, the Compliance Assessment Team had no other information that predicted the useful life of the silos, beyond that contained in the 1986 study, or that validated the adequacy of the WMCO mitigating actions.

The Compliance Assessment Team performed an analysis to determine probable root causes of the key findings. Based on this analysis, it is the opinion of the team that competing priorities preclude focusing adequate resources on environmental compliance, safety upgrades, and well-structured management systems. This then results in acceptance of conditions that do not meet regulatory requirements or the extension of remediation of these conditions beyond what should be reasonably acceptable to DOE and the regulatory community.

Progress has been made toward bringing the site up to today's standards, and plans are in place for continued improvements.

Some recently completed or initiated improvements include:

- reduction of the hazardous waste inventory
- reduction in the size of the radioactively contaminated areas
- improvements in the Resource Conservation and Recovery Act training program
- construction of additional covered storage for hazardous waste
- upgrades in facility air filtration
- improvements in identification and characterization of emission sources
- improvements in stormwater drainage control
- improvement in National Environmental Policy Act documentation
- improvements in process wastewater treatment
- implementation of an as low as reasonably achievable (ALARA) program and a reduction in personnel exposure

- establishment of Resource Conservation and Recovery Act compliance as an FMPC priority
- removal of all PCB-contaminated capacitors from service.

As an overall conclusion, it is the opinion of the Compliance Assessment Team that since 1986 the Oak Ridge Operations Office, the DOE Site Office, and WMCO have made progress at the site toward the goal of full compliance with ES&H requirements. However, to accomplish future improvements in a timely manner and to achieve full ES&H compliance, there must be clear delineation of the FMPC mission, adequate resources, a comprehensive plan of action, effective implementation of the plan, timely follow-up on action items, and effective oversight of the process.

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1.0 Introduction

In an announcement on June 27, 1989, the Secretary of Energy established independent Tiger Teams to conduct environment, safety, and health (ES&H) compliance assessments at U.S. Department of Energy (DOE) facilities. This report presents the assessment of the Feed Materials Production Center (FMPC) at Fernald, Ohio. This assessment has been conducted in accordance with the charter issued by the Under Secretary on July 14, 1989 (Appendix A).

The purpose of the assessment at FMPC is to provide the Secretary with the following information: current ES&H status, specific noncompliance items, evaluation of the adequacy of the ES&H organizations and resources (DOE and contractor), and root causes for noncompliance items.

The Compliance Assessment Team involved 35 technical professionals, including both DOE and consultant staff (Appendix B). Team members were assigned to one of three subteams: environment, safety and health, or management and organization. Within the subteams, each member investigated his or her specialty (e.g., personnel protection, environmental monitoring, etc.) in accordance with established protocols and lines of inquiry.

Most of the compliance assessment involving the full team extended from

July 17 to approximately August 4, 1989. After August 4, the final predecisional draft report was prepared by approximately seven technical team members in coordination with the other members of the team. The closeout with FMPC management was August 25, 1989.

Areas reviewed included the following: performance under Federal, state, and local agreements; permits and regulatory requirements; compliance with Federal, state, and DOE orders and requirements; adequacy of operations and other site activities, such as training, procedures, document control, quality assurance (QA), and emergency preparedness; and management and staff, including resources, planning, and interactions with outside agencies.

As a result of detailed investigations, team members recorded individual observations and tentative findings. These were consolidated into subteam findings that provided the basis for the subteam reports. These reports then provided the basis for the overall ES&H compliance assessment. The key findings and root cause were generated from the findings and evaluations included in the subteam reports. Detailed findings and basic observations to support the findings can be found in the subteam reports (Appendix C).

2.0 Background

The FMPC was operated for DOE by National Lead of Ohio from the early 1950s until 1986. Since January 1986, the FMPC has been operated for DOE by Westinghouse Materials Company of Ohio (WMCO), a subsidiary of Westinghouse Electric Corporation. Currently, approximately 1100 WMCO employees work at the site, down from a peak of approximately 2700 in the late 1950s.

The FMPC produces uranium metal products used in DOE programs. The site is located 18 miles northwest of Cincinnati, Ohio, on 1050 acres of Federal land (Figure 1). The plant and storage areas occupy 136 acres, which include eight chemical and physical processing plants, support facilities, and storage areas for product, hazardous, and radioactive wastes (Figure 2).

The processing plants, which are used for conversion of uranium-bearing materials to uranium metal, were built in the early 1950s. By the late 1960s, the plants had attained a peak annual output of approximately 12,000 metric tons of uranium metal. The current annual production is approximately 1000 metric tons of uranium metal.

Industrial hazards at FMPC result from chemical processes that use toxic materials, such as hydrogen fluoride and ammonia, and from physical processes that include common foundry and machining operations. The processing of uranium-bearing materials also results in radiological hazards, although radiation levels are generally low because of the low specific activity of uranium.

Environmental hazards at FMPC result from potential releases of hazardous or radioactive materials to the air, soil, or groundwater from the processing plants or from the on-site storage and disposal areas.

Waste and scrap metal are stored on the site in a number of configurations, including the use of concrete silos, drums, piles, and pits. Much of this waste, primarily in the waste pits and silos, has gradually accumulated over the life of facility operations. These materials and approximate quantities (which are based on site documents) include the following:

- 1,620,000 drum equivalents of low-level radioactive waste and some hazardous waste in the six waste pits
- 45,000 drum equivalents of semisolid wastes in the K-65 and metal oxide silos
- 48,000 drum equivalents of nonrecoverable process residues stored in drums
- 13,000 drum equivalents of nonrecoverable radioactively contaminated refuse (floor sweepings, wooden pallets, baled trash) in containers or piles
- 21,000 drum equivalents of radioactively contaminated construction waste (soil, concrete) in containers or piles
- 11,000 drum equivalents of thorium in containers
- 3,000 drum equivalents of RCRA and radioactive mixed waste in drums
- 76,000 drum equivalents of radioactively contaminated recoverable and nonrecoverable metal in piles.

(Note: 1 drum equivalent equals 7.4 ft³ or one 55-gallon drum.)

In 1986, the FMPC site entered into a Federal Facility Compliance Agreement (FFCA) with the U.S. Environmental Protection Agency (EPA) Region V. Since then, additional agreements have been established with the Ohio Environmental Protection

Figure 1. Location of the Feed Materials Production Center

Figure 2. Layout of the Feed Materials Production Center

Agency (OEPA). Both of these agencies address the handling, storage, and control of waste, and establish limits on liquid effluents and air emissions from the site.

In an effort to improve safety and concentrate on site cleanup, contractor management suspended uranium production operations prior to the arrival of the Compliance Assessment Team. The decision regarding suspension of operations had been made prior to the announcement that the FMPC had been selected as the site for an ES&H compliance assessment.

Production operations remained suspended during the time the Compliance Assessment Team was at the site. It would have been desirable to conduct the assessment during operations and thereby be able to witness ongoing activities. Even so, the team was able to accomplish the necessary reviews and interviews, including detailed site tours to meet the full objective of the compliance assessment.

3.0 Key Findings, Evaluations, and Root Causes

This section includes the key findings of the ES&H Compliance Assessment Team and an evaluation leading to the findings. A root cause analysis was performed to identify the basic reasons for the findings to enable the necessary corrective actions to be made and thereby prevent a recurrence.

The key findings represent major systemic or interrelated issues that result from the findings and evaluations in the subteam reports, which in turn are generated from the data sheets also in the subteam reports. The key findings are intended to highlight the major areas of concern. Findings relative to specific subteam activities, along with the supporting data sheets, are found in the subteam reports in Appendix C.

3.1. Environmental Key Finding

3.1.1 Key Finding

The FMPC does not meet all of the requirements relative to National Environmental Policy Act (NEPA); Resource Conservation and Recovery Act (RCRA); Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); Clean Air Act (CAA); Clean Water Act (CWA); or the conditions specified in the FFCA (July 6, 1986), the OEPA Director's Findings and Orders (June 26, 1987), and the OEPA/DOE Consent Decree (December 2, 1988).

3.1.2 Evaluation

The FMPC has had the goal since the mid-1980s to meet all environmental requirements. Significant improvements in overall compliance with substantive and procedural requirements of RCRA, CERCLA, CAA, CWA, and NEPA have been made. However, the FMPC has yet to meet the goal of full compliance. Specific examples requiring further attention include the following:

- The FMPC does not have a fully developed RCRA program.
- The FMPC has not completely characterized all wastes and past process, treatment, storage, and disposal facilities for RCRA applicability.
- Storage of hazardous waste is not in accordance with land disposal restrictions prohibiting storage of certain waste.
- The FMPC is not in accordance with certain portions of the FFCA relating to CERCLA as a result of inadequate implementation of the Remedial Investigation/Feasibility Study (RI/FS) Work Plan.
- The FMPC has not acquired approval for the operation of all air emission sources. (The Compliance Assessment Team was informed that sources will not operate until properly permitted.)
- The characterization and monitoring of air emission sources are incomplete.
- The FMPC has not met the wastewater/stormwater requirements specified in the Consent Decrees between the State of Ohio and DOE.
- The use of nonstandard NEPA procedures for renovation activities based on approval from EH-1 (October 1987) is inconsistent with the Council on Environmental Quality (CEQ) regulations and DOE policy.
- A portion of the FMPC NEPA documentation is incomplete and/or inadequate.

The FMPC environmental management program is currently attempting to identify and correct noncompliances; however, a system for setting priorities and ensuring that problems will not recur is not always effective. The internal DOE and WMCO oversight function is neither frequent nor comprehensive enough to accurately identify areas where requirements are not being met.

The lessons from noncompliant situations are not learned on a programwide basis. The assigned departments for maintaining compliance are not part of an integrated program that promotes communication in all directions. The FMPC is attempting to make the necessary management adjustments to improve the compliance status of the FMPC.

The RCRA management program accounts for a high number of discrete areas where regulatory requirements have not been met. As a result of this, WMCO recently designated RCRA compliance as its number one priority.

Many of the RCRA areas that do not meet regulatory requirements can generally be attributed to incomplete characterization of past process, storage, or disposal units to determine RCRA applicability. In March 1988, the FMPC characterized all non-recoverable process residues for RCRA applicability. In November 1988, additional residues were classified as nonrecoverable because of a change in the Economic Discard Limit. These residues and all past process, storage, or disposal units have not been adequately characterized for RCRA applicability. These delays in assessing compliance may complicate effective waste management, RCRA compliance activities, and potential restoration activities. Incomplete characterization of all wastes or waste units also could lead to an incomplete listing of potential treatment, storage, or disposal units on RCRA Part A or Part B applications.

Examples of RCRA requirements not being met include the following: inadequate storage of RCRA and mixed wastes, incomplete inspections and records of active and inactive RCRA facilities, incomplete contingency plan, storage of land disposal restricted wastes, inadequate training for RCRA waste handlers, incomplete operating record for RCRA waste management, and improper storage of incompatible materials. These areas where requirements are not being met are known to the FMPC. It was apparent in

discussions with the EPA and OEPA that they also were aware of these conditions.

The FMPC responses to regulatory agencies have indicated that the RCRA corrective actions are being promptly undertaken. In some cases, however, the actions may be only beginning. The apparent overly optimistic schedules and written responses to regulators have resulted in the regulators' belief that a noncompliance had been corrected. Additional citations were given when it became known that a situation had not been corrected after it was identified as being corrected. In the future, the FMPC intends to submit responses that are more reflective of actual progress.

The CERCLA/Superfund Amendments and Reauthorization Act (SARA) compliance activities for the FMPC are covered by the FFCA and EPA regulations. The FMPC is required to conduct an RI/FS for the entire FMPC site. The RI/FS began in 1986 and was managed by WMCO until November 1988. At that time, the DOE Site Office took over responsibility for managing the RI/FS contractor (Advanced Sciences, Inc.). The RI/FS project has several deficiencies and programmatic problems that have resulted in not meeting requirements or have the potential for program disruptions.

The RI/FS Work Plan is composed of many different plans to describe the implementation of the RI/FS activities. Implementations of several parts of the RI/FS Work Plan were determined by EPA to be deficient. These deficiencies are generally the result of failure to satisfy the requirements of the RI/FS Work Plan and, subsequently, failure to meet the commitments of the FFCA in a timely manner. Examples of the deficiencies noted in the RI/FS program include the following: failure to update and implement the Community Relations Plan, failure to meet a scheduled implementation date for the Data Base Management System, inadequate incorporation of data quality objectives and data validation reviews, not

meeting schedules established in the FFCA, inadequate management of the RI/FS program, and incomplete administrative record.

The FMPC has been working with EPA and OEPA to address their concerns about the RI/FS activities. In some cases, responses to the concerns have increased the scope of the RI/FS program. Negotiations are under way to resolve past deficiencies and to revise schedules for the deliverables. Several proposed actions for achieving compliance have been presented to the regulators for their comments and suggestions. Resolution of open issues is still being addressed.

The FMPC programs to manage the CAA and CWA requirements have been improving. For the most part, the deficiencies noted in these programs have resulted from past practices (pre-WMCO) or from past guidance that questioned the applicability of the state requirements to the FMPC. The existing agreements with EPA and OEPA clearly define the regulatory framework to which the FMPC is subject.

The types of deficiencies that exist are mostly operational in the CWA area and procedural in the CAA area. Examples of operational deficiencies include the exceedances of National Pollutant Discharge Elimination System (NPDES) limits, incomplete implementation of the Spill Prevention Control and Countermeasures (SPCC) Plan, and incomplete implementation of the Best Management Practices (BMP) Plan. Examples of procedural deficiencies include incomplete compliance with Consent Decree conditions, facility operation without air permits, and inappropriate analytical procedures for measuring stack emissions of total suspended solids. Several projects and actions are planned that are expected to reduce the number of deficiencies in these areas.

The NEPA program at the FMPC is less than 5 years old. There is no record of NEPA compliance for the FMPC during the 15 years between the effective date of NEPA

(January 1970) and the FMPC first Environmental Assessment (1985). A review of all NEPA-related documents was conducted to assess the effectiveness of current program implementation.

The implementation of the NEPA process at the FMPC has not consistently followed CEQ and standard DOE guidance and requirements. However, a process was approved by EH-1 (October 1987) until the sitewide environmental impact statement (EIS) for remedial actions is complete. It is the opinion of the Compliance Assessment Team that DOE may not have satisfactorily integrated the NEPA process into its programmatic decision making at the FMPC. Other deficiencies within the NEPA program outside the process approved by EH-1 include incomplete assessments of program impacts, incomplete documentation within assessments, and incomplete integration of environmental laws in the NEPA review.

The compliance status in the Safe Drinking Water Act (SDWA), Toxic Substances Control Act (TSCA), Federal Insecticide Fungicide and Rodenticide (FIFRA), environmental monitoring, and QA areas is judged to be adequate. These areas do not have any major deficiencies; however, minor deficiencies have been noted and some were corrected during the assessment.

3.2 Safety and Health Key Finding

3.2.1 Finding

The analytical process to establish the safety envelope and operating parameters for the FMPC is not in accordance with DOE requirements.

3.2.2 Evaluation and Root Cause(s)

DOE Orders 5480.5, Safety of (Non-Reactor) Nuclear Facilities, and 5481.1B, Safety Analysis and Review System, require that analytical work be performed to establish the safe operating envelope for DOE facilities. This analytical work is documented

in Safety Analysis Reports that are then reviewed and approved, as specified in the same orders. Among other things, a Safety Analysis Report postulates the worst-case accidents that could impact a facility at its design inventory loading and evaluates the consequences of those accidents on the off-site general public, the on-site worker, and the operator in the facility. If the consequences result in unacceptable risks, the Safety Analysis Report may identify the need for additional safety systems, equipment, and components to prevent or mitigate the accident. The Safety Analysis Report also may place constraints on operating parameters at some value less than the design basis in lieu of or in addition to safety system requirements, if necessary, to ensure the risk of operation is acceptable. When analysis has determined safe operating conditions (i.e., an envelope of acceptable risks), the conditions are collected and converted into requirements and values that must be used by the facility operators. These requirements and values are called Operational Safety Requirements for DOE nonreactor nuclear facilities and are equivalent to the U.S. Nuclear Regulatory Commission-approved Technical Specifications for commercial reactor operations.

Although a total of three facilities at the FMPC have such analysis, only one of the nuclear facilities (Pilot Plant) is supported by an approved Safety Analysis Report with identified Operational Safety Requirements. These specific documents for the Pilot Plant are acknowledged by WMCO to be inadequate, and this assessment supports that conclusion. The absence of an approved Final Safety Analysis Report and accompanying Operational Safety Requirements package means that an independently reviewed analytical basis establishing the safe operating envelope of the facility, supported by contractor management and agreed to by DOE, does not exist. WMCO does have several safety studies prepared in draft, but these have not been reviewed and approved within WMCO, and DOE has not been provided copies. WMCO also has current

procedures for operation of production equipment. The operating limits contained in those procedures are primarily based on original equipment design and experience gained through operations. In some cases, the limits are based on analyses conducted by WMCO to support special tests or operations.

DOE Order 5481.1B also requires that those ongoing DOE operations that have the potential for major on-site or off-site impacts to people or the environment shall be identified and evaluated by the line organization in accordance with the following provisions:

- Where documentation (e.g., studies, evaluations, analyses, etc.) is available, the line organization shall determine whether the documentation adequately identifies the risk.
- Where documentation is not adequate, the line organization shall make necessary arrangements (e.g., funds, other resources) to provide for adequate safety analyses in accordance with the directive or to obtain an exemption from the responsible Program Senior Official. The Assistant Secretary for Environment, Safety, and Health (EH-1) shall be provided the opportunity to review requests for exemptions prior to approval.
- Safety analyses prepared for ongoing DOE operations shall be based on current technical criteria. When hazards are identified that can be eliminated, controlled, or mitigated through reasonable measures, appropriate upgrading actions shall be identified and implemented.

Technical criteria for uranium processing and handling facilities are contained in DOE Order 6430.1A, General Design Criteria, and preceding versions of the same order. This order establishes requirements for DOE non-reactor nuclear facilities to ensure the confinement of radionuclides and other hazardous materials under normal and abnormal plant conditions. The order

requirements address facility integrity as well as requirements for facility systems, components, and equipment to provide airflow patterns and confinement to minimize the spread of contamination and hazards to the occupational worker and the public. The facilities at FMPC that process nuclear materials are of windowed construction, with limited engineered features to establish confinement zones. This facility design and type of construction do not provide assurance that radionuclides, during either routine or upset conditions, will be confined within the facility.

Based on this assessment, it is concluded that ongoing operations at the FMPC have not been evaluated against current technical criteria. The lack of adherence to current criteria has allowed the continued operation of facilities and equipment designed and constructed in the 1950s, even though the DOE requirements for such facilities have evolved significantly since that time. Since the facilities and equipment were not originally designed or constructed to ensure confinement, nor have they been appropriately upgraded, this mode of operation continues to the present time. This lack of confinement contributed to the uranium contamination of the entire process area (136 acres). WMCO is putting forth significant effort to reduce the size of the contaminated area to small zones near the processing equipment.

Despite the effort to reduce the contamination area, WMCO is not applying contemporary criteria (DOE Order 6430.1A) to major facility modifications or new construction; specifically, the Plant 8 addition and the thorium repackaging project in Building 64. Continuation of this practice will perpetuate the contamination problems impacting the FMPC.

In addition to requirements for safety analyses, DOE Order 5480.5 also establishes the need for contractor organizations to have a safety analysis and review process that includes an independent review and appraisal

system. Since WMCO has operated the FMPC processing facilities (beginning in January 1986) without the fundamental analytical bases that would identify the risk of such operations, it is concluded that the WMCO program does not meet the requirements of DOE Order 5480.5.

The Compliance Assessment Team has also concluded, based on existing analysis and examination, that the structural integrity of the K-65 silos is questionable. Two separate analyses of the structural integrity of the silos show that the domes have lost any capability to sustain additional loads, and it was postulated that the center 20-foot-diameter section could collapse at any time. The mechanism that would limit the collapsed area to the center 20-foot-diameter area of the dome (i.e., the area now covered by the 30-foot-diameter temporary plywood cap) has not been identified. The analyses also revealed the presence of cracks and a general deterioration of the wall materials. The contractor that performed the analyses estimated in February 1986 that the walls and base slab of the silos should be structurally stable for 5 to 10 years. The contractor also recommended that any removal of silo contents should be accompanied by simultaneous reduction of the surrounding berm to preclude possible collapse of the walls of the silos. At this time, no additional analyses have been performed that either support or refute the earlier analyses.

There are several other functional areas that are showing improvement under WMCO management, but that do not totally meet DOE or other requirements. These areas include QA, radiological protection, packaging and shipping, training, maintenance, emergency preparedness, fire protection, firearms safety, and the asbestos program. Many of these areas show good and, in a few cases, excellent top-level plans and documentation. However, deficiencies have been noted at the implementation level, and the effectiveness of the programs is not reflective of the top-level documentation. There are

areas of noteworthy performance, including the medical services program, the electrical system maintenance program, and the planning and implementation of the recent efforts in sampling the K-65 silos.

3.3 Management and Organization Key Finding

3.3.1 Key Finding

The current capability at FMPC is not sufficient to ensure that all ES&H requirements will be met on a timely basis.

3.3.2 Evaluation

This key finding has been derived by an examination of the three subteam reports. The key finding rests on a series of subteam findings that identify needs in management processes at the FMPC. These needs translate into resource requirements for the FMPC. To provide the basis for this key finding, the discussion is organized as follows:

- mission
- resources
- controls
- implementation.

3.3.2.1 Mission

The mission of the FMPC is unclear, but it is the overriding requirement to unify all elements of an organization. The situation at the FMPC is one where perceived differences in mission are prevalent; therefore, all FMPC organizations have difficulty in focusing and coordinating their efforts. The most uncertain element in the mission is the length of time that production will continue. A range of dates from 1990 to 1994 seems to be under consideration. The emphasis on compliance with environmental regulations and laws has increased significantly across DOE over the last few years and most specifically during the last 6 months. Guidance to FMPC has not kept pace with this acceleration. The result of this condition is an apparent change in the focus of the facility without benefit of

detailed guidance. As a result of this changing focus, priorities are difficult to establish and maintain with the limited resources available in key skill areas.

Further, with the changing focus, there is little opportunity to establish strategic objectives and goals. WMCO has tried to establish such objectives; however, WMCO did not ask for and does not have the formal DOE commitment to those objectives. Without such commitment, the objectives themselves serve to increase confusion, as the organization observes actions and priorities that are different than those expected for the WMCO strategic objectives.

3.3.2.2 Resources

Personnel, facilities, equipment, and funds at FMPC are inadequate for the current and projected ES&H requirements. The DOE is the owner of the FMPC and is ultimately responsible for the performance of the site against ES&H requirements. In the opinion of the Compliance Assessment Team, the DOE Site Office is not adequately staffed or trained to meet its obligations for the performance of ES&H functions. The number of permanent on-site personnel does not match the level of effort needed to be fully effective.

The DOE staff has exhibited considerable resiliency in the performance of their assigned tasks. The individual workload, for extended periods, is beyond what can be reasonably expected to be completed successfully. In some cases, the lack of experienced staff has required that some functions be assigned to untrained and inexperienced personnel. This helps personnel development and provides some program coverage; however, critical ES&H decisions could be compromised.

The Oak Ridge Operations Office (ORO) personnel have augmented the on-site staff for periods up to 6 months to provide interim oversight and management of critical activities. Based on the many observations in

this report that seem to show an inadequate DOE oversight role, it is concluded that the combination of on-site staff and details has not provided a complete coverage of all DOE responsibilities. The management and oversight of the contractors at FMPC have been less than adequate as a result of the DOE staff resource shortage. Despite recent improvements in the number of candidates for positions at the DOE Site Office, there is little assurance that an adequate staff can be recruited and retained.

In the ES&H area, WMCO needs to improve the capability of the current staff to ensure compliance with the environmental regulations and laws of RCRA and CERCLA. Further, in projecting the ultimate scope of the application of RCRA and CERCLA to this site, it is obvious that the current ES&H staffing problems will only be compounded. Other staffing areas identified by the team as being insufficient include training, maintenance, and QA. There is tremendous competition for the key staff in these areas to address all the high-priority issues. The same issue of retention and recruitment discussed above for the DOE Site Office also exists within WMCO such that it cannot be ensured that the current capability will be maintained. Uncertainty about mission and budget probably impact WMCO most severely. Despite this, WMCO is allocating positions and recruiting actively for additional capability.

Training for WMCO staff is not adequate for the ES&H requirements that must be met. Programs are just now under way to meet some of the requirements (e.g., RCRA training and radiation worker training). No unified FMPC training program exists that foresees and meets training needs. There is a lack of overall guidance and direction for training. Training requirements are developed by individual organizations within WMCO, and the process is uneven across the organizations. Specific training issues in the subteam report were identified for NEPA, packaging, transportation, and CERCLA. The training program is not effective in ensuring

that personnel have the appropriate training for their individual responsibilities. Training has been one of the lower priorities during this period when environmental compliance has become paramount in its demand for resources.

The facilities and equipment at FMPC represent a resource that is inadequate to achieve the DOE ES&H compliance objectives. The age, design, and condition of the facilities place severe constraints on FMPC's ability to implement effective ES&H programs. The facilities that process nuclear material have few engineered features to establish confinement zones. There is an absence of "as built" information for the facility, which creates a difficult task of ensuring operational limits consistent with ES&H compliance. There is a lack of historical data to support determinations required under CERCLA and RCRA, and implementation is, therefore, inhibited. Because of the age of the buildings, a significant inventory of asbestos (as transite) will need to be addressed from a worker safety viewpoint, and remediation will be complicated by the degree of on-site uranium contamination. Structures that provide stabilization of hazardous and radioactive material on the site are nearing or are at the end of their useful lifetimes (e.g., the K-65 silos). Structures do not meet contemporary design criteria for seismic and tornado stresses. The 35 years of chemical processing have left portions of Plant 2/3 (uranium refining facility) in a state of advanced and pervasive physical deterioration. Emergency power supplies are set up to supply only lighting, except to the Emergency Operations Center where full-time power is available. No emergency power is provided to process lines for operation shutdown during an emergency.

3.3.2.3 Controls

Management controls to ensure that requirements are met are inadequate. There are at least two key areas where documentation is not complete at the top level --

training and environmental guidance. Additionally, there are examples of documentation that are less than adequate at the lower levels of WMCO. The total documentation process at FMPC is less than that required to achieve ES&H compliance; however, a good start has been made at the top level.

Simultaneously, there is a record of recurring and lingering deficiencies at the site where known requirements derived from the DOE orders are not being met. These deficiencies are detailed in the Technical Safety Appraisals performed previously and in the data sheets included in the subteam reports. There also are deficiencies in RCRA and CERCLA compliance that appear partially to result from lack of experience and ability to foresee regulatory applicability. Deficiencies against CAA, CWA, and NEPA continue to occur. Timely completion of National Emission Standards for Hazardous Air Pollutants (NESHAP) permit applications has not been accomplished despite clear requirements on timing. Adherence to a variety of DOE orders is inadequate, despite an excellent distribution system and apparent delegation of authority to appropriate levels. Identification and characterization of all waste and hazardous materials on the site continue to lag.

There are many examples of the top-level documents that are well done by WMCO. Examples include the following:

- excellent QA plan
- excellent health and safety policy and charters
- good medical services program
- good documentation for major system acquisition projects
- good configuration control process
- good DOE order distribution/maintenance system
- good as low as reasonably achievable (ALARA) program.

There is an acceptance at FMPC for actual behavior to differ from expected behavior as prescribed by top-level management and documentation. This lack of consistency between actual and expected performance presents the concern that future performance also will be inconsistent with expected behavior. There has been improvement in the status of the site since WMCO has been the management and operation contractor, and it is recognized that there have been relatively large fluctuations in personnel resources that have had to be managed during that same period. However, a critical question remains as to whether improvements in actual performance can be made at a pace consistent with the mission determined for FMPC.

Improvement in performance is usually determined by the availability and use of feedback mechanisms. Self-assessment techniques, which serve as mechanisms for judging how close actual performance matches expected performance and for providing guidance on improvement, are the responsibility of several departments within WMCO. These organizations provide assessments for several different purposes. One evaluates off-normal operational events, another evaluates QA/quality control (QC) deficiencies, and the third performs evaluation for the award fee process. The focus for the many tracking and evaluation functions seems diffuse, and integration of these functions supporting the ES&H objectives would be beneficial. Trend analysis has low priority and tends to be performed only occasionally. Root cause analysis has been used since 1987 but is very infrequent in its application within the organization. These areas also have received lower priority as demand for strict environmental compliance has become more dominant at the FMPC.

3.3.2.4 Implementation

The planning efforts and management structure are not tightly focused for ES&H compliance. Within the current resource

constraints, the planning at FMPC is almost completely reactive. This mode is established at the highest level of DOE, where a series of planning requirements are passed down in an uncoordinated fashion. The reactivity is reinforced by a process of externally identified deficiencies coming into existence by a series of disconnected audits and appraisals. There is an intense effort in WMCO devoted to cataloging deficiencies and producing plans and schedules to deal with the deficiencies. However, almost no strategically oriented planning is occurring within WMCO that would assist them in predicting and preparing for future events. Little planning is being performed to design a clear mission statement for the FMPC and to select actions that would help achieve such an objective.

An example of the planning status is the recent cessation of production at the FMPC to allow the acceleration of environmental cleanup processes. Such a cessation had been planned earlier in the year and appears to have been a good idea. The scheduled cessation was delayed during the year and was finally instituted as a result of management reaction to the condition of the FMPC. During the Compliance Assessment Team review, however, there was no plan available that gave the goals of the action. None of the activities were documented on a schedule that could be provided to the team, nor were criteria developed for initiating the return to production. Another example of reactive planning is the lack of a plan within WMCO to achieve the eight strategic objectives identified for the FMPC.

WMCO reorganized in April 1989 to address the changing mission of the site. This change created one organization to focus on environmental activities and another to focus on quality, health, and safety. The actual performance of these two organizations could not be assessed at this time. Positive feedback was provided informally by EPA for the new environmental organization; however, the

team noted that the organization was still evolving and lacked adequate resources.

The implementation process in the ES&H areas can be judged partially by the completeness and timeliness of interactions with the regulators. The team found that written responses were generally timely but were not always complete. There were examples where actions were not timely (e.g., submission of NESHAP permit applications). There also were examples of EPA and DOE dissatisfaction on the timing related to each others materials. These observations led to the conclusion that FMPC needs to improve its relationship with the regulators. This responsibility lies with DOE, WMCO, and ASI, but, ultimately, the responsibility is with DOE.

3.4 Probable Root Cause

Failure to completely implement ES&H requirements culminated in the key findings identified at the FMPC.

3.4.1 Probable Root Cause Analysis

The key findings have two very different kinds of deficiencies in meeting requirements. One deficiency is the lack of contemporary action to completely meet requirements. A second deficiency is that historical practices have created a situation where no action is available to meet the requirements. The root cause analysis performed by the Compliance Assessment Team addressed those deficiencies where contemporary action is possible.

3.4.1.1 Contemporary

The probable root cause for the lack of contemporary action is, in the judgment of the Compliance Assessment Team, a combination of the following:

- compromise of the mandate for ES&H compliance
- acceptance of noncompliance conditions

- inadequate enforcement of the ES&H requirements^(a)
- competition for resources.

The Compliance Assessment Team key findings are similar to other findings in several appraisals held over the last 4 years. The extent of compliance at the FMPC has been known for an extended time. This report identifies little that is new, but confirms the failure of WMCO to completely implement ES&H requirements. The acceptance of this condition over an extended time suggests that not meeting requirements on a timely basis is allowable and acceptable to WMCO, to DOE line management, and to DOE oversight organizations. Examples that confirm this conclusion include the following:

- absence of actions on the evaluations of independent review groups over an extended time period
- some major accomplishments to reduce impacts to the environment or the public but few actual compliance activities completed
- slippage in plans for characterization of waste (drums, pits, silos)
- history of not staffing adequately for ES&H
- slippage in plans for remediation of silos and off-site groundwater
- slippage in plans for required safety assessments and operating limits
- less than full use of current design criteria to evaluate new and existing facilities.

(a) A positive example of enforcement includes the recent cessation of production for cleanup.

The team concluded that the multiple delays being experienced in the implementation of plans may not represent in itself a root cause; however, the planning process at the site is largely reactive in nature. As part of any set of actions in response to the conclusions of this report, attention should be paid to the planning process. Although some individual plans are well done, a current strategic plan for the site needs to be developed and all other plans should be derived from and relate to the overall site strategic plan.

3.4.1.2 Historical

Some of the findings of this report relate to conditions where there are no available actions to correct deficiencies. One example is the inability of WMCO to meet land ban disposal restrictions. In this case, historical practices have been judged to be inappropriate against current laws and have created a situation where WMCO may not be able to meet requirements for years through no fault of their own. A second example is the inability of the facilities to meet current design criteria. Here, a legacy of 35 years of not investing in facility upgrades has created a situation where facilities may not be able to meet current design requirements without extensive modifications or replacements.

Another example is the lack of storage or disposal capability for thorium and mixed hazardous and radioactive waste. WMCO is currently working to repackage the thorium, but a clear-cut solution has yet to be found for ultimate disposition. The disposal or storage of mixed waste is a DOE issue that cannot be resolved at the local level.

Appendix A

Charter

Environmental Tiger Team Compliance Assessments

Appendix A

Charter

Environmental Tiger Team Compliance Assessments

Mission: To conduct on-site independent oversight assessments of DOE facilities' environment, safety and health (ES&H) programs to assure compliance with applicable Federal and State laws, regulations and standards, and DOE Orders. The purpose of the assessments is to provide to the Secretary of Energy the following information: current ES&H compliance status of each facility; specific noncompliance items; evaluation of the adequacy of ES&H organization and resources (DOE and Contractor); and "root causes" for noncompliance items.

Authority: The teams are conducting these independent evaluations for the Secretary of Energy. All DOE and contractor personnel are directed to support and provide needed assistance.

Assessment Scope: The assessments will include, but not be limited to, evaluation of ES&H: requirements and performance under Federal, State and local agreements and permits; operations; documentation; planning; training; adequacy of DOE and contractor organization and resources; management; interaction with Federal and State regulators; and performance in meeting ES&H requirements.

Team Management: The teams are to be headed by senior DOE managers from Headquarters and field operations.

HQ Manager: EH-1 is appointed manager for the assessments.

Team Composition: Teams will be composed of technical experts from DOE and contractor organizations. The type and number of team members may vary by site and will be determined through preliminary evaluation of each site by team leaders.

Assessment Protocol: EH is responsible for selecting and/or developing assessment protocols.

Reporting: All reporting is to be concurrently to Leo Duffy, Program Senior Officials (PSO), and EH-1. Weekly summaries for S-1 are to be prepared by the HQ Manager.

Schedule: On-site assessments for the first two DOE facilities are to start by the week of July 10, 1989. Assessments for six additional sites are to be completed by December 1989. Assessments at ten other major DOE facilities are to be completed by June 1990. Assessments for the remaining 17 major DOE facilities will be conducted from July 1990 to June 1991. Assessments of all other DOE facilities, totaling about 100 more, will be scheduled to be completed by December 1992.

Hotline: The Office of the Inspector General (IG) will establish a hotline at HQ for citizens and facility workers to report specific facility concerns. The IG is also responsible for making the public aware of the availability of the hotline.

Training: EH is responsible for developing the protocols and procedures, and conducting training sessions to assure consistency and comprehensiveness of the assessments. Lessons learned from the on-going assessment at the Rocky Flats Plant are to be incorporated.

Report: The teams will provide the draft findings to the facility manager prior to concluding the on-site review. The final report will be issued within four weeks after completion of the on-site review. Each assessment will document individual findings and identify underlying "root causes" for problem areas.

Follow-Up: Any findings which identify an immediate threat to public health or worker health or safety will be addressed

immediately. For all other findings the facility will develop a draft action plan to address all findings and submit it to HQ within two weeks after the on-site review. HQ comments on the draft action plan will be provided to the facility manager within two weeks after receipt of the draft action plan. The final action plan will be submitted to S-1 for approval within two weeks after issuance of the final report and receipt of comments on the draft action plan. PSO will have the lead responsibility to coordinate review of the draft action plans and to assure implementation of the approved action plans. EH will provide oversight of facilities/PSO's program to address findings and to implement corrective actions.

Appendix B

Appraisal Team

Appendix B

Team Composition

Name	Organization	Specialty
<u>Environmental Compliance Assessment Tiger Team</u>		
James T. Davis	DOE-SAN	Team Leader
<u>Environment Subteam</u>		
Vincent Fayne	DOE-EH	Subteam Leader
John J. Bascietto	DOE-EH	CERCLA, SARA
Eddie W. Chew	DOE-ID	Special Assistant, Environmental Monitoring
Jennifer S. Clay	NUS	CERCLA, SARA
Joseph G. Crist	NUS	CAA
Helen F. Gram	ICF-Kaiser	NEPA
Donald C. Habib	NUS	RCRA, SWDA, Radioactive Waste Management
Ernest C. Harr, Jr.	NUS	Radiation, DOE Orders
Cynthia G. Heckman	ORNL	NEPA
Clarence R. Hickey	DOE-EH	NEPA
Mara I. Hlavacik	NUS	CWA, SDWA
David S. Ingle	DOE-AL	Assistant Subteam Leader
David Misenhimer	NUS	CWA
Frank R. Morris	NUS	Hydrogeology

Mark D. Notich	NUS	TSCA, QA, FIFRA
Douglas J. Riddle	NUS	Hydrogeology
Lorene L. Sigal	ORNL	NEPA
Carlos L. Tellez	DOE-EH	RCRA, SWDA, Radioactive Waste Management
Wayne W. Tolbert	SAIC	NEPA
Philip R. Winsborough	NUS	RCRA, SWDA, Radioactive Waste Management
David M. Wunsch	NUS	TSCA, QA, FIFRA

Safety and Health Subteam

John J. Keating	DOE-RL	Subteam Leader
John M. Clark	DOE-RL	Facility Design Criteria, Nuclear Facility Safety
Shirley A. Dalton	LANL	Packaging, Transportation
David T. Evans	DOE-RL	Fire Protection, Emergency Preparedness
Craig D. Lundin	SWEC	Quality Assurance, Training
Sam A. Scucci	SWEC	Auxiliary Systems, Maintenance
Dennis E. Skinner	DOE-ID	Firearms Safety, Personnel Protection, Medical Services
Billy P. Smith	REECo	Radiological Protection

Management and Organization Subteam

Jefferson O. Nefr	DOE-CH	Subteam Leader
Richard J. Blaney	DOE-HQ	Planning and Analysis
John L. Gilbert	ICF-Kaiser	Staffing and Organization
Edward Keheley	DOE-SAN	Safety Management
Daniel T. Ruge	DOE-GC	Legal, Compliance

Support Staff

William Callicott	DOE-HQ (CP)	Public Affairs
Owen O. Thompson	DOE-EH	Integrator
Marye G. Hefty	PNL	Lead Editor
Beverly V. Johnston	PNL	Editor
Charlotte M. Barber	NUS	Production Coordinator
Teresa L. Brandt	NUS	Administrative Coordinator

On-site word processors from off-site support services (up to six personnel were required at one time) were responsible for the production of the predecisional draft.

The PNL word processing team was responsible for preprint document production.

Appendix C1

Environment Subteam Report

C1.1 Introduction

The purpose of this report is to present the draft findings identified during the Environmental Compliance Assessment, conducted July 17 through August 25, 1989, at the U.S. Department of Energy's (DOE) Feed Materials Production Center (FMPC) in Fernald, Ohio. The FMPC is owned by DOE and has been operated by the Westinghouse Materials Company of Ohio (WMCO) since January 1986. The findings from this assessment have been provided to the DOE Site Office and to WMCO for comments concerning the technical accuracy and for other information that may not have been provided to the team.

Historically, the FMPC has been struggling to achieve compliance with environmental regulations. From 1952 to December 1985, the FMPC was operated by National Lead of Ohio. Prior to the mid-1980s, most environmental requirements were not met because of insufficient resources or because DOE guidance indicated that certain requirements were not applicable to the FMPC.

The FMPC environmental compliance assessment was conducted by an interdisciplinary team of environmental specialists. The names, responsibilities, and organization of the subteam members are provided in Section C1.5. The Environment Subteam evaluated the DOE and WMCO activities at the FMPC for compliance with applicable requirements, including the following:

- National Environmental Policy Act (NEPA)
- Resource Conservation and Recovery Act (RCRA)

- Solid Waste Disposal Act (SWDA)
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)
- Superfund Amendments and Reauthorization Act (SARA)
- Clean Air Act (CAA)
- Clean Water Act (CWA)
- Safe Drinking Water Act (SDWA)
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)
- DOE Orders on environmental requirements
- good practices in environmental monitoring and laboratory quality assurance (QA).

Prior to the arrival of the Compliance Assessment Team, the President of WMCO ordered that the metals production operation be suspended so that his staff could focus more attention on cleanup activities. Specific cleanup activities include the following:

- removal of hazardous wastes from leaking tanks 5 and 6
- relocation of 4A metal scrap from outside to inside storage
- repackaging of waste materials in drums
- assembly and radiation checks on wooden pallets
- cleaning lead- and uranium-contaminated soil from the east water tower area

- relocating green salt and other materials from Plant 8 so that solid RCRA waste can be placed in inside storage
- removal of all PCB-containing capacitors from operating equipment
- general housekeeping improvements.

Other activities that have continued during this cleanup phase include operation of the process wastewater treatment facilities, the coal-fired steam plant, the water treatment facility, and the sewage treatment plant; handling 25% to 40% of routine waste shipments to the Nevada Test Site; plus operational support for construction activities, such

as transportation, laundry, radiological support and other professional activities.

Although the team did not observe the operations of production facilities, many of the key activities requiring review were unaffected by this shutdown. This included waste storage practices, remedial investigation/ feasibility study (RI/FS) activities, coal-fired steam plant, sewage treatment plant, water treatment facilities, analytical laboratories, inactive units subject to RCRA and CERCLA, and environmental monitoring activities. The team was not, however, able to observe stack monitoring equipment or actual management of wastes during operations.

C1.2 Environmental Assessment

The findings and evaluations from each group within the Environment Subteam were incorporated into an overall assessment of the environmental issues at the FMPC. The FMPC has made improvements in its compliance status over the past several years. However, the FMPC does not meet all applicable environmental requirements of RCRA, CERCLA, CWA, CAA, and NEPA. The compliance status in other areas is judged to be adequate, with minor recurring deficiencies in SDWA, TSCA, FIFRA, environmental monitoring, and QA.

The environmental deficiencies are the result of a history of inadequate financial and staff resources, a passive attitude toward achieving and maintaining compliance, and difficulty in assessing the applicability of changing environmental laws and requirements. Although some significant improvements in regulatory compliance have been made in recent years under the leadership of Oak Ridge Operations Office (ORO), the DOE Site Office, and WMCO, the FMPC seems unable to manage dynamic environmental challenges. The continuing inability to meet acceptable performance requirements in RCRA, CERCLA, CAA, and the NEPA process reflects an overall trend of tolerating deficiencies in environmental or regulatory conditions.

The FMPC is subject to the performance standards and requirements of all applicable environmental regulations. In addition, specific schedules and conditions have been established in the following agreements or orders:

- U.S. Environmental Protection Agency (EPA) and DOE Federal Facility Compliance Agreement (FFCA), dated July 19, 1986, and modified on July 6, 1988, EPA Docket No. FCA-HW-001

- Consent Decree, State of Ohio vs. WMCO et al., Civil Action No. C-1-87-0285, dated December 2, 1988
- Consent Decree, State of Ohio vs. DOE et al., Civil Action No. C-1-86-0217, dated December 2, 1988
- Ohio Environmental Protection Agency (OEPA) Director's Findings and Orders, dated June 26, 1987, which was incorporated into the above-referenced Consent Decrees
- Complaint, Findings of Violation and Compliance Order (Y-W-89 R-11), DOE FMPC, EPA I.D. No. OH6 890 088 976, dated February 9, 1989

These agreements and orders have been imposed because the FMPC had not met regulatory requirements and other conditions. In some cases, specific deficiencies have already been corrected under these agreements and orders. Some of the same types of deficiencies as well as some new deficiencies were noted during the environmental compliance assessment and are described below.

The NEPA compliance and management practices at the FMPC have improved since WMCO became the operating contractor. Deficiencies were found in NEPA QA/ quality control documentation, written procedures, training, guidance, and oversight (Findings E-01 and E-02). The DOE-Headquarters (HQ), the DOE Site Office, and WMCO share in the responsibility for these deficiencies. Concern continues to exist regarding 1) the delay in preparing and issuing the sitewide Environmental Impact Statement (EIS), 2) the absence of a valid cumulative impact assessment of many ongoing and planned activities, 3) the potential legal vulnerability because of the conduct of so many interim actions during the EIS preparation period, and 4) the lack of full

integration of the intent of NEPA into the programmatic decision-making process at the DOE Site Office.

The FMPC waste management program for mixed/hazardous waste and low-level waste (LLW) does not meet established regulations, DOE orders, or Best Management Practices. With regard to mixed/ hazardous waste, the FMPC does not have a fully developed RCRA program (Finding E-05). Many key documents are currently being revised based on deficiencies noted by the Federal and OEPA, and key program elements are not fully implemented (e.g., training, waste characterization) (Findings E-08 and E-06). In addition, the FMPC will continue to store wastes subject to land disposal restrictions (Finding E-03) because of the lack of available treatment facilities. The storage of LLW does not meet applicable DOE orders or WMCO regulatory compliance guides (Findings E-04 and E-07). Many wastes are stored outside in uncovered areas that do not provide for adequate control of runoff. The FMPC is aware of these deficiencies and has been making progress in meeting applicable requirements.

The areas of particular concern with regard to CERCLA relate to RI/FS activities. The first concern is the uncertainty in the structural integrity of the K-65 silos that may represent a continuing potential risk to public health and the environment (Findings E-11 and E-14). Since the remedial action(s) addressing the K-65 residue will not be known until a decision is made based on the RI/FS, elimination of the threat is not likely to occur for several years. The second concern is over the inadequate implementation of the RI/FS (Findings E-09, E-10, and E-12). Failure to meet commitments and to show progress has resulted in EPA Region V issuing notices of noncompliance with the FFCA. With the existing enforcement clauses in the amended FFCA and draft interagency agreement, DOE is subject to enforcement actions if work toward site remediation is not given

major emphasis. In addition, the compliance assessment noted problems with the quantification of releases of hazardous and radioactive substances that may require reporting to the National Response Center (Finding E-13).

The FMPC CAA program meets current permit limitations, but there are three areas of concern. First, the amount of fugitive emissions and unplanned releases have increased relative to stack emissions. As stack emissions have been reduced, fugitive sources and unplanned releases now make up 70% of total releases. Second, there are several deficiencies in the emissions monitoring program that detract from reliability of the data (Findings E-15 and E-16). These include samples being obtained under nonrepresentative conditions or using procedures that deviate from prescribed criteria. Last, failure to obtain permits to install and permits to operate has the potential to restrict operations in the near future.

The FMPC's CWA and SDWA programs do not meet all applicable requirements. The FMPC does not meet all requirements of its expired National Pollutant Discharge Elimination System (NPDES) permit and its Consent Decree. Various wastewater/runoff items are not within specifications (Finding E-17). This may result in increased potential for future environmental problems because of sustained environmental releases of potentially hazardous substances. Past releases in the waste pit area and the storm sewer outfall ditch have resulted in inorganic, organic, and radioactive contamination of the groundwater. Two principal groundwater contaminant plumes have been identified; one of which extends beyond the boundary of the site. In addition, one minor noncompliance was identified with respect to the SDWA. Because of an apparent oversight by FMPC and OEPA personnel, a sample of the facility's drinking water was never collected by OEPA for nitrate in 1987, as required by Ohio law.

Additional deficiencies were also noted in other areas. Various projects are under way

or planned to meet all applicable requirements in these areas (Findings E-1C, E-19, E-20, E-21, and E-22).

As mentioned previously, this current status of performance relative to environmental requirements is the result of several factors, including a history of inadequate financial and staff resources, tolerance of operating without meeting all applicable environmental requirements, lack of clear mission and direction from DOE to the contractor, past practices that did not meet current standards, and difficulty in assessing the applicability of changing environmental laws and regulations. The ability of the FMPC to meet all applicable requirements also was complicated by difficult relationships with regulatory agencies, due in part to past DOE resistance to EPA regulation in certain areas (e.g., mixed waste and RCRA) and continued disagreements on actions required to satisfy requirements.

The DOE interactions with the EPA, OEPA, and other state regulating agencies have ranged from cooperative to confrontational. The FMPC, EPA, and state agencies appear to have established a good working relationship. However, in some cases, conflicts have arisen over such things as differing interpretation of requirements; an FMPC perception that regulators are exceeding their regulatory authority; and EPA's opinion that DOE lacks responsiveness to schedules and review periods and is inflexible during negotiations.

Furthermore, the EPA and OEPA occasionally perceive a lack of complete commitment at the staff level; defensive attitudes toward their proposals; lack of justification for FMPC proposals; meetings limited to present one-sided arguments; and FMPC consultants sometimes unprepared, contradictory, and unfocused. The regulators' position is that their regulatory and enforcement functions must be carried out, and the FMPC must exhibit greater concern for achieving compliance.

The day-to-day environmental management of the FMPC is the shared responsibility of the DOE Site Office and WMCO. In addition, the DOE Site Office and ORO have oversight responsibility. WMCO implements its responsibility through various departments within its organization and with the assistance of support contractors. The DOE Site Office and WMCO realize the mutual responsibilities they share regarding the needed improvements at the FMPC.

The staff of the DOE FMPC Site Office is very dedicated but overwhelmed by the volume of environmental issues for which they have responsibility. The staffing level is not sufficient to provide the leadership and management control required to meet the current functions. The magnitude of required oversight and review activities has always been high and has expanded under the various regulatory agreements and orders. The number of permanent on-site personnel has never matched the level of effort needed to be fully effective.

The staff workloads, for extended periods, are beyond what can reasonably be expected to be completed successfully. In some cases, the lack of experienced staff has required that some functions be assigned to novice personnel. Although this helps personnel development and provides some program coverage, critical decisions and resources may be compromised.

The environmental group is operating with 50% of its allocated positions vacant. The existing staff is enthusiastic, but has relatively limited experience with the complexities of the major regulations of RCRA and CERCLA. The need for additional training is recognized; however, the time for staff to avail themselves for training is limited. ORO personnel have augmented the on-site staff for periods of 4 to 6 months to provide interim oversight and management of critical activities. Support contractors also have been used to reduce the burden of the more routine environmental management issues. The

DOE Site Office is continuing to seek additional qualified personnel.

The WMCO environmental organization consists of professionals who also are dedicated but overwhelmed and frustrated by the slow progress. As a result, since January 1986, WMCO and DOE have not achieved full compliance at the FMPC with any major environmental law. In some areas, there is an inability to match the right expertise on projects to ensure environmental compliance. Internal verifications that actions meet environmental requirements are not being performed.

The WMCO environmental organization has recently been restructured, with the intention of being more responsive to its changing mission direction and current envi-

ronmental challenges. The priorities that WMCO has recently placed on environmental compliance activities are reflected in the current staffing, experience level, and assigned functions. It is difficult to assess whether the current organization will perform better than in the past. However, additional resources appear to be needed for the FMPC to successfully meet the challenges it currently faces.

A description of FMPC's environmental program structure for meeting regulatory requirements is outlined by area in Section C1.3. An overall summary of the compliance status, specific noncompliance items, adequacy of environmental organizations and resources, and root causes of noncompliances are discussed by environmental statute(s) or program area.

C1.3 Environment Subteam Evaluations

This assessment was conducted by evaluating several environmental functional areas. The following subsections provide program and implementation criteria, evaluation narrative, and conclusions within each functional area.

C1.3.1 National Environmental Policy Act (NEPA)

C1.3.1.1 Description and Assessment Criteria

The DOE Site Office is responsible for review, approval, and transmittal of WMCO NEPA documents to DOE-Headquarters (HQ). WMCO submits NEPA documentation to the DOE Site Manager. All documents are reviewed by the DOE Site Office contractor staff (Lee Wan & Associates) and the appropriate DOE Site Office engineering staff. When the documents are acceptable, they are reviewed and sent to the DOE Site Manager for approval and signature. Subsequently, except for categorical exclusions, all documents are sent to the DOE Office of NEPA Project Assistance (EH-25) for approval prior to the start of construction. For subprojects under Environment, Health, and Safety Improvements Line Item 87-D-159, all NEPA documents are submitted to EH-25 for approval prior to the Energy Systems Acquisition Advisory Board meetings or prior to submittal to the Acquisition Executive for any special request for start of construction. The agreement that FMPC NEPA documentation should go directly to EH-25 and not to the ORO Environmental Protection Division for review and concurrence was formalized by ORO and the DOE Site Office on March 2, 1988.

The WMCO policy and procedures for NEPA activities at the FMPC are found in FMPC-518, Completion of NEPA Documentation. Overall, NEPA management for WMCO is under FMPC Restoration. In mid-1987, WMCO, with the concurrence of the

DOE Site Office Manager and DOE-HQ, established a unique program of NEPA procedures and interim NEPA documents pertinent to FMPC for the many renovation and construction projects undertaken during the current preparation of the sitewide environmental impact statement (EIS). These procedures were approved in the October 1987 EIS Implementation Plan and are implemented, in part, via FMPC-518. When the EIS is issued, the use of several of the interim NEPA procedures and documents is intended to be discontinued.

C1.3.1.2 Evaluation

The history of NEPA requirements at FMPC is recent, with apparently only one approved assessment document (DOE/EA-0260) predating 1986. Since that time, more than 200 NEPA and NEPA-related documents have been prepared for activities and new actions on the site.

Planning for major site renovation began in 1982, with construction commencing in late 1985; however, the need for and a decision to prepare an EIS were not recognized and made until 1986. To accommodate the need for continued construction and improvements in FMPC's environmental, health, and safety conditions, the interim NEPA procedures discussed above were approved by DOE and put into place. This interim system and its unique documents are not in strict conformance with either the Council on Environmental Quality (CEQ) regulations or the DOE NEPA guidelines that require the completion of the NEPA process (i.e., the EIS) prior to initiation of the actions being assessed. The interim system, however, has permitted DOE and WMCO to track very closely and to assess the individual impacts of the many renovation, construction, and other projects conducted during the EIS preparation period. This interim system renders DOE potentially exposed to challenge, even though the DOE Site Office and WMCO

have adhered very closely to the interim NEPA procedures. This situation has been compounded further by several delays in issuance of the EIS, brought on by changes in the defense projects within DOE. Delay in the EIS also has hampered a needed cumulative impact assessment of the many projects undertaken since 1985. The EIS is more than a year behind schedule.

The intent of NEPA to factor environmental considerations into the programmatic decision-making process has not been completely integrated at the DOE Site Office. Emphasis has been placed on renovation and construction needs and on the completion of interim NEPA documentation, rather than on adequate environmental decision making that uses the NEPA process.

During the preparation and review of major NEPA documents [environmental assessments (EAs) and the EIS], QA and quality control (QC) have not been consistent. This has resulted in some deficiencies in documentation with respect to adherence to requirements for content, length, and technical adequacy. The DOE Site Office and WMCO personnel currently involved in NEPA compliance have not received training in the DOE, CEQ, or WMCO NEPA procedures and review processes. Funds for training apparently have not been provided, suggesting that it may be a low priority. Formal guidance has not been developed by DOE-HQ and provided to FMPC. This guidance is necessary to achieve full adherence in the assessment of cumulative impacts in NEPA documents, and so that the DOE-required integration of NEPA with CERCLA and RCRA can be achieved in a timely and efficient manner for both current removal actions and assessment of six RI/FS operable units.

The major regulatory concern is the preparation of the sitewide/renovation EIS after the initiation of significant construction and site modification activities. This EIS is not in conformance with DOE NEPA guidelines

[52 FR 47762-47670, Section B.2 (a) (2)] or with CEQ regulations (40 CFR 1502.5) that state that the EIS "... shall be prepared early enough so that it can serve practically as an important contribution to the decisionmaking process and will not be used to rationalize or justify decisions already made." This process has resulted, also, in the conduct of many interim actions at FMPC that, collectively, may have adverse cumulative impacts and that may limit the choices of reasonable alternatives, in violation of CEQ regulations (40 CFR 1506.1) on limitations of actions during the NEPA process. The analysis of reasonable alternatives in the EIS is incomplete and not rigorous in terms of the future mission and activities of the site, thus resulting in violation of CEQ regulations (40 CFR 1502.14). The EIS is being revised to correct this.

The DOE procedural deficiencies identified during the assessment were the following:

- the misuse of the categorical exclusion that relies on previous NEPA documentation as outlined in the DOE NEPA guidelines (52 FR 47662) (i.e., the previous NEPA documentation was not referenced, thus the adequacy of these documents cannot be determined)
- a lack of recognition and promotion of NEPA by the DOE-HQ program office as described in DOE Order 5440.1C, National Environmental Policy Act, and illustrated by the fact that no NEPA review was performed for the site until the 1985 issuance of DOE/EA-0260
- the lack of a final sitewide EIS that has been in preparation since 1986.

C1.3.1.3 Conclusion

The NEPA management practices at the FMPC have improved significantly since WMCO became responsible for operations in 1986. The DOE and WMCO staff resources appear adequate for implementation of NEPA activities. Deficiencies were found in NEPA

document QA/QC, written procedures, training, guidance, and oversight. The DOE-HQ, the DOE Site Office, and WMCO share responsibility for these deficiencies. Concern continues to exist regarding the following: 1) delay in preparation and issuance of the sitewide EIS, 2) absence of a valid cumulative impact assessment of the many ongoing and planned activities, 3) potential challenges because of the conduct of so many interim actions during the EIS preparation period, and 4) full integration of the intent of NEPA into the programmatic decision-making process at the FMPC.

C1.3.2 Resource Conservation and Recovery Act (RCRA), Solid Waste Disposal Act (SWDA), and Radioactive Waste Management

C1.3.2.1 Description and Assessment Criteria

The FMPC currently generates and stores three categories of waste: 1) mixed radioactive/hazardous waste, 2) conventional industrial waste, and 3) low-level radioactive waste (LLW). All hazardous waste at the FMPC is assumed to be radioactively contaminated and is generally managed as mixed waste. The FMPC also stores mixed waste received from Reactive Metals, Inc. In addition, the FMPC has served as the DOE thorium repository since 1972. The FMPC has no active on-site treatment or disposal facilities for mixed waste.

C1.3.2.1.1 Organization

The WMCO organization for managing wastes at the FMPC includes the following: 1) Waste Operations, 2) Environmental Engineering, 3) Environmental Compliance, and 4) RCRA. Each of these organizations is part of FMPC Restoration. Waste Operations performs the day-to-day, hands-on handling and management of LLW, mixed waste, and conventional waste and maintains the various waste management facilities. Environmental Engineering provides technical and engineer-

ing support for specific projects involving waste management (e.g., drafting standard operating procedures and closure plans). Environmental Compliance provides support for the interpretation and determination of applicable requirements of Federal and state waste management regulations. The RCRA organization coordinates and tracks the progress of all RCRA activities.

C1.3.2.1.2 Mixed Radioactive/Hazardous Waste

Routine activities, primarily facilities and maintenance, generate approximately 200 drum equivalents (DEs) of hazardous/mixed waste per year. These wastes consist of spent solvents, solvent- and lead-contaminated machining oils and oily sludges, contaminated solids (e.g., soil, rags, etc.), and excess laboratory chemicals. The FMPC has reduced its generation rate over the past several years because of the implementation of waste minimization measures (e.g., substitution and segregation) and reduced site activities. Nonroutine activities (e.g., cleanup of contaminated soil) also generate mixed wastes. The quantity of this waste varies, but will increase as the FMPC begins remedial actions.

The FMPC currently stores a total of 3000 drums of mixed and suspect mixed wastes (2000 and 1000 drums, respectively). This waste is currently stored in one of three RCRA storage areas. The FMPC also began using a 90-day storage facility in August 1989. In 1987, the FMPC shipped 900 drums of mixed waste to the TSCA incinerator at Oak Ridge. Further shipments have been halted, pending the permitting of the incinerator. There are no other treatment, storage, or disposal facilities available for FMPC mixed waste.

Also, the FMPC has scheduled closures for 5 inactive RCRA facilities and 11 underground storage tanks (there is only one active tank remaining). The FMPC also is characterizing at least four other units or areas that may have been contaminated with hazardous

waste. These units include Waste Pit #5, the salt oil tank, the fire training burn pit, and the K-65 silos.

C1.3.2.1.3 RCRA Groundwater Monitoring

The FMPC has a groundwater monitoring program in place for Waste Pit #4. Detection monitoring for this unit began in 1985. Statistically significant changes have occurred in groundwater quality downgradient of Waste Pit #4. In response to these changes and in accordance with 40 CFR Part 265, Subpart F, the FMPC has submitted a groundwater quality assessment plan to EPA and OEPA. Deficiencies were noted by OEPA in this plan, and responses have been prepared by WMCO. WMCO is currently operating under a plan submitted but not yet approved.

C1.3.2.1.4 RCRA Compliance Status

In December 1988, the OEPA and DOE entered into a Consent Decree requiring DOE to conduct hazardous waste activities in compliance with applicable Federal and Ohio laws. In February 1988, EPA issued a Complaint and Findings of Violation and Compliance Order against WMCO because of numerous repeat violations. These repeat violations include the following: 1) incomplete contingency plans and/or inadequate distribution, 2) inadequate training and training records, 3) inadequate waste analysis, 4) inadequate groundwater monitoring and sampling, 5) inadequate closure plans, and 6) inadequate aisle space in RCRA storage areas.

The facility intends to address many of these RCRA requirements by October 1, 1989. By that time, the FMPC expects to complete a comprehensive sitewide training program for RCRA awareness and compliance and other job-specific procedure training for RCRA-related activities. The FMPC also expects to submit a revised Part B permit application, which will include a revised waste sampling and analysis plan, a revised

contingency plan, and the closure plans for all inactive facilities.

C1.3.2.1.5 Conventional Industrial Waste

This waste consists of nonradioactive waste, such as nonprocessed trash, boiler plant fly ash, water treatment sludges, and sewage sludges.

Except for the nonprocess trash, which is segregated from potentially contaminated trash at the source and is disposed at a permitted off-site solid waste landfill, the other wastes in this category are exempt from regulatory requirements for solid waste. The boiler plant fly ash is disposed in on-site aboveground piles; the water treatment sludges are discharged to an on-site lagoon, where the sludges settle and the clear liquid is decanted to the FMPC general sump; and the sewage sludges are dried on the site and are burned in the Plant 8 rotary kiln.

C1.3.2.1.6 Low-Level Radioactive Waste

The FMPC generates LLW from production (process residues), construction (contaminated soil and concrete), and waste management activities (pallets, drums). The FMPC currently stores approximately 104,000 (DEs) of LLW on the site. This is broken down as follows: 1) process residues (48,000 DEs), 2) refuse (35,000 DEs), and 3) construction waste (21,000 DEs). Most of this waste is stored in outside uncovered areas, pending shipment to the Nevada Test Site.

The FMPC also stores 11,000 DEs of thorium materials on the site. Most of this material (except 212 DEs) is stored in covered areas. The FMPC intends to repackage this material.

C1.3.2.2 Evaluation

The FMPC waste management program for mixed waste and LLW or is not meeting established regulations, DOE orders, or Best Management Practices. The FMPC is aware of many of these deficiencies and over the

past year has been making progress toward achieving compliance.

C1.3.2.2.1 Mixed Radioactive/ Hazardous Waste

Mixed waste storage and accumulation are not meeting RCRA requirements, FMPC procedures, and Best Management Practices. These deficiencies are described below.

- The FMPC has and will continue to store waste subject to land disposal restrictions (LDRs). As of August 2, 1989, the FMPC had stored 843 drums of LDR mixed waste.
- The FMPC does not have a fully developed RCRA program. Many key documents are currently being revised and/or have not received EPA approval (e.g., sampling and analysis plan, closure plans, contingency plan, groundwater assessment monitoring program). In addition, the FMPC is only at the beginning stages of implementing key program elements (e.g., training, establishment of a complete operating record, establishment of satellite accumulation areas).
- All wastes and past process, storage, and disposal facilities have not been adequately characterized for RCRA applicability, complicating waste management and restoration efforts.
- Most mixed waste is stored in adequate facilities and containers; however, all containers, facilities, and procedures do not comply with applicable regulations or Best Management Practices.
- The FMPC waste management program may not be inclusive of all wastes in accordance with the RCRA definition of solid waste. The DOE criteria for classifying recoverable residues as waste (the Economic Discard Limit) may not be consistent with the RCRA criteria for speculative accumulation.

Most of the mixed waste deficiencies have been identified by WMCO and are in the

RCRA Implementation Plan that WMCO developed in late 1988 or in the ongoing RCRA compliance program. The FMPC has been making progress toward completing the actions in the plan that are the subject of Compliance Orders or Consent Decrees, but has many activities to complete or implement to meet all requirements.

C1.3.2.2.2 Conventional Industrial Waste

This waste stream is generally adequately managed. One deficiency is the operation of the boiler fly ash pile, from which potentially contaminated runoff and leachate are allowed to migrate freely to the surrounding environment. The uncontrolled runoff is both a potential surface-water contamination issue (Section C1.3.5) and the leachate is a potential groundwater contamination issue.

C1.3.2.2.3 Low-Level Radioactive Waste

The FMPC management of LLW does not meet the requirements of DOE Order 5820.2A or WMCO Regulatory Compliance Guide RCA-3. The primary concern with LLW management is the limited capacity and poor condition of the waste storage facilities. Most of these wastes are stored in uncovered areas that do not provide for adequate control of runoff (pads are not diked and are cracked). Some of the waste is stored in deteriorated drums, and may be chemically or radioactively contaminating the runoff.

In the case of the thorium material, poor drum condition is expected to complicate the repackaging effort. These drums are so corroded that they will likely fall apart when handled for repackaging, potentially creating a worker health and safety problem. Thorium drums stored outside also may contribute to chemical or radioactive contamination runoff.

The FMPC intends, by 1992, to eliminate its backlog of LLW and to renovate existing storage areas. Within the same time frame, the FMPC expects to add new covered LLW

storage areas and repackage thorium materials. These plans, in particular the elimination of the existing backlog, are subject to funding constraints. The FMPC also has developed and implemented procedures to minimize certain LLW streams (e.g., contaminated construction waste) and has investigated methods for reducing process wastes. Since it appears that the FMPC will not continue long-term production operations, significant efforts to minimize process residues (e.g., process changes) may not be cost effective.

C1.3.2.3 Conclusions

The FMPC waste management is not meeting applicable regulations, DOE orders, and Best Management Practices. With regard to mixed wastes, this is due, in part, to the past DOE position that these wastes were exempt from RCRA, a past lack of awareness by DOE and WMCO of RCRA requirements, and corresponding underestimation of the resources needed to achieve and maintain compliance. In the case of LLW, the FMPC did not adequately plan for its long-term storage or disposal.

The FMPC has identified many of these problems and is making progress toward correcting them. Establishing RCRA compliance as the number one FMPC priority has been an important factor in this progress. The FMPC will need to maintain this emphasis on both mixed and LLW management over the next several years to meet all applicable requirements.

C1.3.3 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Superfund Amendments and Reauthorization Act (SARA)

C1.3.3.1 Description and Assessment Criteria

Activities at the FMPC that are being conducted under CERCLA and SARA have been organized under the Environmental Remedial Action (ERA) Project. The ERA Project includes the following:

- ongoing, sitewide RI/FS
- several CERCLA removal actions currently in the planning stages
- conceptual design reports, design criteria, and engineering and construction of the remedial actions.

Other activities at the FMPC regulated by CERCLA/SARA include the reporting requirements under the Emergency Planning and Community Right-to-Know Act and appropriate reporting of releases of hazardous substances.

Presently, the major activity of the ERA Project is the sitewide RI/FS. The RI/FS was initiated prior to formally establishing the ERA Project and was in response to the FFCA between DOE and EPA Region V in July 1986. The FFCA also specifically required the FMPC to implement an interim remedial action to control radioactive emissions and to maintain the structural integrity of the K-65 silos. In July 1988, the FFCA was modified to include CERCLA and RCRA enforceability clauses. Among these provisions is the requirement that DOE is to meet the deadlines associated with completion of the RI/FS and both interim and final remedial actions. Additionally, the FFCA modification committed both EPA and DOE to completing document reviews and revisions within designated time frames. Also in 1988, the OEPA and DOE entered into a Consent Decree that acknowledged the conduct of the RI/FS under the FFCA.

In May 1989, DOE and EPA began work on developing an interagency agreement that is intended, when signed, to supersede the CERCLA portion of the FFCA. This was done in expectation of the FMPC being proposed for inclusion on the National Priorities List. The proposed listing of the FMPC was announced in July 1989. Negotiations on the draft interagency agreement are currently in progress.

Responsibilities for the ERA Project are separated into RI/FS work and design/engineering work. The DOE Site Office is structured with an Environmental Group organization that includes the RI/FS Contracting Officer Technical Representative and the ERA Project Manager. At present, ORO is supplementing the DOE Site Office staff by providing an Acting Environmental Manager. Also, the position of the RI/FS Contracting Officer Technical Representative is currently being filled by the Site Office Manager until additional personnel can be recruited.

The WMCO organization to support the ERA Project is the responsibility of the Vice President, FMPC Restoration. This function is structured in a manner similar to DOE, in that two key organizations have been established: 1) the RI/FS and 2) the ERA Project. Both organizations also may call on the technical resources available in Environmental Engineering.

The CERCLA removal actions are presently the responsibility of the WMCO ERA project, with input provided from the RI/FS organization and the RI/FS subcontractor. The SARA emergency planning and community right-to-know reporting responsibilities fall under three WMCO organizations: 1) Environmental Compliance, 2) Administration, and 3) Quality and Safety.

C1.3.3.2 Evaluation

Two areas of particular concern regarding the CERCLA activities at the FMPC have been identified. One is the continuing emission of radon from the K-65 silos and the other deals with the problems in implementing the RI/FS to successfully meet the requirements of the FFCA.

C1.3.3.2.1 K-65 Silos

The K-65 silos represent a continuing risk to public health and the environment because of the potential structural instability that may result in an instantaneous release of their radioactive gas contents. The silos contain wastes generated by the extraction of ura-

nium from pitchblende. The structural integrity of the K-65 silos is in question (see related finding in the Safety and Health Subteam Report, Appendix C2), and their current condition could potentially result in environmental contamination. Currently, radon and its daughter products are emitted into the air from the silo domes.

The silos were constructed in 1952 and received waste residues primarily from 1952 to 1958. In 1986, the FFCA required FMPC to control radioactive emissions and to maintain structural integrity of the silos. In an effort to meet the FFCA requirements, several improvements have been made (e.g., a foam coating intended to reduce weathering, internal temperature changes, and radon gas emissions). Also, a radon treatment system has been installed to reduce exposures to workers examining the silos and their contents.

Since the storage of the K-65 residue may pose a risk to public health and the environment, an interim stabilization project is being undertaken as a CERCLA removal action. This planned removal action was to place a 4-ft layer of sand in the two silos to provide a protective barrier in case of a partial dome collapse. However, recent sampling of the residues in the silos found that the material was much wetter than originally expected. Consequently, the feasibility of this sandfill project is now in doubt. On July 14, 1989, DOE notified EPA Region V and OEPA that the interim stabilization project activities were suspended until additional samples could be collected and tested. Since the final remedial action for the K-65 silos will be determined through the RI/FS, elimination of the risk posed by the silos is not likely to occur for several years.

The DOE Site Office and ORO have designated the K-65 silos as a number one priority project in the Secretary's 5-year plan. The communities surrounding Fernald, Ohio, were apprised in a public meeting of the high level of concern that DOE, OEPA, and EPA

has for the silos and of the planned interim stabilization with sand. There is a concern of the regulators that this recent suspension of the project may diminish DOE's credibility.

C1.3.3.2.2 Remedial Investigation/ Feasibility Study Program

The RI/FS program at the FMPC has been active for almost 3 years; yet, it is difficult to obtain and compile written documents that demonstrate the technical accomplishments made to date. Failure to meet commitments and to show progress has resulted in EPA Region V issuing notices of noncompliance with the FFCA. If the current trend continues, similar noncompliance notices may be expected. Also, the amended FFCA and the draft interagency agreement contain enforcement clauses to which DOE is subject if work toward site remediation does not meet the technical scope, quality, and schedule requirements outlined in these agreements.

As of August 12, 1989, the FMPC did not meet the schedule for submittal of the Draft Remedial Investigation Report and, thus, DOE failed to meet the commitments of the FFCA. This report represents a significant milestone in the performance of the RI/FS because it is the first formally published document available to EPA Region V that explains the conclusions on the nature and extent of contamination identified at the FMPC. Delays in completion of the remedial investigation have, in part, been caused by increases in the scope of work directed by DOE as a result of new information or in response to additional work considered necessary by EPA Region V. These changes have been substantial as demonstrated by the escalation of the total project cost. The original estimate for the RI/FS was \$1.7 million, current incurred cost is approximately \$25 million, and projected cost at completion is now estimated at \$50 million. Failure to meet this major milestone established in the FFCA places DOE in a situation where it is virtually impossible for the FMPC to meet its final commitment for submittal of the Record of Decision in September 1990. Early in

1989, the DOE requested a 15-month extension for completion of the RI/FS. EPA Region V has not concurred with this extension; however, it is expected that new schedules will be negotiated and incorporated in the interagency agreement. Currently, it is Region V EPA's position that approval of this extension in the completion of the overall RI/FS is contingent on DOE agreeing to implement several removal actions that would accelerate the schedule for the higher priority environmental problems identified to date.

Another weakness in the performance of the RI/FS is demonstrated by EPA's issuance of a Notice of Violation to the FMPC for failure to implement the Community Relations Plan that would effectively inform and elicit involvement from the community regarding decisions on response actions. A separate letter on a related subject also was issued by EPA Region V regarding inadequacies in the administrative record for the RI/FS. One of the obstacles faced by DOE in fully implementing the community relations activities had been the concerns associated with the ongoing litigation. In response to EPA, the FMPC has assigned additional resources in this area. To date, interviews with community members have been conducted. The FMPC plans to use this information as input to the revisions of the Community Relations Plan. Also, the specific task of maintaining the administrative record has been assigned to project personnel. Weaknesses were still noted in its organization and its completeness relative to containing all pertinent documents associated with information being considered or already used to make decisions in the RI/FS program.

The FMPC also has failed to adequately follow EPA guidance that is incorporated by reference into the FFCA. An example of this includes the apparent failure to develop data quality objectives needed for tasks in the RI/FS. Establishment of these objectives is recommended in EPA's guidance as an essential part of the initial scoping process. Data quality objectives help ensure that the data

produced are of sufficient reliability to support sound decisions made throughout the RI/FS and have a direct impact on project schedule and costs. In addition, the chemical data being produced in the remedial investigation are not being validated in accordance with EPA guidelines and procedures. Consequently, both past and future decisions made in the RI/FS program relative to the protection of public health may be compromised by using data that are not legally defensible because they have not been properly validated.

During the past year, difficulties experienced by DOE in interacting with the regulatory agencies on CERCLA-related commitments in the FFCA have been elevated to the upper management level in ORO. Meetings have been held between ORO and EPA management to discuss these problems and to initiate their resolution. In addition, DOE established a task force to address these issues associated with the RI/FS program. In the same time frame, a person from ORO was temporarily assigned to the DOE Site Office to provide additional resources to help improve DOE's relationship with EPA Region V. These efforts have increased the awareness within DOE of the importance and sensitivities associated with the RI/FS work and, to some degree, succeeded in meeting the immediate needs of the program. However, the long-term solution, a commitment of permanent, full-time resources, remains a critical need for DOE to regain credibility and to effectively implement the RI/FS program.

C1.3.3.3 Conclusions

Public health and environmental risks posed by the K-65 silos are the result of historical waste storage practices. The K-65 interim stabilization project remains a top priority for DOE at the FMPC.

The FMPC is not fulfilling the requirements of the CERCLA portion of the FFCA. The RI/FS program at the FMPC has suf-

fered from insufficient staffing to adequately manage a program of its size and importance. Recent efforts by DOE, along with the reorganization within WMCO in recognition of the change in the FMPC's mission, need time now to prove their effectiveness. It is apparent that FMPC personnel are willing to take an active role in site remediation, given that the appropriate attention and support are provided by DOE.

C1.3.4 Clean Air Act (CAA)

C1.3.4.1 Description and Assessment Criteria

The implementation of the CAA at FMPC is carried out primarily by Operations, with oversight and reporting handled by Environmental Compliance.

Particulate radionuclides are the principal emission of concern at FMPC because of the extensive production and processing of uranium feed materials, intermediates, and metal products. Particulate emissions to the air warrant emphasis because air is the critical pathway by which contaminants may reach the environment and the community.

Particulate emissions are controlled primarily by dry dust collectors and a small number of wet scrubbers. Although baghouses dominate among the dry dust collectors, a program is in place to supplant most major source control baghouses with high-efficiency particulate air (HEPA) systems. The HEPA-based systems are well-designed, state-of-the-art collectors, with computer controlled sampling to ensure true isokinetic (representative) sampling.

For particulate radionuclide control equipment, most functions are handled by Operations. Design and testing of control equipment are the functions of Operations Support. Operation and maintenance of control equipment and analysis of samples are conducted by others within Operations. Sampling, however, is carried out by Radiological Safety.

Nonradionuclide emissions occur primarily from a coal-fired steam plant that generates steam for the production processes and utility heating. Emissions from the steam plant include particulates, sulfur dioxide, and nitrogen oxides. Electrostatic precipitators are used to control particulates (and opacity). Sulfur dioxide emissions are controlled by burning low-sulfur (1%) coal. Operation of the steam plant and the controls and reporting of emissions are handled by Utilities.

Discussion of emissions control and monitoring at the FMPC is complicated by the 459 emission sources. Prior to 1989, 61 of the sources were monitored for particulates and radionuclides. Nine additional sources will be monitored when they are placed in operation. The remaining 389 nonmonitored sources consist of stacks not in service, stacks containing no radionuclides, building exhausts, breathing vents, stacks abandoned in place, intake stacks, nonprocess stacks, and stacks reviewed as insignificant.

Stack sampling is conducted by filtering a small side stream of each stack to capture all particulates. The filters are periodically analyzed for total suspended particulates and uranium. On an annual basis, weekly samples are composited to determine other radionuclides.

Oversight and compliance monitoring reports are handled by Environmental Compliance. This organization also operates an ambient air monitoring program. This program utilizes a family of 14 high-volume air samplers, 7 of which are located on the site perimeter and 2 of which are located within plant boundaries (in the principal downwind direction from the process area). The remaining five stations are located off the site. An additional two off-site monitors are planned for installation during the coming year.

C1.3.4.2 Evaluation

The FMPC environmental air program is in compliance with permit limitations. Annual

emissions result primarily from unplanned releases and fugitive sources. The record of steam plant operation is excellent. The evaluation uncovered three areas of concern: unplanned releases, deficiencies in monitoring systems, and inadequate oversight and review.

First, with respect to unplanned releases, it is necessary to recount progress in reducing uranium emissions. During the period 1951 to 1977, uranium stack emissions averaged 4900 kg/yr. From 1978 to 1984, emissions averaged 295 kg/yr. From 1985 to 1988, emissions averaged only 63.5 kg/yr. As stack emissions were reduced, however, emissions from fugitive sources and unplanned releases represented a higher percentage of total plant emissions. From 1985 to 1988, emissions from fugitive sources and unplanned releases accounted for approximately 70% of total uranium emissions.

With respect to the emissions monitoring program, although the FMPC has established a comprehensive program of stack and ambient air monitoring, several deficiencies detract from the reliability of data. These include samples not being obtained under representative conditions, analyses using procedures that deviate from specifications, and ambient air monitoring stations not meeting prescribed siting criteria.

Inadequate oversight and review appear to be responsible for several minor problems listed above. In addition, failure to obtain permits to install and permits to operate have the potential to restrict operation in the near future.

C1.3.4.3 Conclusion

The FMPC is currently upgrading particulate controls and emissions monitoring equipment. Deficiencies are evident both in the old stack monitoring equipment and in the ambient air monitoring stations. Inadequate oversight and review appear to be responsible for a number of minor problems.

C1.3.5 Clean Water Act (CWA) and Safe Drinking Water Act (SDWA)

C1.3.5.1 Description and Assessment Criteria

Three primary types of wastewaters are generated at the FMPC: process wastewater, stormwater runoff, and sanitary wastewater. These wastewaters are regulated by the CWA and comprise one portion of the focus of the water activities for this assessment. The remaining portion of the water activities for this assessment is concerned with the drinking water at the FMPC, which is governed under the SDWA. Drinking water, process water, and fire protection water at the facility are produced from any of three on-site groundwater production wells. The distribution system for drinking water is separate from that for the FMPC process and fire protection waters.

At the FMPC, several WMCO organizations are responsible for ensuring compliance with CWA activities. General program oversight is provided by the Environmental Compliance Section, which includes water permitting and environmental monitoring activities. These activities are supplemented with personnel from other sections, such as Operations Support, Utilities, Manufacturing, and Maintenance that are responsible for the daily activities relating to the generation, management, treatment, and sampling of wastewaters. Environmental Engineering-Liquid Waste is responsible for providing input to the design of new wastewater treatment and control systems and to the permitting process. The oversight of planned and ongoing construction activities related to water is mainly provided by Environmental Projects Engineering (which includes Environment, Health, and Safety Improvements and the Bionitrification Project), General Plant Projects/Capital Equipment, Productivity Retention Items, and the Productivity Retention Program.

All three types of wastewaters generated at the FMPC undergo some form of treat-

ment prior to their off-site discharge. Process wastewater is often treated at the point of origin in the production areas prior to undergoing further treatment at the general sump. Unit operations, such as neutralization, precipitation, and sedimentation are used to effect the removal of metals and radionuclides. Nitrates are removed from wastewaters by use of a bionitrification unit that uses two fluidized bed bioreactors followed by aeration and clarification at the general sump. All process wastewaters are discharged at manhole 175 after treatment.

Stormwater runoff from most of the FMPC is collected in the storm sewer system. During significant storm events, stormwater is directed to the stormwater retention basins prior to being routed to manhole 175. Otherwise, most stormwater runoff is discharged directly to manhole 175. During heavy rainfall events (i.e., when the capacity of the stormwater retention basins is exceeded), overflow from the stormwater retention basins may discharge to Paddy's Run via the storm sewer outfall ditch. Stormwater runoff from the coal pile runoff basin is collected and directed to the general sump, while stormwater from the waste pit area is directed to the clear well prior to discharge to manhole 175 or to the bionitrification treatment system.

Sanitary wastewater includes sanitary sewage and washwater from the FMPC laundry operations. This wastewater is treated at the on-site sewage treatment plant prior to discharge via manhole 175.

The control and treatment of all three types of wastewaters produced at the FMPC are governed primarily by the NPDES permit. As directed by the 1988 Consent Decree reached between the OEPA and DOE, the FMPC is currently operating under NPDES Permit No. OH 0009580, which expired on February 1, 1985. The facility submitted an application for a new NPDES permit in 1988 and the draft permit was issued by OEPA in July 1989. Water activities at the FMPC also

are subject to requirements stated in a 1986 FFCA between EPA Region V and DOE and the 1987 OEPA Director's Findings and Orders. The 1988 Consent Decree incorporated the OEPA Director's Findings and Orders and is now the primary governing document for the water activities at the FMPC.

In addition to its requirements regarding compliance with the NPDES permit, the Consent Decree also addresses a number of other items relating to the control of wastewater and runoff, including the preparation and implementation of a Best Management Practices Plan and a Spill Prevention Control and Countermeasures Plan. These broad programs encompass a number of more specific wastewater/runoff items that are detailed in Section IV of the Consent Decree.

Oversight of activities associated with the SDWA is performed by Utilities Section personnel. This includes operating the water plant, as well as sampling the three production wells used as source water for all plant activities. The water from these wells is regulated by the OEPA under Ohio Administrative Codes 3745-81, Primary Contaminant Control, and 3745-82, Secondary Contaminant Control. The FMPC water supply is classified as a major noncommunity water supply based on a population of more than 1000 people.

C1.3.5.2 Evaluation

The FMPC currently does not meet all of the requirements of its expired NPDES permit and other items for the control of wastewater and stormwater runoff that are included in the Consent Decree. The Consent Decree requires that "DOE shall make every effort to manage its wastewater in such a way as to comply with the ... limitations of its present NPDES permit." These infractions are basically a result of historical problems with funding and planning that are recognized and are, for the most part, in the process of being resolved.

With respect to the NPDES permit, recent exceedances have occurred that are due in part to the operation of the biodenitrification unit. This unit has caused effluent limitations to be exceeded for total suspended solids and biochemical oxygen demand at the sewage treatment plant. Total suspended solids exceedances have been widespread at a number of monitoring locations for more than a year. This usually occurs after a heavy rainfall, which results either in inflow/infiltration to the aging pipelines or in necessitating the discharge of these high-total suspended solids waters prior to adequate settling time. The large amount of ongoing construction at the FMPC has tended to aggravate the problem, possibly because of the lack of planned erosion and sedimentation controls in the construction areas.

Various other items in the Consent Decree also have not been met. These areas mainly include the failure to respond in a timely fashion to OEPA requirements. For example, the Best Management Practices Plan was required to be implemented on approval. Several action items were identified in the plan when it was prepared in early 1988. The FMPC did not act on most of these actions in a timely manner, resulting in missed due dates and most items still outstanding. Likewise, the Spill Prevention Control and Countermeasures Plan is not being fully implemented in a timely manner.

Good working relationships generally exist among the DOE personnel, contractor personnel, and OEPA staff in the areas covered by the CWA and SDWA. The facility is aware of its problems with respect to its NPDES permit and is working closely with OEPA to resolve them. A number of improvement projects relating to water and wastewater are either ongoing or planned over the next few years. These projects fall into three basic categories: 1) projects to control stormwater and spills, 2) projects to improve wastewater

treatment and collection systems to meet the requirements of the CWA regulations and DOE orders, and 3) projects to improve effluent monitoring capabilities. Oversight for these activities is being provided by personnel from the programs for Environment, Health, and Safety Improvements; General Plant Project/Capital Equipment; Productivity Retention Items; and the Productivity Retention Program, which appear to be sound. As stated above, however, there appears to have been a lack of priority placed on the planning and implementation of other (i.e., non-NPDES) water-related projects specified in the Consent Decree.

There is some concern by contractor staff and by OEPA regarding the uncertain status of the FMPC production operations. This has contributed to the high attrition rate of contractor staff and to questions on the optimal use of funds for ongoing improvement projects. If the shift from production to remediation is expected to continue, FMPC management may need to reassess its plans for future water/ wastewater projects to ensure convergence with overall programmatic goals.

Past releases of chemical and radiological constituents in the waste pit area and the storm sewer outfall ditch have resulted in the contamination of groundwater. Two principal groundwater contaminant plumes have been identified; one plume extends beyond the boundary of the site. Collectively these plumes are reported to contain inorganic, organic, and radioactive constituents that in some instances have exceeded SDWA standards and proposed standards for uranium under DOE Order 5400.XX. While the SDWA standards may not be specifically applicable, under the Federal regulation, to contaminants found within the aquifer at the FMPC, the State of Ohio considers these standards appropriate to nonpublic supplies of groundwater.

In addition, one minor noncompliance was identified with respect to the SDWA. A sample of the facility's drinking water was to be

collected by OEPA for nitrate analysis in late 1987 in accordance with Ohio Administrative Code 3745-81-23. Due to an apparent oversight by FMPC and OEPA personnel, the required sample was never collected. The situation is now being remedied by OEPA and FMPC.

C1.3.5.3 Conclusion

The FMPC does not meet all of the requirements of its expired NPDES permit and various wastewater/runoff items specified in the Consent Decree, which requires that "DOE shall make every effort to manage its wastewater in such a way as to comply with the ... limitations of its present NPDES permit." This may result in increased potential for future environmental problems because of sustained environmental releases of potentially hazardous substances. However, the overall status of the FMPC's program with respect to the CWA and SDWA is improving. Various projects are under way and more are planned to enable the facility to achieve, and maintain adherence to, these regulations. Management will need to reassess its plans for the existing water improvement projects, when the long-term plans for the FMPC are identified, to ensure that resources are properly distributed to achieve the DOE's programmatic goals.

C1.3.6 Toxic Substance Control Act (TSCA) and Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

C1.3.6.1 Description and Assessment Criteria

The implementation of the TSCA and FIFRA at the FMPC involves the interaction of five WMCO organizations. The scope for the assessment covered the toxic materials purchase and handling procedures and the handling, storage, and record keeping of PCBs, asbestos, herbicides, and pesticides.

Management of toxic materials begins when Procurement and Materials Management sends purchase requisitions to Industrial

Hygiene and Safety for review. All chemicals are identified and given the hazardous material designation. This information, and an indication of whether the Material Safety Data Sheet is on file, are entered into the materials management computer system. This entry alerts both the receiving and stores areas as to the potential hazard. On receipt of flagged material, paperwork is generated on which a reminder, regarding the potential hazard to the handler, is readily marked. Transportation is notified about delivery, and a copy of the Material Safety Data Sheet accompanies the package. The procedures for warehousing ensure that a Material Safety Data Sheet accompanies every package. The FMPC system described here is appropriate for the tracking of toxic materials arriving on the site and ensures compliance with distribution of the materials.

The buildings in the FMPC production area were built during the 1950s and 1960s, and as such, the presence of asbestos was evident. The program responsibility for asbestos storage and disposal lies with Waste Operations. Over the past few years, there has been a concerted effort by FMPC management to remove significant amounts of on-site asbestos for off-site disposal. There is a significant accumulation of on-site drums containing asbestos (approximately 3000 DEs). The present plan is to containerize the drums and ship them to the Nevada Test Site for disposal in a landfill.

A review of the annual reports for PCBs from 1984 through 1988 indicates that there are no longer PCB transformers on the site. The 1988 annual report indicates there were 101 PCB-contaminated capacitors in service throughout the site. This year, WMCO set a goal to replace all in-service PCB-contaminated capacitors by July 31, 1989. This goal was met, and the surface radiation decontamination process is almost complete. These capacitors are being moved to storage, and along with other nonradioactively contaminated PCB items, are expected to be shipped off the site for incineration by the

end of FY 1990. This should reduce the total PCB drum inventory by approximately 50%. The remainder of the PCB items that are radioactively contaminated will have to remain on the site until the Oak Ridge TSCA incinerator is available for treatment. There also is an effort to reassess the contents of some drums that are presently labeled as PCB items. The storage and disposal of PCBs is the responsibility of Waste Operations.

Pesticides and herbicides are not presently being applied by on-site personnel; however, there is on-site storage of approximately 1000 pounds of dry pesticides and 35 gallons of herbicides. The program for pesticide/herbicide removal dictates having an off-site contractor use the materials for the required on-site applications until all have been depleted. An interview with WMCO's present contractor regarding certification, on-site use, and potential releases to the environment indicates that FIFRA guidelines were followed. The responsibility for storage of FIFRA materials resides with Maintenance.

To complete the organizational relationships regarding TSCA/FIFRA, inventory tracking of TSCA waste is a responsibility of Materials Control and Accountability; compliance issues, as they relate to report generation and management oversight, are the responsibility of Environmental Compliance; and moving materials on the site and manifesting waste shipments off the site are the responsibility of Transportation.

C1.3.6.2 Evaluation

The evaluation of the asbestos and toxic materials management programs indicates they are under control. In addition, the disposal plans for noncontaminated PCB items and the reassessment of drum designations appear to take a reasonable approach to waste segregation and minimization. The plan to deplete pesticide/herbicide stores, by attrition, may need to be reconsidered because of the potential for releases to the environment.

The most significant problem areas for the PCB and FIFRA programs are storage issues. During the transport of PCBs to on-site storage facilities, vehicles do not use placards as detailed in 40 CFR 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions. There have been drums that, when placed into storage, have had no accumulation dates recorded on the drum label, contrary to 40 CFR 761.65 requirements. The FMPC does not meet the requirements of 40 CFR 761.65 that relate to exceeding time limits set for temporary and permanent storage of PCBs prior to disposal and to the condition of PCB storage facilities. With regard to FIFRA, 40 CFR 165, Regulations for the Acceptance of Certain Pesticides and Recommended Procedures for the Disposal and Storage of Pesticides and Pesticide Containers, Section 10 supplies guidance that pesticides storage areas should not allow potential releases to the environment. Best Management Practices, as they relate to TSCA, also raise concerns with regard to releases to the environment.

The most important storage concern is the current poor physical condition of the PCB storage warehouse. This facility is delegated as the sole permanent PCB storage facility, and also houses over 1000 pounds of stored dry pesticides. This warehouse may not be suited for the storage of PCB items, based on criteria delineated in 40 CFR 761.165(b)(1)(i), personal observations that document inadequate walls and floors, and past inspection records that show a recent history of roof leaks. The FMPC has repaired the roof leaks and is in the process of repairing cracks in the floors. The FMPC should, however, improve the north and south barriers to ensure that rainwater does not enter the building. The warehouse also does not meet the guidance on potential releases of pesticides to the environment, as referenced above.

A second area of concern is record keeping. There have been two situations where PCB disposal paperwork has not included

certificates of disposal. There are no regulatory questions raised; however, there is a potential liability if the shipments were not properly disposed. There are problems with the completeness and accuracy of the data entered and/or received from the Materials Control and Accountability inventory tracking system. There are drums labeled as PCB items that are not identified on the inventory as PCB items. There is a PCB drum in Building 15 that is known to Waste Operations and Environmental Compliance and is not on the inventory. FIFRA-related chemicals are not on the inventory and were unknown to Environmental Compliance. The system problems are not regulatory in nature; however, these types of discrepancies, if continued, could result in PCB reporting that does not meet the requirements given in 40 CFR 761.180.

C1.3.6.3 Conclusion

The FMPC has well-planned and executed programs for on-site tracking of toxic materials and asbestos removal; however, the PCB storage procedures and MCA tracking of TSCA/FIFRA chemicals are inadequate. This is due, in part to poor communication and coordination between participating organizations.

C1.3.7 Environmental Monitoring

C1.3.7.1 Description and Assessment Criteria

The environmental monitoring program, required by DOE Order 5400.1, General Environmental Protection Program, and the environmental laws and regulations referenced in that order, is performed under the general oversight of the DOE Site Office. The primary responsibility for the program rests with FMPC Restoration. Most of the program is delegated to Environmental Compliance, although the RCRA program, including sampling, is delegated to the RCRA Organization. The RI/FS program has a separate manager, but most of the RI/FS work is performed by a contractor (Advanced Sciences, Inc.), who reports directly to DOE.

The environmental monitoring program includes effluent monitoring at the FMPC and ambient monitoring of the FMPC and surrounding area. Effluent monitoring includes stack emissions, surface-water runoff, and liquid effluents for radioactive and nonradioactive materials. Ambient environmental monitoring includes collection and interpretation of data from the region's groundwater, surface water, air, soil, sediment, vegetation, milk, fish, and ambient radiation. This section overlaps somewhat with the sections on CAA, CWA, and QA, and it draws on the data sheets from the specialists in these disciplines as well as the groundwater and radiation disciplines.

The sampling for effluent monitoring is primarily performed by Operations. Monitoring of the coal-fired steam plant, sewage treatment plant, production wells, and effluent to the Great Miami River is under the direction of Utilities. Some analyses of these samples also are performed by Utilities personnel. Stack sampling is an Environmental Compliance responsibility. Most ambient environmental samples collected by Environmental Compliance personnel are sent to the Occupational Safety and Health Chemistry (OS&HC) Laboratory Manager in Quality and Safety. Depending on the analyses required, the samples are analyzed by the OS&HC Laboratory, sent to an off-site contractor laboratory (IT Corporation for some radiological analyses, Howard Laboratories for nonradiological parameters), or the WMCO Analytical Laboratories in Operations for other radiological analyses. The Analytical Laboratories also analyze stack filters. Results of the analyses are provided to Environmental Compliance personnel for inclusion in compliance reports through the DOE Site Office and in the Environmental Monitoring Annual Report. Sampling for the RCRA program is performed for WMCO by Advanced Sciences, Inc. Sample analyses are performed off the site by IT Corporation.

C1.3.7.2 Evaluation

The nature of the past and current operations with radionuclides and hazardous chemicals, the large population within 50 miles of the site, the relatively high potential radiation dose to the nearest resident (compared to other DOE sites), and the high attention by the public warrant the intensive environmental monitoring program. Almost all deficiencies are being addressed by WMCO and DOE in some manner.

The principal area of concern in the environmental monitoring program is groundwater. Monthly sampling of on-site wells has not been completed according to FMPC's standard operating procedure. Much of this program has been incorporated into the RI/FS and RCRA programs, but the last full round of environmental sampling was concluded in February 1989. WMCO was aware of the situation and proposed groundwater sampling for July 1989. A resolution is needed soon to maintain program continuity and to fulfill the requirements of DOE Order 5400.1.

In most aspects of the environmental monitoring program, the FMPC is in concert with applicable laws, regulations, and DOE orders. The most important finding for environmental monitoring is that program management needs improvement in two areas: 1) the groundwater monitoring program and 2) the overall environmental monitoring plans now required by DOE Order 5400.1. An implementation plan to address these issues is due from FMPC by November 9, 1989. Deficiencies concerning environmental monitoring data management and modifications of sampling practices have not received attention.

The DOE and WMCO environmental organizations appear insufficient to handle the program. Insufficient resources consistently

appear to be the cause of program deficiencies. High turnover is evident in both organizations. Outside contractors have been employed, with some success, to ease the load on WMCO and the DOE Site Office. Another cause, certainly, is the changing regulations and DOE orders (many still in draft). Another factor is that the facility did not meet the applicable environmental requirements prior to WMCO taking over.

The FMPC appear to be committed to make every effort to comply with agreements and permits in a partially conflicting regulatory environment. The environmental monitoring activities are, on the whole, performed in a professional manner. Procedures cover most activities and are adequate. Some procedures need to be updated, especially with the recent organizational change in WMCO and the proposed changes in groundwater monitoring. There are some instances of failing to follow the procedures. Planning appears to be somewhat inadequate, probably because of the necessity to respond to immediate issues. Data evaluation and management need to be improved. Problem areas seem to be the following: finding enough time to examine the data in detail on a regular basis, developing statistical techniques to evaluate the data, establishing good communication between the various organizations involved in collecting the data, and developing action levels that require reporting of data prior to attaining noncompliance levels. The QA/QC varies within the organization from very good in some instances to inadequate in others.

C1.3.7.3 Conclusion

The management of the environmental monitoring program requires improvement. The principal area of concern is groundwater monitoring.

C1.3.8 Quality Assurance (QA)

C1.3.8.1 Description and Assessment Criteria

There are three on-site laboratory facilities performing environmental sample analyses:

- The Water Treatment Plant (WTP) Laboratory collects and analyzes samples at the general sump, manhole 175, and treated effluent waste streams prior to release. The purpose of the WTP Laboratory analytical program is to optimize FMPC water and wastewater treatment facilities; however, the program also contributes to NPDES compliance reporting and drinking water testing efforts. The WTP Laboratory is part of Operations.
- The Analytical Laboratories were the traditional stronghold of analytical support for the production operation. However, production operation support now accounts for approximately 10% of their sample load. The laboratories now focus their capabilities on performing inorganic analysis for NPDES compliance reporting, radioactivity testing of soils and groundwater for the on-site RI/FS and RCRA activities, and inorganic and RCRA physical testing for on-site soil samples. The Analytical Laboratories are a part of Operations.
- The OS&HC Laboratory is organizationally associated with the WMCO Quality and Safety. The laboratory has the major responsibility for radioactive monitoring for the environmental compliance program, and also has responsibilities on NPDES compliance reporting. All of the off-site contract work for environmental compliance that requires special treatment are coordinated through the OS&HC Laboratory. These analyses include low-level

radiation on air filters, milk samples, and samples of vegetation from the plant environs.

Site Analytical Quality Assurance (SAQA) has the responsibility of oversight for the QA/QC program for all on-site laboratories. The program is presently preparing and supplying QC samples, testing analytical proficiency of technical personnel in training, coordinating an interlaboratory testing program, and analyzing and assessing statistical data quality. SAQA feeds back the results of the QC program to all laboratories through production of reports, which are released on a monthly and quarterly basis. There also is a reporting of proficiency test results derived from participation in a nationwide interlaboratory program. SAQA also has stated responsibilities to conduct internal QA audits of laboratory practices to monitor compliance and conformance to approved policies and procedures established by laboratory-specific QA plans and to review and approve analytical methods and standard operating procedures. At present, there is insufficient staff to adequately accomplish these numerous and time-consuming tasks.

In addition to the on-site laboratory facilities, there are a number of off-site laboratories that are actively involved in environmental analysis. There are three contractors associated directly with the OS&HC Laboratory program that handle asbestos, RCRA soils, industrial hygiene (i.e., breathing zone analysis), and radiochemistry samples. Also, there are subcontracting arrangements contributing to the analysis of on-site RI/FS sampling. There is a QA/QC oversight program in place, and data specifications and monitoring activities are specifically delineated in the contracts. As stated above, the QC monitoring activities are actively pursued by OS&HC Laboratory personnel regarding the analyses they contract. The QA oversight of all the off-site laboratories is the purview of QA/QC personnel associated with Site Quality Engineering. Recent staff shortages of QA/QC personnel in Site Quality Engineering

have made audits of potential corrective actions, by contracted laboratories, extremely difficult to perform.

C1.3.8.2 Evaluation

Historically, the FMPC laboratories have served solely as analytical support groups for internal samples generated by their parent division. The WTP Laboratory and the Analytical Laboratories served the needs of plant production operations (this is still the major task of the WTP Laboratory) and the OS&HC Laboratory, previously the Bioassay Laboratory, served the groups associated with safety and quality. The data priorities of the site QA programs that are presently operating in the laboratories are holdovers from their original, internally focused missions. It appears that the problems observed in this assessment come from a failure to adapt to a changing external mission.

The internal data requirements defined the need for quick turnaround and direct reporting of data generated under quality controlled conditions. There was little need for procedures regarding sample tracking or documentation for verifying and tracing data generation, as long as the data were scientifically valid and statistically proven to be within control limits for precision and accuracy. A close investigation of the QC program shows it is well conceived, comprehensive, and contains all the elements of statistical control to ensure accurate, precise, and comparable data. However, the essential elements of an adequate QA program needed to ensure the defensibility through verification and traceability of data and accurate sample tracking and control are essentially missing at the on-site laboratories.

Two of the laboratories are not presently operating under approved QA plans that are essential in setting the goals, policies, and procedures to ensure the basic quality of data. This is a potential NPDES noncompliance with regard to 40 CFR 122, EPA Administered Permit Programs: The National Pollutant Discharge Elimination System,

Section 41. There has been no implementation of independent audit functions, which are the basis for identifying and resolving QA problems. These items are not being addressed adequately. Lastly, there has been little priority given to the approving of acceptable analytical draft methods and generating instructional standard operating procedures. Taken in concert, these factors point to the conclusion that there is no functioning QA program for on-site laboratories.

C1.3.8.3 Conclusion

There is no functioning comprehensive and independent QA program for the on-site lab-

oratories. The QA concerns suffer from the insufficient allocation of time and staff resources for the implementation of essential elements of a comprehensive program. Deficiencies were found in documentation, traceability, and verifiability of laboratory-derived data. The environmental data generated from the FMPC laboratories are probably accurate and precise, but they are not adequately defensible.

C1.4 Environment Subteam Findings

The Environment Subteam findings for the FMPC are contained in this section. The following is a listing and short identification of the findings. Also located on the individual findings is a reference to the data sheet(s) number(s) for ease of cross referencing.

E-01	Inadequate NEPA training and guidance
E-02*	Integration of NEPA into programmatic decision making
E-03*	Noncompliance with land disposal restrictions
E-04	Storage and disposal of low-level waste without adequate control
E-05*	Incomplete RCRA program
E-06	Incomplete characterization of wastes
E-07*	Speculative accumulation of hazardous waste
E-08*	Hazardous waste storage not in compliance with RCRA
E-09*	Requirements of the FFCA/CERCLA provisions are not being met
E-10*	Inadequate planning, management, and administration of CERCLA activities
E-11	K-65 silos potential risk to public health and environment
E-12	Natural Resource Trustee responsibilities may not have been met
E-13	Inadequate quantification of releases of hazardous substances
E-14	Unplanned releases, fugitive emissions, and radon emissions
E-15	Deficient stack and ambient air monitoring
E-16*	Deficient air environmental program
E-17*	Violation of Consent Decree wastewater/runoff requirements
E-18*	Improper management of TSCA/FIFRA chemicals
E-19	Environmental monitoring program has minor deficiencies
E-20	Environmental monitoring data management needs improvement
E-21	Sample locations, methods, collection, and analyses need modification
E-22	No independent QA program for on-site laboratories

* Potential areas where agreement and/or regulatory/DOE requirements are not met.

Environment, Safety, and Health Assessment Findings

References Data Sheet

Identification Codes

08-01 09-03 16-01

09-01 09-04 18-01

09-02 09-05

Finding(s)

The implementation of the NEPA process at FMPC has not consistently followed CEQ and DOE guidance and requirements. Site personnel are having difficulty in assessing cumulative impacts and in integrating the requirements of CERCLA and RCRA into the NEPA process.

Discussion

None of the FMPC contractor personnel currently involved in NEPA compliance received formal training in NEPA or in the CEQ, DOE, or WMCO requirements for implementing NEPA. Funds for training have not been provided. Formal guidance has not been issued for implementing the DOE policy on integrating the requirements of NEPA, CERCLA, and RCRA. The preparation of NEPA documentation and its submittal to DOE-HQ have been delegated from the ORO Environmental Protection Division to the DOE Site Office, thus removing ORO's experience in NEPA compliance from the FMPC NEPA process. NEPA documents (i.e., EAs) have become "mini-EISs," rather than concise and focused environmental decision-making tools. DOE has emphasized NEPA document preparation, review, and approval at the expense of refining and improving the NEPA compliance process. DOE emphasis at FMPC has been placed on renovation, construction, and completion of interim NEPA documentation, rather than on adequate environmental decision making using the NEPA process (especially with respect to the assessment of cumulative impacts). In addition, DOE has not placed emphasis on the retrospective examination of lessons learned through its NEPA experience, and then used this to improve, modify, and update the NEPA program and to retrain the field and site offices.

Root Cause(s)

Resources and priorities for training in NEPA compliance have not been provided by DOE or WMCO. DOE-HQ has not developed guidance on the integration of NEPA, CERCLA, and RCRA.

Environment, Safety, and Health Assessment Findings

References Data Sheet

Identification Codes

09-02	09-05	12-05
09-03	12-01	16-01
09-04	12-02	

Finding(s)

The DOE has not satisfactorily integrated the NEPA process into its programmatic decision making at the FMPC.

Discussion

The history of NEPA compliance at FMPC is less than 5 year old. The first approved NEPA review was in 1985 (DOE/EA-0260) for a project subsequently cancelled. There is no record of NEPA compliance for FMPC during the 15 years between the effective date of NEPA (January 1, 1970) and the 1985 EA. The decision to renovate the site in 1982 should have triggered the NEPA process (according to CEQ 1502.5) and a decision to prepare an EIS (a decision not made until 1986). The NEPA review should have been completed prior to commencing construction in 1985, when NEPA could have made an important contribution to the decision-making process by considering a range of alternatives and the potential cumulative impacts of the several hundred planned renovation projects. Project and site needs apparently had priority over NEPA and environmental decision making.

The protracted delay in completion of the sitewide EIS also has resulted from inadequate attention having been placed on it, apparently because nothing programmatic has been awaiting its completion (i.e., permission to commence renovation). During the interim period, the emphasis has been on NEPA "documentation," rather than on satisfying the intent of NEPA to factor environmental considerations into the agency's programmatic decision making. Only recently have FMPC and contractor staff resources been dedicated to NEPA compliance, but a priority on training in NEPA and its procedural requirements has yet to be realized for DOE contractors at FMPC.

The current "interim" NEPA process being used during the protracted preparation period of the sitewide EIS is unique (within DOE) to FMPC. Several of the documents being used (i.e., fact-sheets, checklists, notations to file, and a unique action description memorandum) are not standard and recognized NEPA documents, as specified in either the NEPA guidelines or the CEQ regulations. The use of this interim system has permitted DOE to monitor and track each project undertaken, but has resulted in the creation of several hundred connected actions (CEQ 1508.25) that individually may have no adverse impact but, cumulatively, may have significant impacts (CEQ 1508.7 and 1508.25). The emphasis has been placed on project tracking and document preparation and approval, rather than on a holistic and functional assessment of the impacts of the many connected actions.

Root Cause(s)

Environmental and programmatic considerations apparently took precedence over the procedural aspects of decision making via the NEPA process.

**Environment, Safety, and Health Assessment
Findings**

References Data Sheet
Identification Codes
14-01

Finding(s)

Storage of hazardous waste does not meet RCRA Land Disposal Restriction (LDR) requirements.

Discussion

The FMPC currently generates and stores mixed waste subject to LDRs (40 CFR 268). Storage requirements in 40 CFR 268 prohibit storage of LDR waste. The FMPC has and will continue to store LDR waste on the site. The FMPC is aware of this problem and intends to ship the waste to the DOE Oak Ridge TSCA incinerator. In 1987, the FMPC shipped 900 drums of liquid waste to the Oak Ridge facility, but the incinerator has not been permitted, and there are no other treatment or disposal facilities available for FMPC mixed waste.

Also, no standards establish minimum levels of radioactive contamination (below regulatory concern). EPA intends to establish such standards in its future LLW disposal rule. EPA establishment of below regulatory concern levels would allow the FMPC to manage mixed waste with low levels of radioactive contamination as hazardous nonmixed waste after DOE adopts the EPA's below regulatory concern determination. This would increase the number of disposal options available for FMPC mixed waste.

The FMPC, as of August 2, 1988, had 164 drums of LDR waste in storage without accumulation dates. 40 CFR 268 requires all LDR waste in storage to be labeled with an accumulation start date.

Root Cause(s)

No permitted mixed waste treatment or disposal facilities are available for FMPC mixed waste.

In the past, there has been a lack of procedures for identifying and labeling hazardous wastes.

Environment, Safety, and Health Assessment Findings

References Data Sheet

Identification Codes

02-03 14-07

02-05 14-08

14-03

Finding(s)

Low-level wastes are not currently managed in a manner that minimizes potential soil, water, or air contamination.

Discussion

Most FMPC LLW is stored outside in uncovered storage areas. These areas do not provide for adequate control of runoff. For example, the Plant 1 pad, where most of the waste is stored, is not fully diked and is cracked. This is a problem because many of the drums are corroded and if breached, could probably contaminate runoff. This problem is compounded by a large amount of on-site wastes, including nonrecoverable process residues, refuse, and construction waste (106,000 DEs). The FMPC plans to eliminate or significantly reduce the amount of waste and renovate the Plant 1 pad by 1992; however, this storage will continue to be a potential source of contamination until then.

This problem also applies to thorium storage. There are 212 drums of thorium-bearing material stored outside. The drums are in poor condition, and containment may have been breached. Dirt and soil samples indicate that the drums may have a breach in containment, and since the pad is not bermed on the south or east sides, the contents are available for transport. The FMPC plans to repackage these wastes within the next year.

The FMPC also stores 3000 tons of scrap radioactive metal. The metal is stored outside on a concrete pad north of the Decontamination Building. This on-site scrap metal is pending disposition under the ORO scrap metal program. The scrap metal pile has been stored on the site for several years and will likely remain for at least 2 more years. The scrap metal pile may be a contamination problem, and it reflects overall LLW management in allowing large backlogs of waste to remain on-site.

Also contributing to the problem of the growing backlog of radioactive material is the lack of adequate decontamination facilities. The current facility has a low throughput and a limited number of decontamination methods. As a result, the facility is developing a growing backlog of materials (e.g., equipment, office furniture, vehicles) being stored on the site pending decontamination. The FMPC intends to build a new decontamination facility; however, construction is pending approval of an EPA air permit.

Root Cause(s)

Planning for long-term storage and disposal of LLW or other radioactively contaminated material has been inadequate.

Environment, Safety, and Health Assessment Findings

References Data Sheet
Identification Codes
14-02 15-05 19-05
14-04 19-01 19-07
14-09

Finding(s)

The FMPC does not have a fully developed RCRA program.

Discussion

Many of the elements of the RCRA program have to be completed and fully implemented. For example, EPA has noted deficiencies in a number of FMPC RCRA documents or programs. Currently, the FMPC is in the process of revising the following documents and intends to submit these revised documents to EPA with the FMPC's Part B application in September 1989:

- Contingency Plan
- Groundwater Monitoring Plan
- Sampling and Analysis Plan
- Closure Plans.

In addition, the FMPC is at the beginning stages of implementing the following programs:

- training (24-hour RCRA and job-specific training)
- establishment of a complete operating record
- establishment of an accurate hazardous waste tracking system
- establishment of satellite accumulation areas.

The FMPC is aware of these deficiencies and has developed a RCRA implementation plan to take corrective actions. WMCO has made RCRA compliance its number one priority and has suspended its production operations and is focusing on RCRA compliance. Since it is at the beginning stages of implementing its RCRA program, FMPC will need to continue this emphasis over the next several years to achieve full compliance.

Root Cause(s)

The resources and training needs were underestimated to achieve RCRA compliance.

Environment, Safety, and Health Assessment Findings

References Data Sheet
Identification Codes
14-02 19-05

Finding(s)

Wastes and past process, treatment, storage, and disposal facilities have not been adequately characterized for RCRA applicability.

Discussion

Effective waste management and restoration activities are complicated because the FMPC has not characterized all drummed waste and past process, storage, or disposal facilities for RCRA applicability. For example, there are now 1000 drums of suspect waste in the RCRA storage areas. In addition, the site has not characterized process residues classified as nonrecoverable in November 1988 because of a change in the Economic Discard Limit. This makes it difficult to plan for adequate RCRA storage and could lead to a noncompliance situation (e.g., if there is not adequate storage for process residues that may be categorized as mixed wastes). The FMPC has plans to characterize all of these wastes and began to assess the nonrecoverable residues based on process knowledge. Sampling will be used to make definite determinations on all suspect wastes.

In addition, the FMPC has a number of past process, storage, or disposal units or areas that may have been contaminated with hazardous waste. A definite RCRA determination has not been made for these units or areas, including the K-65 silos, Waste Pit #5, fire training area, and salt oil tank. Determination of RCRA applicability to these units will not only affect the type of corrective action required, but also could require inclusion of additional facilities (e.g., units downstream of Waste Pit #5). At a minimum, this uncertainty may delay restoration efforts and possibly affect allocation of waste management resources. For example, the facility had already begun to develop closure plans for the waste oil incinerator, when it was discovered in July 1989 that the incinerator did not receive wastes after 1980. Similarly, it was the recent review (July 1989) of a 1980 document that caused the site to reconsider the RCRA status of Waste Pit #5. The FMPC now believes (August 1989) that Waste Pits #5 is not subject to RCRA. These recent discoveries suggest that other FMPC facilities may be subject to RCRA. This uncertainty will further complicate waste management and restoration efforts.

Root Cause(s)

The past DOE position that mixed wastes were exempt from RCRA and an incomplete historical record are probable root causes.

**Environment, Safety, and Health Assessment
Findings**

References Data Sheet
Identification Codes
19-09

Finding(s)

The FMPC may be "speculatively accumulating" potentially hazardous waste.

Discussion

The FMPC's sampling plan should include all process residues (recoverable and nonrecoverable) to ensure compliance with RCRA. In March 1988, the FMPC completed a characterization of all the nonrecoverable process residues for RCRA applicability. Recoverable residues were not characterized because they were not considered waste, based on the DOE Economic Discard Limit.

The Economic Discard Limit may not, however, be consistent with the RCRA definition of when recoverable materials should be managed as waste. If the process residues contain hazardous wastes, the FMPC must recover 75% of these residues annually. If this criterion is not met, these residues must be managed as solid waste and, where appropriate, as hazardous waste.

The Economic Discard Limit was changed in 1989. As a result, additional residues were designated as nonrecoverable waste and will be characterized for RCRA applicability (27,000 DEs). The FMPC sampling plan for these drums should include all process residues. This will ensure complete characterization of all wastes that may be subject to RCRA. The FMPC intends to develop a sampling plan that covers all process residues.

Root Cause(s)

A probable root cause is the DOE-wide lack of awareness and guidance concerning RCRA applicability to recoverable process residues.

Environment, Safety, and Health Assessment Findings

References Data Sheet

Identification Codes

07-01	07-05	19-03
07-02	19-01	19-04
07-03	19-02	19-06

Finding(s)

Waste storage and accumulation do not meet all applicable regulations.

Discussion

The FMPC stores hazardous waste in three buildings. Most wastes are stored in adequate facilities and containers; however, hazardous waste storage does not meet all applicable requirements. The positive aspects and deficiencies in facility and container management are described below.

Positive findings include the following:

- weekly inspection of facilities and drums
- daily inspection for leaking drums
- adequate spill response
- adequate aisle space
- adequate emergency communication devices and alarms
- most containers in good condition
- adequate floors and diking in the new RCRA warehouse and solid waste warehouse
- adequate waste segregation in the new RCRA warehouse and solid waste warehouse
- satellite accumulation areas well marked
- secondary containment for satellite accumulation drums is noteworthy.

Specific deficiencies include the following:

- Facilities
 - cracks in the floor of the old RCRA warehouse (potential noncompliance)
 - warning signs not visible when the doors to the old RCRA warehouse were open Best Management Practice (BMP)
 - waste segregation signs not placed in the old RCRA warehouse
- Container management
 - liquids stored in open head drums (Best Management Practice)
 - wastes stored in rusted and dented drums (potential noncompliance)
 - drums with incomplete labels (potential noncompliance)
 - overpacking procedures that may damage drums (potential noncompliance)
 - open containers at satellite accumulation areas (potential noncompliance)
 - drum inventories on satellite accumulation area drums not being filled out (Best Management Practice)
 - incompatible wastes stored together (potential noncompliance)

- General
 - grit blast wastes not stored in approved area (potential noncompliance)
 - potential excessive capacity of satellite accumulation areas (potential noncompliance)
 - inspection records incomplete (potential noncompliance)
 - facility operators not adequately trained in RCRA, FMPC procedures, waste segregation, and inspections (potential noncompliance).

The FMPC is aware of most of these deficiencies and intends to complete corrective actions within the next several months. For example, the facility began 24-hour RCRA and standard operating procedure job-specific training at the beginning of August. The FMPC had already started to correct floor cracks in the old RCRA warehouse when the assessment began. The FMPC also initiated development of a manual for evaluating drum condition.

The new FMPC training program should, however, place greater emphasis on waste compatibility and segregation. Although the FMPC has a color-coding system in the new RCRA warehouse that helps operators to ensure proper segregation, operator training should emphasize waste compatibility to ensure an understanding of the issue. Relying solely on the color-coding system will not ensure compliance. In addition, the color-coding system needs to be fully implemented in the old RCRA warehouse.

Root Cause(s)

Reasons for the noncompliance include the following:

- past lack of awareness of RCRA requirements
- inadequate personnel training (e.g., waste compatibility)
- inadequate procedures
- inadequate storage capacity.

Environment, Safety, and Health Assessment Findings

<u>References Data Sheet</u>		
<u>Identification Codes</u>		
01-01	01-06	11-6
01-04	11-03	15-07
01-05	11-06	

Finding(s)

The FMPC has not met the requirements of certain portions of the FFCA relating to CERCLA because of inadequate implementation of the RI/FS Work Plan.

Discussion

The FMPC RI/FS was initiated in response to the July 1986 FFCA between DOE and EPA. The FFCA provided a statement of work for the completion of the RI/FS and required the development of a work plan that was approved by EPA (May 1988) and was then made a part of the FFCA. In July 1988, the FFCA was modified to include enforceability clauses for meeting the deadlines associated with implementation and completion of the RI/FS and completion of both interim and final remedial actions. The FMPC has not adequately implemented all portions of the RI/FS Work Plan and, consequently, does not meet the requirements of the FFCA.

A major concern is the failure to meet the schedules outlined in the work plan. The FMPC committed to submitting a Draft Remedial Investigation Report on August 12, 1989, and has not fulfilled this agreement. According to the approved work plan, completion of the RI/FS is scheduled for September 1990; however, based on the accomplishments made to date, the FMPC now expects to complete the RI/FS in 1992. The FMPC has submitted a revised schedule to EPA Region V, using the concept of operable units that allows the facility to complete work in phases rather than complete the entire sitewide RI/FS at one time. They also have introduced a proposal to complete several removal actions between now and the time the Record of Decision is submitted. The EPA has acknowledged both concepts of operable units and removal actions, but the EPA has not formally agreed to the proposed 16-month extension in the schedule. Currently, it is Region V EPA's position that approval of this extension in the completion of the overall RI/FS is contingent on DOE agreeing to implement the removal actions that would accelerate the schedule for the higher priority environmental problems identified to date. In addition, both EPA and DOE have not met the time constraints given in the July 1988 modification to the FFCA for review and revision of documents associated with the RI/FS.

Another area where DOE has not satisfied the FFCA involves community relations activities. In January 1989, EPA issued a Notice of Violation to the FMPC regarding the failure to implement the Community Relations Plan for the RI/FS. Following this Notice of Violation, EPA issued another letter stating that it was evident that DOE had failed to develop the administrative record required for ongoing remedial response actions. The amendments to Section 117 of CERCLA expanded the community relations requirements and emphasized the intention that communities are to be informed about and be involved in the decisions regarding response actions to hazardous releases. Since the Notice of Violation on the community relations activities was issued, the FMPC has held two public meetings to inform the public of the RI/FS work and has conducted interviews with residents to identify their concerns. Currently, the Community Relations Plan for

the RI/FS is being revised and an administrative record has been established. Weaknesses still exist in the administrative record since it does not contain all pertinent information already used or considered in making decisions in the RI/FS program.

The FMPC also has failed to adequately follow EPA guidance that is incorporated by reference into the FFCA and to adhere to its own work plan. EPA guidance recommends the development of data quality objectives for tasks in the RI/FS to be sure that the data produced are of sufficient reliability to support sound decisions. Data quality objectives should have been identified in the RI/FS scoping process; yet, the RI/FS Work Plan does not adequately address them. EPA also has manuals describing the data validation process. Based on discussions with DOE, WMCO, ASI, and IT personnel, none of the chemical data produced in the remedial investigation have been validated according to these procedures. This is significant, in that the FMPC has in the past and continues to make major decisions on the scope of the remedial investigation based on data that have not been validated. Consequently, the reliability of the data used is left open to question. The third example where the FMPC is not following EPA guidance involves the need for a floodplain/wetlands assessment. The FMPC did not include this assessment as a task of the RI/FS, even though possible response actions being evaluated in the feasibility study may affect these areas on and adjacent to the FMPC. Another area of concern is that the FMPC is not following its own RI/FS Work Plan. The plan has not been kept up to date and does not reflect the current management structure of the RI/FS project or the technical methods and procedures actually employed in the site investigation. These deficiencies are in violation of the QA procedures described in the work plan.

Root Cause(s)

This failure to meet the requirements of the FFCA stems from the inadequate number of personnel who are experienced in managing and implementing CERCLA-related projects that are as large and complex as the FMPC RI/FS.

Environment, Safety, and Health Assessment Findings

<u>References Data Sheet</u>		
<u>Identification Codes</u>		
01-02	01-09	01-13
01-03	01-10	01-14
01-07	01-11	15-06
01-08	01-12	

Finding(s)

Project planning, management, and administration of the FMPC RI/FS have experienced severe difficulties and contributed to missing schedules set in the FFCA.

Discussion

Several areas were identified that demonstrate the problems in planning, management, and administration of the FMPC RI/FS project. The original scope of work identified for the RI/FS was significantly underestimated and, as such, DOE lost the ability to effectively plan and implement the project in a timely manner with high-quality work products. An example of the expansion in the project scope is the additional work required in the production area to investigate potential sources of contamination, which is estimated to cost approximately \$4 million. Also, failure to give higher priority to studying the known groundwater contamination off the site has impeded the progress of the RI/FS. Currently, negotiations are under way to obtain access to properties south of the site where additional data are needed.

Another example of inadequate planning is the history of problems associated with developing the complete operational capabilities of the Data Base Management System. The system was scheduled to be completely functional in 1988 and easily accessed by the technical project staff; however, this deadline was not met. This deficiency has been recognized for over a year and, currently, a task force has been established specifically to resolve the concerns with the Data Base Management System. One of the main drawbacks with the system appears to be that its design was based on the data input requirements rather than the user output needs.

Difficulties in implementing the RI/FS also have arisen because many activities are conducted as a reaction to either EPA Region V requests, realization that a task is behind schedule and a deadline may be missed, or as the result of informal assessments of data as they become available. This constant change in priorities, some of which have been outside the control of DOE and its contractors, disrupts the ability to effectively plan and control a project.

The FMPC RI/FS project also has suffered from inadequate management. In November 1988, management of the RI/FS was shifted from WMCO to DOE. This change was made without DOE fully realizing the level of effort required to successfully manage the project, and sufficient resources were not made available. Over the past year, this has manifested itself in the poor communication between the FMPC and Region V EPA. Recently, DOE's COTR resigned, and the position is now being filled by the DOE Site Manager. In addition, ORO personnel have been temporarily assigned to the FMPC to help resolve these problems and to alleviate the tension between DOE and the regulators. Without additional personnel in permanent positions within the DOE Site Office, similar problems can be expected in the future.

Problems in management have also extended to the RI/FS subcontractor. There have been a number of changes made in the subcontractor's project management staff, many due to DOE's dissatisfaction with their performance. Another symptom of management problems is that, currently, no one can state with certainty whether all the samples have been collected and work elements have been completed for each of the site investigation subtasks as committed to in the RI/FS Work Plan. Also, there is no mechanism within the project to systematically provide results of the remedial investigation as data become available and are evaluated. Consequently, there is an absence of a means to measure progress in the remedial investigation. Another weakness is seen in the management plans prepared by the subcontractor. These plans do not contain sufficient details in the description of the methods used to maintain control of project costs and schedule. As a result, DOE has not yet approved the fourth revision of the Project Management Plan.

Inadequacies also have been associated with the contract administration and reporting for the RI/FS project. For example, contract negotiations on costs for task orders issued under the RI/FS often occur after the work has been completed. This means that DOE and WMCO are in the position of negotiating actual costs incurred rather than proposed budgeted costs, and weakens their ability to maintain control over project costs. Cost reporting also is inadequate, as demonstrated by a \$1-million error carried over unnoticed in the monthly project report from February until August, where it was corrected in the last monthly report. Furthermore, the cost growth from the original estimate of \$1.7 million to the presently incurred cost of approximately \$25 million is not clearly documented by written, supporting justification.

Root Cause(s)

Weaknesses in planning, management, and administration of the RI/FS project have been caused by the inability to accurately judge how changes in priorities can significantly affect the ability to meet schedules and to ensure high-quality deliverables are produced. Ineffective communication between the various group involved in the project and between DOE and EPA has caused some of the sudden adjustments to task priorities in the RI/FS.

Environment, Safety, and Health Assessment Findings

References Data Sheet
Identification Codes
11-02 21-14

Finding(s)

Releases from the K-65 silos represent a potential risk to public health and the environment.

Discussion

The K-65 residues emit radon gas. The FMPC has taken certain measures to control the emission of radon, but the emissions continue. Failures of the K-65 silos to completely contain their contents will result in releases of radioactive constituents to either air, the earthen berms, or surface soils. These releases could further contaminate the subsoils, groundwater, and/or the undertank drainage system that exists beneath the K-65 silos.

In 1985, a testing program concluded that the silos showed evidence of cracks; yet, the walls and base concrete slabs were thought to be stable. Also, the 20-ft center section of the two silo domes were determined to be unstable and required remedial action. The FFCA signed in 1986 committed DOE to completing an interim stabilization project for the silos. This project included waste characterization, and a task was designed to sample and analyze the waste in the K-65 silos. In 1989, this effort encountered several set-backs, mainly because residues were found to be much wetter than expected. New sample equipment is now being designed and additional sampling is planned. Consequently, the physical and chemical form of the material in the silos have not yet been determined. Complete waste characterization is essential to the design and implementation of potential corrective actions and thus is a critical step in the remedial action process.

WMCO has reported that the planned removal action (interim stabilization project) is to install a 4-ft layer of sand in these two silos to provide a protective layer between the residues and the environment in case of a partial dome collapse. Secondary benefits from the sand layer will be the reduction in gamma radiation and radon emissions from the silos (previous actions, such as adding a foam layer on top of each silo dome have somewhat reduced the emission of radionuclides). The feasibility of the planned removal action is now being reconsidered because of the unexpected moisture content of the residues.

Root Cause(s)

The root cause is the ineffective waste storage practices that were used in the past.

**Environment, Safety, and Health Assessment
Findings**

References Data Sheet
Identification Codes
11-01

Finding(s)

The Natural Resource Trustee responsibilities at FMPC may not have been met in the past or current CERCLA-related negotiations.

Discussion

As a result of the differing opinions on the need to perform a natural resource damage assessment (NRDA) with the participation of the State of Ohio, DOE has not sent the Governor of Ohio a letter by the Secretary inviting the Governor to participate in an NRDA at the FMPC. The CERCLA requirements for identification of all appropriate trustees and notification of these trustees have not been met. Coordination of the RI/FS with all appropriate trustees also has not occurred, as required by CERCLA. For the public to have meaningful participation as required by CERCLA, the formal notifications to trustees and their responses must be placed in the administrative record for the site.

Root Cause(s)

Uncertainty exists about the notification and coordination requirements of CERCLA 104 (b) (2) and 122 (j) as they relate to other Natural Resource Trustees cognizant at FMPC. DOE policy and procedures for Natural Resource Trustee issues are incomplete.

Environment, Safety, and Health Assessment Findings

References Data Sheet Identification Codes

02-05 11-07

02-06 11-05

04-12

Finding(s)

The FMPC may not be providing accurate release information for radionuclides and hazardous substances.

Discussion

A lapse of Federally permitted release authority has occurred for releases of radionuclides that do not fall under the National Emissions Standards for Hazardous Air Pollutants (NESHAPs). This created a requirement to report radionuclide releases immediately to the National Response Center if a reportable quantity or greater is released in a 24-hour period (CERCLA 103).

DOE Order 5480.11 (December 21, 1988) superseded and effectively cancelled the entire Chapter XI of DOE Order 5480.1A including the radiation release guides. DOE Order 5400.XX is still in the approval process; therefore, DOE does not have an order that qualifies DOE radionuclide releases as "federally permitted" (as of January 1, 1989, the effective date of 5480.11). Radionuclide air emissions are Federally permitted under NESHAPs only. Therefore, any non-NESHAP release of radionuclides to the environment equal to or exceeding a reportable quantity in a 24-hour period is not exempt from CERCLA reporting, and must immediately be reported to the National Response Center.

A review of unusual occurrence reports and minor event reports indicated that reportable quantities are inconsistently or not at all estimated for substances released that could require reporting under CERCLA 103. The reports generally indicated that when releases occur from "process equipment" (the normal facility operation equipment), the quantities of substances released generally could be estimated with some degree of assurance. However, when spills or releases occurred from other than operational equipment or processes, the quantity of hazardous materials was not estimated with the same degree of assurance. Therefore, it could not be determined how FMPC knows whether it has released an amount of material equal to or greater than a reportable quantity, or whether a report to the National Response Center is necessary, as required by CERCLA 103.

Root Cause(s)

There is insufficient information for an accurate assessment of the possible root causes.

Environment, Safety, and Health Assessment Findings

References Data Sheet

Identification Codes

02-07 04-07

04-05

Finding(s)

Unplanned releases and fugitive emissions are becoming a higher percentage of overall plant emissions at FMPC. Early warning systems are not in place to warn of an unplanned release at the K-65 silos. Radon emissions are not included in FMPC air emissions for reporting purposes or in dose calculations.

Discussion

As progress has been made in reducing stack emissions of uranium, unplanned and fugitive emissions have increased in importance. Progress in controlling stack emissions can be seen from the reduction from 4900 kg/yr during 1951 through 1977 to 295 kg/yr during 1978 through 1984 to 63.5 kg/yr during 1985 through 1988. While unplanned releases and fugitive emissions amounted to less than 25% of total FMPC releases in the first period (1951-1977), these have accounted for approximately 70% in recent years (1985-1988). An intermediate percentage (35%) existed from 1978 to 1984. FMPC has a continuing effort to study and analyze unplanned releases and to plot strategies to avoid recurrences in the future.

The radon monitoring system has several deficiencies that do not allow monitoring to be used as an early warning device in the event of an unplanned release. Real-time monitoring for radon is conducted only at ground level. Since the system was intended to be used in determining occupational exposure, this is the logical location. However, in the event of an unplanned increase in the rate of radon release, most releases (other than during atmospheric inversions) would pass over the monitor undetected. Studies to determine the optimum elevation for such an early warning alarm have not been conducted. The radon monitors are not connected to central alarms that would call attention to higher levels.

Atmospheric inversions occur frequently at night at FMPC but seldom during the day; therefore, a release could go undetected for 10 to 12 hours before the nighttime inversion caused the escaping radon to reach ground levels. At that time, FMPC could become aware of the problem if the monitors were used to sound a central alarm.

In conformance with NESHAP regulations, radon emissions are not included in radionuclide air emissions reporting or in dose calculations. According to DOE Order 5484.1, however, the radon emissions should be included in FMPC's emissions reporting and in dose calculations. Proposed NESHAP regulations will also require the inclusion of radon in dose calculations.

A large portion of the recent fugitive releases were from the gulping operations in Plant 2/3. This operation has been shut down since June 1988. Since then, improvements have been made that would vent the emissions through nitric acid scrubber towers. Therefore, if the gulping operations are restarted, fugitive emissions should be reduced.

Root Cause(s)

There are incomplete analyses of all potential sources of unplanned releases and fugitive emissions.

Environment, Safety, and Health Assessment Findings

References Data Sheet Identification Codes

02-01	04-02
02-02	04-05
02-06	04-12

Finding(s)

Programs for monitoring radionuclide stack and ambient air emissions have deficiencies.

Discussion

Both the stack monitoring and the ambient air monitoring systems at FMPC have deficiencies that have the potential to distort data. Most of the stack monitors (56 out of 61) are of an old design and do not collect samples under truly isokinetic (representative) conditions. Deficiencies include 1) the taper of the sample head is not 30 degrees as specified and 2) no continuous stack velocity measurements are conducted. Neither of these deficiencies exist in the new systems that have been installed as part of the new dust collectors or the sampling trains that are planned for installation on nine wet stacks.

Under most conditions, the failure to achieve isokinetic conditions probably has a minor impact on the data. This has been verified by several tests conducted under isokinetic conditions, which gave results comparable to results from the nonisokinetic sampling. (Nevertheless, defensibility of such data is questionable since poor quality controls were employed.) However, during the period following damage to a bag (most older dust collectors are baghouses), erroneous low results would be obtained. Higher stack velocities would cause many of the larger particles to bypass the sample probe.

Deficiencies at the air monitoring stations include 1) two stations (AMS-11 and -13) that are not at the correct elevation above ground level and 2) several stations (AMS-1, -5, and -7) that are shielded from FMPC emissions by trees.

Both of these deficiencies were cited during a past EPA inspection. EPA was advised that "corrections should be completed by February 1988." WMCO advised DOE on May 19, 1988, that work was completed and all stations "are now in compliance with applicable EPA siting criteria." Apparently, no report was made to EPA. In reality, however, all stations were not modified to meet requirements.

Some deficiencies also exist in the direct radiation monitoring by thermoluminescent dosimeters (TLDs). There is no standard operating procedure for the collection/exchange of TLDs. This could lead to invalidation of the data. In addition, TLDs at four air monitoring stations (AMS-3, -6, -7, and -8) are mounted behind metal posts that could potentially shield radiation emanating from the site. With respect to analysis of both the stack and air monitoring station samples, modifications have been made that deviate from specified conditions that would be expected to distort the data. In each case, samples are dried under conditions that deviate from conditions published as part of applicable regulations.

Root Cause(s)

There are insufficient periodic reviews and oversight of the implementation of the radionuclide monitoring programs.

Environment, Safety, and Health Assessment Findings

References Data Sheet Identification Codes

04-01 04-09
04-04 04-10

Finding(s)

The air portion of the environmental program is deficient.

Discussion

A number of minor problems appear related to insufficient review and oversight by Environmental Compliance staff. Included are unlabeled gasoline pumps, failure to conduct particle-size studies on airborne effluents, failure to complete an inventory of nonradionuclide air emissions, and failure to notify regulatory agencies prior to minor asbestos projects. A related problem, sources without permits, has in the past been caused by inadequate oversight. However, recently, a campaign to obtain all necessary permits is in progress.

Minor items such as these vary from potential violations of a regulation (e.g., gasoline pump labeling and asbestos notifications) to failure to use Best Management Practices. The full impact of failure to conduct oversight activities on such minor tasks can be seen by the current large number of nonpermitted sources that require formal notification to OEPA and submission of permit applications. Severe problems would result if any of these facilities were required to operate before the permits are issued.

Root Cause(s)

Inadequate oversight by Environmental Compliance staff and the low priority given to nonradionuclide emissions appear to be the root causes.

Environment, Safety, and Health Assessment Findings

<u>References Data Sheet</u>		
<u>Identification Codes</u>		
03-04	03-08	17-01
03-05	03-09	17-03
03-06	03-10	
03-07	15-02	

Finding(s)

The FMPC has violated the wastewater/runoff requirements specified in the Consent Decree between the State of Ohio and DOE.

Discussion

The Consent Decree incorporated all of the requirements previously imposed on the FMPC by the regulatory agencies relating to the control of wastewater and stormwater runoff as of December 2, 1988. These requirements, identified in Section IV of the Consent Decree, consist of 14 items for which action was or is required. The items included those that were outstanding from the June 26, 1987, Director's Findings and Orders issued by the OEPA, as well as compliance with the facility's NPDES permit regulations.

The FMPC has not met or has failed to perform timely implementation and/or execution of some of the items listed in Section IV of the Consent Decree. This has resulted in violations of the CWA in the form of repeated NPDES violations and in an increased potential for the release of hazardous substances into the FMPC's wastewater and, subsequently, into the environment. These issues are supported by the following items in the Consent Decree:

- IV.4.2 requires that "No water from ...(the) storm water retention basin underdrains shall be discharged or placed into Paddy's Run, unless prior written approval is obtained from Ohio EPA." The intent of this requirement was to prevent water and solids, which may potentially contain uranium or other contaminants, from discharging to Paddy's Run and potentially migrating off the site. This intent is inferred from the Director's Findings and Orders (Finding 7; and Orders 3, 5 and 7), Item IV.4.8 of the Consent Decree, and comments provided to the assessment team by Region V EPA.

While the basins were being expanded in December 1988, approximately 2500 gallons of stormwater was mistakenly released from them without approval from WMCO. The OEPA was notified of the release after it had occurred. Due to this unauthorized release, the intent of the Consent Decree (i.e., to minimize discharges of potentially contaminated water to Paddy's Run) was not met.

- IV.4.3 requires that a study be performed of the coal storage area and runoff collection basin area to characterize the underlying soil to ensure protection of the groundwater (e.g., providing a liner under these areas if warranted). According to the Consent Decree, "In the event that Ohio EPA determines a liner is not required, DOE shall submit a PTI application describing the existing coal pile storage area and coal pile runoff collection and treatment system within ninety (90) days of Ohio EPA's written response to this report."

Subsequent to the required study, DOE documentation indicates that on March 8, 1989, OEPA determined that a liner is not required provided that provisions are made for groundwater monitoring and basin water-level management. DOE submitted a proposal to OEPA on April 7, 1989, that addressed the groundwater monitoring requirement but did not address the basin water-level management requirement. DOE did not submit the PTI application within 90 days as required by the Consent Decree. DOE has indicated that they will not submit a PTI application for this project until written approval of their April proposal is received from OEPA. This failure to act is causing unnecessary delays in the preparation and subsequent approval of the PTI application and in meeting the intent of the Consent Decree for the protection of the groundwater.

- IV.4.4 requires DOE to make every effort to comply with its expired NPDES permit until a new permit is issued. Since the Consent Decree was issued in December 1988, the FMPC has violated its permit every month through May 1989, mainly for total suspended solids. In the latest report (July 1989), WMCO reports that the FMPC achieved complete compliance with its NPDES permit limits.
- IV.4.8 requires that deficiencies in the FMPC contingency plan for investigating the environmental impact of any leakage, overflow, or bypass from the stormwater retention system be corrected within 60 days of receiving the notice of the deficiencies and that the plan be revised and implemented. The original contingency plan was submitted late. The notice of deficiencies was submitted to the FMPC by OEPA on May 2, 1988. On June 6, 1988, the FMPC responded to the notice and indicated that the deficiencies will be addressed in the final remedial investigation report, scheduled for issue in January 1990. However, the FMPC failed to provide a revised contingency plan to OEPA as mandated by the Consent Decree.

Additional follow-up activities generated by the original submittal of the contingency plan also were requested in the notice of deficiencies. These activities, which were listed in the Director's Findings and Orders, related to the sampling of stormwater runoff from those areas bypassing the stormwater retention basins. These activities were reported to be included with the Best Management Practices Plan and some are still outstanding (e.g., controlling runoff from the fly ash piles).

- IV.4.10 requires that any process area spills be contained and diverted for adequate treatment and/or disposal as stated in the Spill Prevention Control and Countermeasures Plan. Various releases have occurred; however, some have resulted in reported NPDES violations or detection at NPDES outfall 001D. This indicates that releases into the storm sewer system have occurred and that the plan is not being adequately followed.
- IV.4.11 requires that a Best Management Practices Plan be prepared and implemented. The plan was prepared in February 1988, and schedules for implementation were provided to OEPA in June 1988 and January 1989. These three items are considered to comprise the Best Management Practices Plan, which was approved on July 10, 1989. Only 7 of more than 40 action items have been completed as of July 26, 1989; many actions are overdue.
- IV.4.12 requires that a study be performed of the FMPC effluent discharge pipe to the Great Miami River, with subsequent follow-up activities. Although two of the issues associated with this item have been resolved, two others remain outstanding. The two outstanding issues (and their corresponding order numbers in the Director's Findings and Orders) include 1) locating any leaks or holes in the pipe and stopping any leakage as soon as possible (Order 14.A) and 2) determining whether the gravel fill around the pipe is/has served as a conduit for sewage or wastes to the Great Miami River buried valley aquifer (Order 14.C). The resolution of these

issues has been delayed because of the unavailability of equipment and a lack of funding. The schedule for these issues has reportedly been renegotiated with OEPA. Both of these activities are scheduled for initiation in FY 1990.

- IV.4.13 requires the submittal of a bimonthly technical progress report by the 20th day of the second month. The submittal for May and June 1989 was late.

Root Cause(s)

Inadequate planning and commitment of resources have resulted in noncompliances with the wastewater/runoff issues of the Consent Decree.

Environment, Safety, and Health Assessment Findings

References Data Sheet

Identification Codes

06-07 06-10 06-13

06-08 06-11 06-14

06-09 06-12 06-15

Finding(s)

The FMPC improperly handles and stores TSCA/FIFRA-related chemicals and demonstrates inadequate record-keeping activities.

Discussion

Throughout the interviewing, inspection, and document review process that related to TSCA and FIFRA issues, there were trends in the tentative findings that could be linked. In forming an overall assessment of compliance to TSCA/FIFRA regulations and guidance, there were three major areas noted to be of concern: 1) storage, 2) handling, and 3) record-keeping activities.

The storage issues involve problems with 40 CFR 761.65 as they relate to exceeding time limits allowed for temporary and permanent storage of PCBs for disposal and to the physical condition of PCB storage facilities. The other potential storage problems are concerned with following the guidance in 40 CFR 165.10 on the storage of pesticides and the use of inherently deficient storage areas, leading to the potential release to the environment of stored flammables, pesticides, and herbicides. These are Best Management Practices concerns. An overriding issue is the poor physical condition of the old RCRA warehouse, which is used as the permanent storage facilities for all PCBs and storage of approximately 1000 pounds of dry pesticides. This building is questionably suitable as a permanent storage area for PCBs, based on personal observation and past inspection records that show insufficient walls and floors and a history of recent roof leaks. The FMPC has repaired the roof and is repairing the floors, but also should improve the north and south barriers to prevent rainwater from entering the building.

The issues regarding the handling of TSCA/FIFRA chemicals are diverse in nature. These involve the improper marking of transportation vehicles moving PCBs on the site and the incomplete marking of PCB drums for storage in contradiction to 40 CFR 761.40 and 40 CFR 761.65, respectively. As a Best Management Practices concern, personnel in the two chemical storage areas and transportation have no training or equipment to deal with spill containment.

The final area of concern involves the record keeping involved with the disposal and inventory tracking of TSCA/FIFRA materials. There are two certificates of disposal missing from the records of PCB shipments, and these manifests did not indicate a specific means of disposal. This is not a regulatory issue; however, there is the potential "cradle-to-grave" liability concern. There appear to be management control problems regarding the tracking of TSCA and FIFRA materials on the site. A comparison of PCB-labeled drums observed during a personal inspection with the inventory list generated by Materials Control and Accountability indicated discrepancies as to the actual contents of those drums. Materials Control and Accountability had the drums, for transportation purposes, listed as containing PCBs, but did not have PCBs listed as part of the contents. Since these drums could not be clearly identified on the PCB annual report for 1988,

there appears to be an error in required record keeping as delineated in 40 CFR 761.180. There also is a PCB drum, which has been located in the basement of Building 15 for at least 3 months, that does not appear on the inventory. With regard to FIFRA chemicals, both Materials Control and Accountability and Environmental Compliance personnel were unaware of the presence of two storage areas containing 1020 pounds of dry pesticide and approximately 35 gallons of liquid herbicide. The location of these chemicals and the information regarding off-site contracting for pesticide and herbicide application came from personnel in Maintenance.

The significance of this finding lies in the potential for regulatory action and contradiction to DOE Orders 5400.1 and 5482.1B.

Root Cause(s)

Poor communication and coordination exist between operational and environmental compliance groups.

Inadequate training is evident in low- and mid-level management on TSCA/FIFRA environmental compliance issues.

Environment, Safety, and Health Assessment Findings

References Data Sheet

<u>Identification Codes</u>		
02-01	06-01	13-07
02-02	13-01	15-01
02-04	13-03	15-02
02-06	13-04	15-04
02-07	13-06	

Finding(s)

Environmental monitoring program management has deficiencies.

Discussion

The general environmental monitoring program planning documents need updating and need additional information to fulfill the requirements of DOE Order 5400.1. The groundwater monitoring plan(s), especially for on-site sampling, need revision and delegation of responsibility. Some QA plans are missing in the environmental sample analyses area. Lack of formal groundwater monitoring programs was noted for several facilities. Instances of failure to monitor or report effluent releases are seen in gulping emissions and waste pit resuspension (now estimated) and in nonreporting of radon emissions. Past emissions have been incorrectly reported. On-site groundwater monitoring has been irregularly performed for the last year, and the reporting of the results is not timely. A proposal to correct the situation is under review. Three environmental reports have not been submitted by the date specified in the DOE Orders. NPDES permit noncompliance is discussed in Section C1.3.5. The effluents to the Great Miami River continue to exceed the DOE derived concentration guides.

Root Cause(s)

Inadequate resources and the changes in regulations appear to be the root causes.

Environment, Safety, and Health Assessment Findings

References Data Sheet Identification Codes

02-07 13-04

06-02 13-05

13-02 13-06

Finding(s)

Several weaknesses were noted in environmental monitoring data management, including the evaluation and reporting of analytical and statistical data.

Discussion

Some improvements should be made in the statistical analyses of data for the environmental monitoring program. More complex tests to compare a location or a set of locations to background levels or to each other should be employed. The format of the environmental monitoring report should be closer to the suggested format and include all elements. The balance and completeness of the environmental monitoring report could be improve. The timeliness of the data reporting should be better. Errors in the effluent report should be corrected. The precision of the wording in the environmental monitoring report needs improvement. Laboratory data should be carefully reviewed and checked before release to user groups.

Root Cause(s)

Inadequate resources, coordination, and poor annual report format are the suspected root causes.

Environment, Safety, and Health Assessment Findings

References Data Sheet

Identification Codes

02-01	03-02	06-02
02-02	04-02	15-03
02-04	04-04	
02-06	04-10	

Finding(s)

Environmental sample locations, sampling methods, sample collection, and sample analyses need modification.

Discussion

Some effluent stack samples are not collected under isokinetic (representative) conditions. Some adjustments should be made in the monitoring stations. Three air samplers are too close to trees and two are too close to the ground. Proposed DOE orders recommend a height of 2 m in agreement with EPA regulations that specify this as a minimum elevation. Most (12 out of 14) stations satisfy the height requirement. Two, however, are about 1.0-m elevations. EPA regulations also specify minimum distances from trees in relation to the height of the trees. Three perimeter stations are too close to obstructing trees. Seven thermoluminescent dosimeters (TLDs) may be improperly located. No procedures exist for TLD or radon cup changeout. The sampling techniques and SOPs for surface water and sediment sampling are inadequate. The SOPs for off-site water sample collection are inadequate and not followed in all respects. The air samplers are difficult to maintain because of a relatively short average time between failures of the air sampler motors (1 month). Air filters collected for total suspended particulates are not properly dried. Particulate stack sample filters are not analyzed according to the required procedure. For some analyses, written SOPs are lacking and there is no sample custodian.

Root Cause(s)

The following appear to be the root causes:

- personnel errors (procedures not followed; training deficient)
- procedures incomplete
- premature failure of air sampler motors.

Environment, Safety, and Health Assessment Findings

References Data Sheet Identification Codes

06-01 06-03

06-02 06-04

Finding(s)

The on-site laboratories at FMPC do not function under a comprehensive and independent QA program.

Discussion

A comprehensive QA/QC program should be in place to ensure data accuracy, precision, verification, and traceability. QA programs externally establish the policies and procedures necessary to ensure adequate defensibility (i.e., verifiable and traceable) of data that meet the specifications required of their use. In formulating a QA program, there are three essential components that must exist for the program to be comprehensive: 1) a written and approved QA plan, 2) an active and independent audit function, and 3) documented and approved methods and SOPs. The establishment of a QA program should not be confused with the operating of a QC program. QC programs/procedures are internally derived to ensure and monitor the processes of generating quality data within predetermined control limits (accuracy and precision).

Despite the operation of an established, comprehensive, and well-conceived QC program, it is a significant finding that the on-site laboratories at FMPC are not functioning under a comprehensive and independent QA program. This finding is based on a comparison of the present status of laboratory operations to the criteria described above:

1. The WTP Laboratory and the OS&HC Laboratory do not operate under approved QA plans; however, the Analytical Laboratories do have an approved QA plan. This lack of approved QA plans leaves the WTP and OS&HC Laboratories without written policies and procedures to guide them in the generation of quality data. It also is a potential noncompliance issue with DOE Order 5700.6B, NPDES regulation 40 CFR 122.41(e), and FMPC-2139, Section 2.2.2, QA Manual.
2. No internal QA audits have been conducted at the three FMPC laboratories. There are adequate and established audits delineated in the Analytical Laboratories QA plan and in the OS&HC Laboratory draft QA plan; however, these have never been implemented.
3. With regard to documented and approved methods and SOPs, the present status shows: Analytical Laboratories operate with a full set of approved methods and have written some SOPs to deal with laboratory-specific operational concerns; OS&HC Laboratory staff estimates that approximately 75% of its methods are still in draft form, with no SOPs observed; and the WTP Laboratory has no approved methods or laboratory-specific operational SOPs in place.

There are key SOPs missing sitewide that directly impact the verification and traceability of data generated at the three laboratories. The missing procedures deal with the following concerns:

- data review, checking, and sign off
- sample handling and chain of custody
- instrument calibration and general instrument operations
- glassware cleaning
- systematic checks of laboratory water for purity
- preparation of calibration standards and reagent materials
- content, format, and review of personnel training records
- content, format, review, and sign off of laboratory logbooks.

Items 2 and 3, in the above comparison, do not directly carry the weight of regulatory compliance; however, they are accepted components in carrying out operations in line with Good Laboratory Practices and Best Management Practices. These items also do not follow the general intent of DOE Order 5700.6B or NPDES regulation 40 CFR 122.41(e), and are in opposition to the directives given in FMPC-2139, QA Manual.

The importance of a sitewide independent QA function is paramount in identifying systemic QA problems and providing upper management with alternatives for potential corrective actions. The site Analytical QA Supervisor has no official QA oversight status in the WTP and OS&HC Laboratories, reports solely to the Analytical Laboratories Manager, and has no sanctioned reporting responsibility to Quality and Safety. This is a major organizational deficiency in the QA program.

In today's environmental climate, it is important to ensure the defensibility of data from a scientific viewpoint. QA activities also must prove traceability and verifiability for defense of sample data.

Root Cause(s)

The laboratory management has not completely implemented standard industry QA policies for environmental monitoring activities.

The FMPC management has failed to recognize or understand the need for defensible (i.e., verifiable and traceable) data.

The FMPC management has failed to recognize or understand the need for an independent QA audit function.

C1.5 Environment Subteam Biographies

The members of the Environment Subteam come from a variety of disciplines and organizations, both inside and outside the DOE. Their educational biographies, with their area of subteam expertise, are included on the following pages.

Name: John J. Bascietto

Association
(Company): U.S. Department of Energy-Headquarters

Experience: 11 Years

1989-present Environmental Protection Specialist for DOE ES&H

1987-1989 Biologist for the CERCLA Enforcement Division of the EPA

1979-1987 Wildlife Biologist for the EPA

1978-1979 Biological Laboratory Technician for the U.S. Department of Defense

Education: B.S., Biology, New York University, 1972
M.S., Zoology and Environmental Biology, New York University, 1978

Assigned Area: Comprehensive Environmental Response, Compensation and Liability Act and
Superfund Amendments and Reauthorization Act

Name: Eddie W. Chew

Association
(Company): U.S. Department of Energy-Idaho Operations Office

Experience: 20 Years (only relevant experience listed here)

1976-present Chief of Environmental Sciences Branch of the Radiological and Environmental Sciences Laboratory at INEL. Responsible for ambient environmental monitoring outside contractor facilities, radioecology and ecology research, INEL environmental report, and emergency monitoring and dose assessment

1969-1976 Nuclear stimulation and massive hydraulic fracturing as methods for enhanced recovery of natural gas

1956-1968 Various experience in research and management

Education: B.B.A., Engineering Route to Business Administration, University of Texas at Austin, 1957 M.S., Physics, University of Texas at El Paso, 1968

Various DOE management training courses

Assigned Area: Environmental Monitoring and DOE Orders

Name: Jennifer S. Clay

Association
(Company): NUS Corporation

Experience: 10 years

1986-present Principal responsibility as team coordinator of a seven-person multidisciplinary team of professionals performing environmental surveys and audits at DOE facilities to identify and assess environmental problems, compliance status, waste management, and pollution controls. Serve as both team coordinator and the CERCLA/SARA specialist in conducting these surveys, and continue to be involved in the survey-wide prioritization of these facilities. Participated in the environmental survey at ten major DOE facilities, including Hanford, Pantex, Los Alamos National Laboratory, Oak Ridge National Laboratory, Feed Materials Production Center, Savannah River, Sandia National Laboratories, and three energy research laboratories in California

1982-1986 Supervisor of the Environmental Science Section of the NUS regional office in Atlanta involved in investigations of uncontrolled hazardous waste sites under contract to the EPA. Work involved all aspects of the preremedial program at sites throughout the seven southeastern states. Also worked as project manager of a remedial investigation/feasibility study of an abandoned pesticide manufacturing plant in Florida, focusing on groundwater and soil contamination

1978-1982 Worked on various CERCLA projects, including preliminary assessment, site inspections, full field investigations, and preparation of hazard ranking system documents for sites submitted as candidates to the National Priorities List. Also participated in a project to inspect and inventory propellant and explosive wastes at U.S. Army Facilities

Education: B.S., Biology, Agnes Scott College, 1978

Assigned Area: Comprehensive Environmental Response, Compensation and Liability Act and Superfund Amendments and Reauthorization Act

Name: Joseph G. Crist

Association
(Company): NUS Corporation

Experience: Over 20 Years

1986-present Project Director of the Environmental Sciences, Waste Management Services Group

1986-1988 Air specialist member of the DOE survey team at Fernald, Lawrence Livermore National Laboratory, Sandia-Livermore, Brookhaven, Fermi, Santa Susana, Portsmouth, Paducah, and Oak Ridge Gaseous Diffusion Plant

1980-1986 Manager of Environmental Evaluations. Set up and managed U.S. Steel's Environmental Evaluations program

1954-1980 Conducted various research and held various environmental affairs positions at U.S. Steel

1953-1954 Post-doctorate fellowship for sugar research foundation at Pennsylvania State University

Education: B.S., Chemistry, University of Notre Dame, 1951
Ph.D., Chemistry, Pennsylvania State University, 1953

Recent publication - "Reporting, Recordkeeping and Disclosure Requirements for an Environmental Audit." Executive Enterprises, New York, N.Y. 1989

Assigned Area: Clean Air Act

Name: Vincent Fayne

Association
(Company): U.S. Department of Energy, Office of Environmental Audit

Experience: 11 Years

1988-present Manager of the Environmental Survey Sampling and Analysis Program. Responsible for survey-related sampling and analysis (S&A) and implementation of EPA's Contract Laboratory Program QA requirements to the S&A Program

1986-1988 Environmental Survey Team Leader. Responsible for surveys of Feed Materials Production Center, Hanford and Savannah River Sites, Pinellas Plant, Sandia National Laboratories-Albuquerque, Lawrence Berkeley Laboratory, Stanford Linear Accelerator Center, and Laboratory of Energy-Related Health Research

1984-1986 Environmental engineer for Oak Ridge Operations Office. Conducted regulatory compliance audits; reviewed environmental permit applications; interacted with DOE contractors and Federal, state, and local regulatory agencies on environmental issues

1980-1984 Environmental engineer on Clinch River Breeder Reactor Plant Project. Assisted in U.S. Nuclear Regulatory Commission (NRC) licensing activities; participated in environmental, safety, and construction design reviews; and responsible for the acquisition of non-NRC permits and other regulatory interactions with Federal, state, and local agencies

1978-1980 Health and safety engineer at INEL. Responsible for providing industrial hygiene services for one-sixth of INEL. Participated in health and safety design reviews of various construction projects related to nuclear facilities, high-temperature and pressure laboratories, and hot cell operations. Developed and implemented initial laser safety training program

Education: B.S., Environmental Health/Civil Engineering, Northwestern University, 1978

Assigned Area: Environment Subteam Leader

Name: Helen F. Gram

Association
(Company): ICF Kaiser Engineers

Experience: 20 Years

1969-present Relevant experience in the development of NEPA legislation in 1968 and 1969, implementation of CEQ NEPA guidelines and regulations, and the review of and preparation of Action Description Memoranda, EAs, and EISs. Contributed to a variety of NEPA documents as the principal investigator, project manager, technical reviewer, and corporate sponsor. Documents include:

- EIS for long-term management of high-level radioactive wastes at INEL
- EA for Fuel Processing Restoration Project at INEL
- Draft EA for Fluidized Bed Incinerator RCRA Trial Run at the Rocky Flats Plant
- EA for the Plutonium Recovery Modification Project at the Rocky Flats Plant
- EA for a Commercial High-Level Waste Repository at the Nevada Test Site

Education: B.S., Cum laude, Chemistry, Whitman College, 1956
M.S., Organic Chemistry, Stanford University, 1957

Assigned Area: National Environmental Policy Act

Name: Donald C. Habib

Association
(Company): NUS Corporation

Experience: 7 years

1983-present Staff Engineer at NUS Corporation. Provide support in three technical areas, including RCRA regulatory analysis, chemical engineering, and computer programming. Served on DOE environmental survey teams as a waste management specialist, responsible for evaluation of hazardous, radioactive, mixed, and nonhazardous solid waste activities at four DOE facilities, including the Solar Energy Research Institute, the National Institute of Petroleum and Energy Research, the Ames Laboratory, and the Princeton Plasma Physics Laboratory. Responsible for prioritization of survey findings at these four sites, as well as those from Brookhaven National Laboratory, the Naval Petroleum Reserves in California, Pantex Plant, and Los Alamos National Laboratory. Active as a field engineer in EPA CERCLA remedial investigations at three Superfund sites, including Blosinski Landfill, Douglassville Disposal Site, and the Kellogg-Deering Site. Served as a field investigator at RCRA facility assessments at four industrial facilities in EPA Region III. Also served as a field engineer and regulatory analyst in site investigations at three industrial facilities in the Baltimore, Maryland, area

1982-1983 Served as an engineer in the NUS Engineering Division. Active in process-related projects at several commercial nuclear power plants, including the following: San Onofre, Maine Yankee, Quad Cities, and Dresden, as well as other plants operated by Detroit Edison Company, Virginia Electric Power Company, and Carolina Power & Light. Responsible for planning and specifying equipment requirements and evaluating equipment operating and testing procedures in a variety of applications

Education: B.S., Chemical Engineering, Massachusetts Institute of Technology, 1982

Assigned Area: Waste Management

Name: Ernest C. Harr, Jr.

**Association
(Company):** NUS Corporation

Experience: 11 Years

1987-present Manager of the Radiological Programs Department. Served as radiation specialist on multidisciplined team that conducted environmental surveys at Idaho National Engineering Laboratory, Oak Ridge National Laboratory, Laboratory for Energy-Related Health Research, Lawrence Berkeley Laboratory, Stanford Linear Accelerator Center, Ames Laboratory, and Princeton Plasma Physics Laboratory. Designed sampling and analysis program for these sites, and interpreted results to prioritize the environmental problems

1982-1987 Designed and installed radiochemical, radon, environmental, radioactive waste characterization, and emission/effluent radionuclide monitoring systems for Federal and state agencies and industrial applications

1978-1982 Manager of the Radiological Laboratory and Project Manager for various radiological environmental monitoring programs for nuclear utilities. Developed QA/QC program and radiochemical procedures, including alpha spectroscopy, to enhance laboratory capabilities

1977-1978 Responsible for bacterial media preparation, complex sucrose gradient generation, sample preservation, and lab-wear sterilization at the National Institutes of Health

Education: B.S., Zoology, University of Maryland

Assigned Area: DOE Orders and Radiation

Name: Cynthia G. Heckman

**Association
(Company):** Martin Marietta Energy Systems

Experience: 4 Years

1985-present Maintain and update a data base of DOE NEPA memoranda to file. Assisted in the development of the NEPA compliance protocol for the DOE Office of NEPA Project Assistance

Provide support to the contract with the U.S. Army dealing with the selection of applicable or relevant and appropriate requirements for remedial action sites pursuant to CERCLA

Maintain and update a series of environmental guidance program reference books on 14 major environmental statutes for the DOE Office of Environmental Guidance and Compliance

Graduate work and master's thesis centered in field of environmental toxicology, specifically dealing with aquatic bioassays

Education: B.S., Biology, Thomas More College, Crestview Hills, Kentucky, 1980
M.S., Biology, University of Kentucky, Lexington, Kentucky, 1985

Assigned Area: National Environmental Policy Act and Planning and Management

Name: Clarence R. Hickey

**Association
(Company):** U.S. Department of Energy, Office of NEPA Project Assistance

Experience: 19 Years

1987-Present Environmental Protection Specialist for DOE Office of NEPA Project Assistance. NEPA Coordinator for DOE-HQ oversight of San Francisco and Oak Ridge Operations Offices

1976-1987 Fishery Biologist and EIS Project Manager for the U.S. Nuclear Regulatory Commission. Authored and managed interdisciplinary EIS teams. Served as expert witness at hearings. Worked on generic and programmatic environmental and safety issues

1975-1976 Section Leader and Research Biologist for Ichthyological Associates, Inc. Section Leader for study of Barnegat Bay, fisheries in relation to operations of Oyster Creek Nuclear Generating Station

1970-1975 Marine/Fishery Biologist for New York Ocean Science Laboratory. Responsible for marine research (basic and applied) on fin and shell fisheries of New York and southern New England. Conducted contract research on fossil and nuclear power plant effects to marine systems. Wrote many journal publications, and attended many professional conferences

Education: B.S., Biology, Grove City College, Pennsylvania, 1966
M.S., Marine Science, Long Island University, New York, 1971

Assigned Area: National Environmental Policy Act and Verification

Name: Mara I. Hlavacik

**Association
(Company):** NUS Corporation

Experience: 6 years

1987-Present Surface Water Specialist. Performed environmental surveys at DOE facilities. Investigated facilities for compliance with Federal and state water and wastewater regulations, as well as DOE orders. Assessed the potential for environmental problems from any releases. Examined the production, control, and treatment of process wastewater, sanitary wastewater, and stormwater

1987 Inactive Waste Sites/CERCLA Specialist. Investigated known and unidentified inactive waste sites at DOE facilities for compliance with CERCLA/SARA and DOE orders. Also, assessed the presence of potential environmental problems as a result of past and current releases from the sites

1983-1987 Performed numerous remedial investigations and feasibility studies for both government and industrial clients. Area of specialization included the conceptual design of treatment systems for hazardous wastes, contaminated soils, and groundwater

Education: B.S., Chemical Engineering, Carnegie-Mellon University, 1982

Graduate Studies, Engineering Administration, George Washington University, 1988 to present

Assigned Area: Clean Water Act and Safe Drinking Water Act

Name: David S. Ingle

Association (Company): U.S. Department of Energy-Albuquerque Operations Office

Experience: 16 Years

1986-present Safety and Occupational Health Manager at DOE Pinellas Area Office. Oversight of operating contractor in all facets of ES&H

1982-1986 Safety and Occupational Health Manager at the DOE Dayton Area Office. Oversight of operating contractor in all facets of ES&H

1978-1982 Defense Logistics Agency, Defense Property Disposal Region, Columbus. Safety and Occupational Health Manager. Operational responsibility for ES&H program at 69 field activities within the United States and four sites overseas

1975-1978 Defense Logistics Agency, Defense Property Disposal Region, Europe. Safety and Occupational Health Manager. Operational responsibility for ES&H program for civilian, military, and foreign national workers at 36 sites in Europe, North Africa, and the Mid-East

1974-1975 Safety Specialist in the 101st Airborne Division Safety Office at Fort Campbell, Kentucky

1973-1974 Safety Specialist in the Post Safety Office at Ft. Meade, Maryland

Education: B.S., Physical Education/Psychology, Berry College
Graduate, U.S. Army Safety Intern Training Program

Assigned Area: Assistant Environmental Team Leader

Name: David Misenhimer

Association
(Company): NUS Corporation

Experience: 13 Years

1987-present Served as Senior Surface-Water Engineer during the DOE Office of Environmental Audit Environmental Survey Program and assessed facilities regulated under the CWA and SDWA. Assessed potable water systems, industrial process discharges, wastewater treatment systems, and stormwater and wastewater conveyance systems at the Morgantown Energy Technology Center, Pittsburgh Energy Technology Center, Naval Petroleum Reserves, and Oak Ridge National Laboratory

1976-1987 Developed design plans for the upgrade and expansion of wastewater treatment plants, water transmission and distribution pipelines, and wastewater pumping stations. Monitored and analyzed wastewater flows for infiltration/inflow and sewer system evaluation studies. Planned, directed, and executed investigations of on-site and community wastewater management systems to determine nature and extent of operational problems and develop alternatives for improving existing systems/constructing new systems. Inspected the construction of sanitary sewers. Provided office engineering support to a wastewater treatment plant construction project. Analyzed daily operations of a water treatment plant that consisted of virtually every unit process available for advanced water treatment and reclamation

Managed several environmental impact assessment projects involving the expansion of manufacturing facilities, wastewater treatment and collection systems, mixed-use development projects, high-voltage underground electric transmission line projects, and hydroelectric pumped storage systems

Education: B.S., Env. Sci. and Resource Mgt., Lehigh University, 1976
M.S., Civil Eng., University of Maryland, 1982
Reg. Professional Engineer, District of Columbia

Assigned Area: Clean Water Act

Name: Frank R. Morris

Association
(Company): NUS Corporation

Experience: 12 Years

1989-present Conducted prioritization studies at Oak Ridge National Laboratory, Los Alamos National Laboratories, and Savannah River Plant. Senior Geologist in Remedial Investigations Group

1981-1989 Performed characterization for Enhanced Oil Recovery Group, general exploration, and geophysics for Chevron U.S.A.

1980-1981 Field reconnaissance for groundwater studies in the Mississippian Plateau region of western Kentucky karst hydrology for the Kentucky Geological Survey

1975-1980 Uranium exploration in North Carolina and Michigan for the Minatome Corporation

1973-1975 Instructor of physical sciences at A.C. Reynolds High School in Achville, North Carolina

Education: B.A., Geology, A.S.U. Boone, North Carolina, 1972
M.S., Geology, Eastern Kentucky University, 1983 Richmond, Kentucky,
Thesis: Karst Hydrogeology

Assigned Area: Hydrogeologist

Name: Mark D. Notich

Association
(Company): NUS Corporation

Experience: 11 Years

1987-present QA and TSCA Technical Specialist for DOE environmental survey. Responsible for performing surveys of QA and TSCA compliance at various DOE facilities. Currently serving as NUS Team Coordinator for Survey Team 3

QA Officer for Alternate Remedial Contracting Services (ARCS) for EPA Region III. Responsible for developing, implementing, and maintaining the QA program; overseeing the ARCS III QA staff; performing systems and operations audits; and developing corrective actions

1978-1987 Analytical chemist experienced in the analysis of environmental samples by gas chromatography, atomic absorption spectrophotometry, and wet chemical methods by EPA Contract Laboratory Program methods, SW 846 methods, and other EPA-ASTM analytical procedures. Supervised the mobile laboratory program for a major EPA contractor. Responsible for design and operation of three state-of-the-art mobile analytical chemistry laboratories

Education: B.S., Chemistry, University of Maryland

Assigned Area: Quality Assurance and Toxic Substances Control Act

Name:	Lorene L. Sigal
Association (Company):	Oak Ridge National Laboratory
Experience:	9 Years
1986-present	Technical assistance to the DOE Office of NEPA Project Assistance. Development of the draft DOE NEPA Compliance Guide and the DOE NEPA Compliance Audit Protocol
1985-1989	Team Leader for Oak Ridge National Laboratory environmental compliance assessments for the U.S. Air Force under their Environmental Compliance and Management Program
1984	Preparation of the DOE Regulatory Compliance Guide for Prevention of Significant Deterioration Under the Clean Air Act
1980-present	Basic research in the effects of air pollutants on vegetation
1980-1989	Preparation of terrestrial ecology sections of EISs for coal-fired, oil-fired, and nuclear power plants; U.S. Army disposal of chemical agents and munitions; and U.S. Air Force base closures and reuse
Education:	Ph.D., Botany and Microbiology, Arizona State University
Assigned Area:	National Environmental Policy Act and Planning and Management

Name: Carlos L. Tellez

**Association
(Company):** U.S. Department of Energy

Experience: 7 Years

1987-1989 Hazardous Waste Management. Directed and conducted development of hazardous waste management and minimization plans, hazardous waste tracking systems, and hazardous waste generator and storage facility inspections

1983-1987 Environmental Regulatory Development and Analysis. Conducted technical and economic analysis of EPA's RCRA, CERCLA, CAA, and TSCA regulations and supporting documentation

1982-1983 Nuclear Facility Licensing and Regulatory Analysis. Conducted technical and policy analysis of NRC licensing and regulatory actions

Education: B.S., Mechanical Engineering, Stanford University
M.A., Public Policy, Harvard University

Assigned Area: Resource Conservation and Recovery Act and Report Outline

Name: Wayne W. Tolbert

**Association
(Company):** Science Applications International Corporation

Experience: 13 Years

Assistant Vice President and former Division Manager directly supervising 30 environmental and health professionals

Project Manager for three EISs, one EIS Supplement, and nine EAs

Quality review/NEPA adequacy review of 15 NEPA projects, including high-level waste, nuclear fuels, PCB incineration, U.S. Air Force base closure, and electromagnetic pulse simulation

Ecologist for oil and brine spill effects and terrestrial ecology for 10 Strategic Petroleum Reserve NEPA projects, four coal gasification and/or liquefaction facilities (Fossil Energy Environmental Program), two clean coal technology EAs, and the Mound glass melter EA

Education: Ph.D., Ecology, University of Tennessee, 1976
M.S., Ecology, University of Tennessee, 1972
B.S., Biology, Wake Forest University, 1970
A.A., Wingate Jr. College, 1968

Assigned Area: National Environmental Policy Act and Planning and Management

Name: Philip R. Winsborough

Association
(Company): NUS Corporation

Experience: 15 Years

1989-present NUS Hydrogeology/RCRA Program. Project Manager on RCRA jobs, concentrating on remedial investigations, closures, and groundwater investigations

1986-1989 Hazardous and Solid Waste Enforcement Section of the Hazardous and Solid Waste Division, Texas Water Commission. Ensured RCRA and state regulatory compliance by industries for hazardous waste storage or disposal facilities. Reviewed inspections for compliance. Wrote enforcement and compliance orders

1985-1986 In charge of Hydrogeology Section for Paulus, Sokolowski and Sartor. Worked with industries in groundwater investigations, remedial investigations, pre-purchase inventories of real estate, and contamination surveys of industrial plants

1974-1985 Worked on Superfund site investigations, groundwater assessments for industries, lignite strip mine areas, and RCRA hazardous waste facilities for Espey, Huston and Associates. Worked on EIS studies of pipeline rights of way, ship channels, fossil fuels, and nuclear power plants

1972-1974 Geologist/archaeologist for the Texas Department of Parks and Wildlife

Education: B.A., Geology, University of Texas at Austin, 1972
Graduate study, hydrogeology, Villanova University, Pennsylvania, 1985

Assigned Area: Resource Conservation and Recovery Act and Hydrogeology

Name: David M. Wunsch

Association
(Company): NUS Corporation

Experience: 10 Years

1989-present QA/TSCA/FIFRA Specialist for NUS Corporation

1987-1989 Manager of Analytical Services at EA Engineering, Science, and Technology, Inc. Responsible for EPA's Contract Laboratory Program management, as well as compliance of QA activities involved in the maintenance of 1) seven state certifications and 2) approvals by USATHAMA, Army Corps of Engineers, U.S. Navy, and U.S. Air Force environmental divisions

Involved in writing of the new QA manual (1988) to align laboratory procedures to comply with recent EPA-Contract Laboratory Program/statements of work and with EPA SW-846 manual for solid waste analysis. Private client contract negotiations and compliance issues also were assigned

1985-1987 Laboratory Manager for the Environmental Chemistry Laboratory at EA Engineering, Science, and Technology, Inc. Responsible for the daily operations of the laboratory, including oversight of QA, contract compliance, and hazardous waste disposal

1979-1985 Research scientist and laboratory supervisor for a clinical department at the University of Maryland Medical School. Responsible for National Institutes of Health (NIH) grant research management, QA, and safety programs. Assisted in writing QA and safety manuals, as well as laboratory standard operating procedures for the clinical and research laboratories

Education: B.S., Animal Science, Rutgers University, 1971
M.S., Physiology, University of Guelph, 1973
M.S., Pharmacology, New York Medical College, 1977
M.B.A., Management, Loyola College, 1986

Assigned Area: Toxic Substances Control Act; Federal Insecticide, Fungicide and Rodenticide Act; Quality Assurance

C1.6 Environment Subteam Protocols and Lines of Inquiry

The overall purpose of the Environment Subteam is to conduct an independent assessment of the FMPC's regulatory compliance status. Protocols and lines of inquiry guide team members in conducting consistent and comprehensive assessments at all DOE facilities. The guidelines are, in some cases, modified to address the unique components of each area assessed.

C1.6.1 National Environmental Policy Act (NEPA)

The purposes of the assessment are to evaluate the FMPC's NEPA management and review processes 1) to identify problems that lead to inappropriate procedures or inadequate documentation and 2) to ensure full compliance with NEPA, Council on Environmental Quality (CEQ) regulations, and DOE NEPA guidelines and orders. The overall goal of the NEPA assessment is to foster improved and environmentally sound decision making.

C1.6.1.1 Approach

The assessment of NEPA compliance will be evaluated against the CEQ regulations for implementing the procedural provision of NEPA (40 CFR 1500-1508). NEPA compliance will be evaluated using the following DOE guidance and policies:

- 52 FR 47662-47670, DOE Compliance with NEPA; amendments to the DOE NEPA Guidelines, December 15, 1987
- DOE Order 5440.1C, National Environmental Policy Act, April 9, 1985
- DOE Notice 5400.4, Integration of Environmental Compliance Processes, Comprehensive Environmental Response, Compensation and Liability Act

(CERCLA), remedial investigation/feasibility study (RI/FS), and NEPA, August 2,

1988. In addition, NEPA compliance will be evaluated against the currently applicable WMCO policy and procedures.

C1.6.1.2 Assessment Criteria

A NEPA Compliance Audit Protocol (draft), developed by the DOE-HQ Office of NEPA Project Assistance (EH-25), was used to guide the assessment. Worksheets addressed the following areas:

- overview of NEPA issues
- management structure
- NEPA compliance
- NEPA/CERCLA and NEPA/RCRA integration
- determine required level of NEPA review
- procedural aspects of NEPA documents
- technical content of NEPA documents.

The NEPA environmental compliance assessment (ECA) activities included a site orientation meeting, facility tours, reviews of NEPA-related documents and files, interviews of facility personnel, observation of facility projects, participation in the daily audit team briefings, and preparation of this preliminary report. The NEPA audit worksheets are the permanent record for the site visit and document the daily activities of the NEPA ECA team and their findings. They are not included in this report.

The protocol used in this assessment includes reference to the many Federal statutes, requirements, and executive orders that influence the assessment of environmental impacts under NEPA. The protocol also directs the assessment under the previously listed CEQ regulations and applicable DOE guidance and orders.

C1.6.2 Resource Conservation and Recovery Act (RCRA), Solid Waste Disposal Act (SWDA), and Radioactive Waste Management

The purposes of the waste management portion of the ECA are to assess the facility's compliance with 1) regulations promulgated under RCRA, 2) state regulations on solid waste management and disposal, 3) DOE orders, and 4) Best Management Practices required to ensure compliance with the appropriate regulations and orders. The ECA will address the management of hazardous, radioactive, mixed (hazardous and radioactive), and nonhazardous solid waste.

C1.6.2.1 Approach

The ECA is carried out by verifying compliance with implementing regulations promulgated under the aforementioned laws and DOE orders, which include the following:

- 5400.1, General Environmental Protection Program
- 5482.1B, Environment, Safety, and Health Appraisal Program
- 5484.1, Environmental Protection, Safety and Health Protection Information Reporting Requirements.

Management of hazardous waste will be evaluated against the requirements in 1) 40 CFR 260-280; 2) the requirements of the State of Ohio Hazardous Waste Management Regulations in the Ohio Administrative Code, Title 3745, Chapters 50 through 69; 3) DOE Order 5400.3, Hazardous and Radioactive Mixed Waste; and 4) DOE Order 5480.3, Safety Requirements for the Packaging and Transport of Hazardous Materials, Hazardous Substances, and Hazardous Wastes.

Management of radioactive waste will be evaluated against the requirements in the following DOE orders:

- 5400.XX, Radiation Protection of the Public and the Environment (Draft)
- 5400.XY, Radiological Effluent Monitoring and Environmental Surveillance (Draft)
- 5280.2A, Radioactive Waste Management.

Management of mixed waste will be evaluated against those requirements used in the evaluation of hazardous and radioactive waste management. If more than one set of requirements is applicable to the same situation, the more stringent requirement will be used.

Management of nonhazardous, nonradioactive solid waste will be evaluated against the requirements in the State of Ohio Solid Waste Disposal Regulations in the Ohio Administrative Code, Title 3745, Chapters 27 and 37. In addition, the management of all waste types will be evaluated against the current applicable FMPC standard operating procedures.

C1.6.2.2 Assessment Criteria

The protocol available for use in this assessment is the DOE RCRA Audit Checklist (Draft), April 21, 1989. In addition, the EPA Land Disposal Restrictions Inspection Manual, OSWER 9938.1A, April 3, 1989, will be used. For requirements identified in the assessment approach that are not addressed in these protocols, the regulatory source documents will be used. The groundwater monitoring program and system were evaluated for compliance with:

- Regulatory requirements--The groundwater monitoring program at FMPC includes a component that specifically addresses compliance with Parts 264 and 265, Subpart F, of RCRA. This program is associated with Waste Pit #4 which is an interim status facility. This program was evaluated for compliance with RCRA Subpart F.
- Applicable guidance--There is guidance available to evaluate groundwater monitoring programs under RCRA. In the case of the FMPC review, EPA's Technical

Enforcement Guidance Document (TEGD) was used to assist in the evaluation of the RCRA groundwater monitoring system.

C1.6.3 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Superfund Amendments and Reauthorization Act (SARA)

The CERCLA/SARA portion of the ECA is an assessment of compliance with 1) provisions of and regulations promulgated under CERCLA, as amended by SARA; 2) DOE orders describing how the DOE-expected compliance with these regulations; and 3) management practices required to ensure compliance with the provisions of laws, regulations, and orders.

C1.6.3.1 Approach

The ECA is carried out verifying compliance with implementing regulations promulgated under CERCLA/SARA that include the following:

- 40 CFR 300, National Oil and Hazardous Substances Pollution Contingency Plan, pending revision (53 FR 51394, December 21, 1988)
- 40 CFR 302, Designation, Reportable Quantities (RQ), and Notification RQ Adjustments - Radionuclides; Final Rule
- 40 CFR 350, Trade Secrecy Claims for Emergency Planning and Community Right-To-Know Information, and Trade Secrets Disclosures to Health Professionals
- 40 CFR 355, Emergency Planning and Notification RQ Adjustment - Radionuclides; Final Rule
- 40 CFR 370, Hazardous Chemical Reporting: Community Right-To-Know
- 40 CFR 372, Toxic Chemical Release Reporting: Community Right-To-Know
- 40 CFR 373, Reporting Hazardous Substance Activity when Transferring Real Property - Proposed Rule

- 49 CFR 11, Natural Resource Damage Assessments - Type B.

The DOE orders for the CERCLA/SARA ECA that require compliance with pertinent regulations or applicable or relevant and appropriate requirements (ARARs) are the following:

- 5400.1, General Environmental Protection Program
- 5400.3, Radiation Protection of the Public and the Environment (Draft)
- 5400.XY, Radiological Effluent Monitoring and Environmental Surveillance (Draft)
- 5482.1B, Environment, Safety and Health Appraisal Program
- 5484.1, Environmental Protection, Safety, and Health Information Reporting Requirements
- 5484.14, Comprehensive Environmental Response, Compensation and Liability Act
- 5400.YY, Comprehensive Environmental Response, Compensation and Liability Act (Draft).

C1.6.3.2 Assessment Criteria

At the FMPC, DOE entered into a Federal Facility Compliance Agreement (FFCA) with the EPA in July 1986. One of the requirements in the FFCA is that DOE must perform an RI/FS of waste sites at the FMPC in accordance with EPA guidance. In 1988, DOE entered into a Consent Decree with the Ohio EPA (OEPA) as resolution of several counts in the civil action against DOE. From the CERCLA standpoint, the Consent Decree essentially incorporates the directive in the FFCA regarding implementation of an RI/FS. Both of these agreements are used in determining the compliance status of the FMPC.

Much of the RI/FS activity involves monitoring of groundwater resources at and surrounding the FMPC. The groundwater monitoring program and system were evaluated for compliance with the following:

- Standard operating procedures--Procedures for sampling of soils and groundwater also have been established as part of the on-going RI/FS Work Plan (Quality Assurance Project Plan) and the facility testing work plan (which is an addendum to the original RI/FS Work Plan) to evaluate the field activities associated with the RI/FS. The evaluation included the observation of well installation, soil borings, and groundwater sampling. The work plans also were reviewed for general adequacy with regard to field techniques.
- Applicable guidance--EPA's TEGD was used to evaluate groundwater monitoring. The most recent version of EPA's RI/FS guidance document (Interim Final RI/FS Guidance, October 1988) also was used but to a lesser extent.
- Accepted practice--The primary reference used for this evaluation was the Compendium of Field Operations published by EPA (OSWER Directive No. 9355.0-14).

The technical activity conducted under the RI/FS is evaluated for compliance with approved planned activities, as documented in the scope of work, and specifically including adherence to the following:

- Sampling and Analysis Plan
- Health and Safety Plan
- Community Relations Plan
- Data Management Plan
- Quality Assurance (QA) Project Plan.

The CERCLA/SARA ECA also evaluates the organizational structure for CERCLA program activities within the DOE Site Office, WMCO, and the RI/FS contractors and subcontractors to determine the adequacy of staff resources. Both weaknesses and strengths are noted in the organizational structure. DOE interaction with pertinent Federal and state regulatory agencies also is assessed. Other requirements of CERCLA/SARA also are reviewed during the ECA. These include "SARA Title III" (The Emergency Planning and Community Right-To-Know Act), which has a number of reporting

requirements for owners/ operators of certain facilities.

Evaluation of personnel awareness and understanding of the CERCLA/SARA program issues occurs throughout each of the areas included in the ECA. These evaluations are carried out through 1) document review to gather background information, data, and facts; 2) personal interviews; 3) field inspections, which are essential to understanding the current compliance status and planned actions; and 4) attendance at scheduled FMPC activities, such as technical information exchanges and sampling events.

C1.6.4 Clean Air Act (CAA)

The purposes of the air media portion of the ECA are to assess compliance with 1) regulations promulgated under the CAA, 2) DOE orders describing the DOE-expected compliance with these regulations, and 3) Best Management Practices required to ensure compliance with the spirit and the letter of the regulations and orders.

C1.6.4.1 Approach

Regulations promulgated under the CAA are covered in 40 CFR 50-87. Twenty-two sections (currently, Sections 55, 59, 63, 64, 68, 70-78, 83, and 84 are reserved for future regulations) have been categorized for the proposed environmental audit checklist as have the following:

- Substantial importance to DOE facility assessments
 - 40 CFR 51, Requirement for Implementation Plans
 - 40 CFR 53, Ambient Air Monitoring Reference and Equivalent Methods
 - 40 CFR 58, Ambient Air Quality Surveillance
 - 40 CFR 60, Standards of Performance for New Stationary Sources
 - 40 CFR 61, National Emission Standards for Hazardous Air Pollutants

- 40 CFR 80, Regulation of Fuels and Fuel Additives (80.22 only)
- 40 CFR 82, Protection of Stratospheric Ozone
- Secondary importance to DOE facility assessments
 - 40 CFR 50, National Primary and Secondary Ambient Air Quality Standards
 - 40 CFR 52, State Implementation Plans
 - 40 CFR 65, Delayed Compliance Orders
 - 40 CFR 66, Assessment and Collection of Noncompliance Penalties by EPA
 - 40 CFR 81, Designation of Areas for Air Quality Planning Purposes
- Little or no importance to DOE facility assessments
 - 40 CFR 54, Prior Notice of Citizen Suits
 - 40 CFR 56, Regional Consistency
 - 40 CFR 57, Primary Nonferrous Smelter Orders
 - 40 CFR 62, Approval and Promulgation of State Plans for Designated Facilities and Pollutants
 - 40 CFR 67, EPA Approval of State Noncompliance Penalty Program
 - 40 CFR 69, Special Exemptions from Requirements of the Clean Air Act
 - 40 CFR 79, Registration of Fuels and Fuel Additives
 - 40 CFR 80, Regulation of Fuels and Fuel Additives (except 80.22)
 - 40 CFR 85, Control of Air Pollution from Motor Vehicles and Motor Vehicle Engines
 - 40 CFR 86, Control of Air Pollution from New Motor Vehicles and New Motor Vehicle Engines: Certification and Test Procedures
 - 40 CFR 87, Control of Air Pollution from Aircraft and Aircraft Engines.

The DOE orders require compliance with pertinent regulations. Significant DOE orders include the following:

- 5400.1, General Environmental Protection Program
- 5400.3, Radiation Protection of the Public and the Environment (Draft)
- 5400.XY, Radiological Effluent Monitoring and Environmental Surveillance (Draft)
- 5482.1B, Environment, Safety, and Health Appraisal Program

C1.6.4.2 Assessment Criteria

Portions of several published protocols will be used in the ECA. These include checklists prepared for 1) the DOE Environmental Survey (DOE/EH-0053), 2) the Multi-Media Compliance Inspection Manual (EPA 1987), 3) the General Services Administration Inspection Manual (Argonne National Laboratory 1987), and 4) the Environmental Compliance Assessment and Management Program (ECAMP) Checklist (U.S. Air Force 1988).

These protocols, however, will be augmented to include radionuclide air emissions. In addition, the recently proposed National Emissions Standard for Hazardous Air Pollutants (NESHAP) covering radionuclides (54 FR 9612, March 7, 1989) will be included in the ECA.

Generally, the State of Ohio regulations are properly reflective of Federal regulations. Therefore, compliance with state regulations more restrictive than Federal regulations will be identified and reviewed. Guidance and suggestions from the OEPA (and its local representative, the South Western Ohio Air Pollution Control Agency), will be used.

Several other Federal laws and regulations have air-related requirements applicable to DOE facilities and will be addressed as part of the ECA. These include the following:

- RCRA requirements for particulate emissions from permitted waste piles, landfills, and land treatment units [(40 CFR 264.250 (c)(3), 264.301 (i), and 264.273 (f)]
- RCRA Section 3004 (o)(t), Location Standards
- RCRA Section 3004 (u), Corrective Action
- 40 CFR 761.70, Toxic Substances Control Act (TSCA) that regulates incineration of liquid and nonliquid polychlorinated biphenyls (PCBs)
- Emergency Planning and Community Right-to-Know Law (Title III of SARA, 1986), Section 313: Toxic Chemical Release Reporting.

C1.6.5 Clean Water Act (CWA) and Safe Drinking Water Act (SDWA)

The protocols for the ECA for the water activities at the FMPC are governed primarily by the CWA and the SDWA. The CWA activities include three primary types of wastewater: process wastewater, stormwater runoff, and sanitary wastewater. In addition, the FMPC uses three on-site production wells as a source of potable and process waters. These areas will be investigated during the ECA.

C1.6.5.1 Approach

The ECA is carried out by verifying compliance with implementing regulations and requirements issued by the EPA and DOE. These requirements are covered in the following:

- 5400.1, General Environmental Protection Program
- 5400.XX, Radiation Protection of the Public and the Environment (Draft)
- 5400.XY, Radiological Effluent Monitoring and Environmental Surveillance (Draft)
- 5482.1B, Environmental Safety and Health Appraisal Program

- 40 CFR 109, Criteria for State, Local and Regional Oil Removal Contingency Plans
- 40 CFR 110, Discharge of Oil
- 40 CFR 112, Oil Pollution Prevention
- 40 CFR 116, Designation of Hazardous Substances
- 40 CFR 117, Determination of Reportable Quantities for Hazardous Substances
- 40 CFR 122, National Pollutant Discharge Elimination System
- 40 CFR 124, Procedures for Decisionmaking
- 40 CFR 125, Criteria and Standards for the National Pollutant Discharge Elimination System
- 40 CFR 133, Secondary Treatment Regulation
- 40 CFR 141, National Primary Drinking Water Regulations
- 40 CFR 142, National Primary Drinking Water Regulations Implementation.

The FMPC possesses an expired NPDES permit issued by the OEPA for the discharge of its wastewaters to the Great Miami River and to Paddy's Run. The facility also has been subject to requirements stated in the Director's Findings and Orders (DFOs), FFCAs, and Consent Decree with respect to its wastewaters. A number of ongoing water improvement projects are in various stages of completion, and nine Permits to Install (PTIs) have been initiated since 1987. The conditions listed in the NPDES permit, PTIs, DFOs, FFCAs, and Consent Decree will be compared to current operations to assess compliance. A comparison will also be made with the other applicable requirements of the CWA and SDWA and their corresponding state regulations in the Ohio Administrative Code during this assessment.

C1.6.5.2 Assessment Criteria

A number of water checklists will be consulted for guidance, including those in the

EPA NPDES Compliance Inspection Manual, the EPA National Enforcement Investigations Center Multi-Media Compliance Audit Procedures, the EPA Multi-Media Compliance Inspection Manual, and the DOE Environmental Survey Manual. The assessment also will include a comparison of information provided in the most recent FMPC annual environmental monitoring report with current conditions, an assessment of compliance with DOE orders, and relevant discussions with involved local, state, and Federal regulators regarding adequacy of DOE and contractor organization and resources, management, and site interactions with regulators.

Available on-site documentation will be reviewed to determine the adequacy of operations, planning, and training. This documentation will include records of drinking water quality, operators' and samplers' log books, discharge monitoring reports and analytical data, treatment plant and monitoring equipment maintenance records, standard operating procedures, training records, Spill Prevention Control and Countermeasures Plan, Best Management Practices Plan, implementation records, long-term planning documents, and correspondence with regulators.

Field observations, interviews, and document reviews will be used to assess the facility's current environmental compliance status, to identify specific areas of non-compliance, to evaluate the adequacy of DOE and contractor organization and resources, and identify root causes of any noncompliance items. The conditions listed in the various permits and regulatory agreements will be compared to current operations to assess compliance, as will both Federal and state water/wastewater regulations.

C1.6.6 Toxic Substance Control Act (TSCA) and Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

The TSCA/FIFRA portion of the ECA is to assess compliance with 1) regulations

promulgated under the TSCA, 2) recommended guidance under FIFRA, 3) DOE orders, and 4) Best Management Practices required to ensure compliance with the appropriate regulations and orders. The ECA will address the management of toxic and hazardous materials, PCBs, asbestos, and FIFRA-related chemicals.

C1.6.6.1 Approach

The areas covered by this series of ECAs were undertaken with the authority and guidance in the following DOE orders:

- 5400.1, General Environmental Protection Program
- 5400.XY, Radiological Effluent Monitoring and Environmental Surveillance (Draft)
- 5482.1B, Environment, Safety, and Health Appraisal Programs.

In addition, the EPA has promulgated implementing regulations to cover specific requirements of the TSCA and FIFRA delineated in 40 CFR 761, 40 CFR 763, 40 CFR 61, and 40 CFR 165 on the use, handling, and disposal of PCBs, asbestos, and FIFRA-related chemicals, respectively. Protocols for assessing compliance to these regulations were derived from the 1987 Environmental Survey Manual (DOE/EH-0053), the 1987 TSCA Inspection Manual, and the 1986 Multi-Media Compliance Inspection Manual.

In addition to the questions of specific regulatory compliance, there is a need under TSCA to assess the tracking, control, and management of toxic and hazardous substances as they come on the site. To meet this need, an inquiry into the adequacy of these systems will be accomplished by systematically reviewing site policies and procedures; on-site inspection of receiving, warehousing, and transportation functions; and personal interviews of the participants regarding general practices. The adequacy of warehouse and storage facilities also will be inspected.

C1.6.6.2 Assessment Criteria

As a basis for assessing the implementation of management controls with regard to TSCA issues, FMPC-2114, Environmental Safety, Health, and Waste Management Plan, will be consulted. This plan will aid in the assessment of procedures pertaining to QA oversight, standard operating procedures development, internal reviews, and auditing practices, as well as training and documentation issues.

Inquiries will be made as to historical use and storage on the site. Present storage facilities, if any, will be visited and assessed for adequacy. Activities regarding off-site contractors will include verification of proper licensing and personnel interviews regarding past and present on-site activities. An appropriate checklist will be used during all inquiries.

C1.6.7 Environmental Monitoring

The purpose of the environmental monitoring ECA is to conduct an independent oversight assessment of the FMPC environmental monitoring program activities. The assessment will evaluate the environmental programs for compliance with applicable Federal and state laws, regulations, standards, and DOE orders.

C1.6.7.1 Approach

The environmental monitoring ECA is carried out by verifying compliance with DOE orders, including the following:

- 5400.1, General Environmental Protection Program
- 5400.3, Radiation Protection of the Public and the Environment (Draft)
- 5400.XY, Radiological Effluent Monitoring and Environmental Surveillance (Draft)
- 5482.1B, Environment, Safety, and Health Appraisal Program

- 5484.1, Environmental Protection, Safety, and Health Protection Information Reporting Requirements.

The assessment approach is as follows:

- Briefings were provided by DOE and WMCO management on the overall purpose and status of the facility.
- Pertinent documents will be reviewed. The primary documents to be reviewed will be the environmental monitoring annual reports and the "Environmental Monitoring Program at the FMPC." Also to be reviewed are the environmental standard operating procedures, organization charts, mission statements, compliance agreements, memorandum of understandings, previous appraisals, audits, notices of noncompliance, action plans, implementation plans, selected unusual occurrence reports, and correspondence.
- Interviews will be conducted with DOE and WMCO to clarify issues, pursue items not fully covered in the documentation, attempt to determine reasons for non-compliance, and follow "threads" through the organization.
- Sampling of environmental media will be witnessed, where possible, to verify the adherence to the standard operating procedures, ensure that a representative sample is being obtained, observe the equipment condition and placement, and observe the care with which the samples are collected, handled and, if appropriate, preserved.
- The records of the environmental monitoring program results will be spot checked for accuracy and accessibility. Data evaluation techniques, action levels, and sensitivity of the analyses will be examined.
- The environmental program will be examined for compliance with DOE orders (in detail) to 1) applicable Federal and state

laws, regulations, and standards (in general) and 2) draft DOE orders, DOE guidelines, and industry standards as a measure of Best Management Practices.

- A data sheet will be prepared for each significant observation or group of observations. The data sheet will identify the category of noncompliance (imminent threat, regulatory, DOE, or Best Management Practices) or noteworthy compliance or practices. The data sheet will include tentative findings and probable root causes.
- The overall environmental program will be evaluated both by a discussion of the program and by grouping of data sheets into findings and determination of root causes. Follow-up with DOE and WMCO will be attempted to substantiate the accuracy of the basis for the findings.

C1.6.7.2 Assessment Criteria

Many of the environmental monitoring areas being investigated overlap with other disciplines (e.g., CAA, CWA, NEPA, RCRA, CERCLA, etc.). The coverage will be coordinated to address all major areas. The areas to be covered and the depth of coverage are indicated as follows:

- Effluent monitoring will be reviewed only to examine the effluent data as they influence the design of the environmental monitoring program and the assessment of radiation dose to the general public.
- Ambient monitoring or surveillance will be examined in depth. Media covered (with other specialists) will include air, groundwater, surface water, sediment, drinking water, soil, vegetation, foodstuffs, other biota, ambient radiation, and meteorology.
- The radiation dose assessment process will be evaluated in detail.
- QA and quality control will be assessed in all functional areas; however, detailed laboratory QA will be covered by the program-specific assessor.

The assessment will provide the current environmental compliance status of the FMPC, specific noncompliance items, evaluation of the adequacy of the organization and resources, and root causes for noncompliance items.

C1.6.8 Quality Assurance (QA)

The purpose of this portion of the ECA is to assess the QA program and practices at the FMPC. The assessment will focus on the QA activities as they relate to environmental programs. This assessment will provide the overall status of the QA program application to environmental actions.

C1.6.8.1 Approach

The ECA QA review will deal primarily with laboratory analytical capabilities. Protocols will be employed to review and verify the QA procedures and practices as they relate to the following:

- analytical assignments of on-site laboratories
- compliance with NPDES regulations (40 CFR 136)
- audit activities of off-site contractual analyses
- technical review of QA Project Plan for subcontracted RI/FS laboratory and custody activities
- DOE Order 5700.6B, Quality Assurance.

C1.6.8.2 Assessment Criteria

The protocols will be derived from a combination of technical and regulatory-based sources, including the following documents:

- Environmental Survey Manual (DOE/EH-0053)
- NPDES Inspection Manual (1988)
- RCRA Laboratory Audit Inspection Guidance Document (1988)

- Test Methods for Evaluating Solid Waste (1986)
- Methods for Chemical Analysis of Water and Waste (EPA-600/4-79-020), as well as on-site guidance in FMPC-2139, FMPC QA Plan, and the specific laboratory QA plans.

All aspects of the QA program will be accounted for, including organizational struc-

ture, quality control monitoring, QA reporting, sample management, data management, and training. The quality and defensibility of data will be assessed from the technical aspect, and the managerial component will be considered employing a Best Management Practices approach.

C1.7 Environment Subteam Data Sheets

The Environment Subteam data sheets for the FMPC are contained in this section. The following is a listing and short identification of each sheet.

NEPA

- 08-01 NEPA/CERCLA interface
- 09-01 Length of NEPA environmental assessment
- 09-02 Application of interim NEPA documents
- 09-03 FMPC-518 not consistent with standard NEPA procedures
- 09-04 Lack of formal training in NEPA process/procedures
- 09-05* Lack of NEPA coordination in the program office
- 12-01* EIS completed in advance of final decision making
- 12-02 NEPA assessment of cumulative impacts is inadequate
- 12-03 EA is not quantitative enough
- 12-04* Draft EIS is incomplete
- 12-05* Assessment of alternatives is not adequate
- 12-06* Conflicts between proposed action and other land use plans
- 12-07 Incomplete analysis of cumulative impacts
- 12-08* Interaction of NEPA review is incomplete
- 12-09 Assessment of impacts is incomplete
- 12-10 Nonradiological impact analysis is incomplete
- 12-11 Analysis of impacts to the public is incomplete
- 16-01* Conclusions of no cumulative impacts lack supporting bases
- 18-01* Categorical exclusions documented incompletely

RCRA

- 07-01 Leaking drums dropped into overpack
- 07-02 Liquids are stored in open head drums
- 07-03* Rusted and corroded drums
- 07-04* Drum accountability incomplete
- 07-05* Improper storage of incompatible materials
- 07-06* TSD facility not included in Parts A and B applications
- 07-07 LLW drums stored on broken pallets
- 14-01* Storage of wastes subject to land disposal restrictions
- 14-02* No accurate assessment of wastes subject to RCRA
- 14-03 Cracks in Plant 1 pad
- 04-04* Inadequately trained personnel handle hazardous wastes

- 14-05 RCRA training for FMPC personnel
- 14-06 Railcar is unmarked
- 14-07 Limited capacity for radioactive materials decontamination
- 14-08 Large backlog of LLW wastes
- 14-09 Operating record in several locations
- 14-10 RCRA drum inspection manual

- 15-05* RCRA compliance issues related to groundwater

- 19-01* Satellite accumulation areas are inadequate
- 19-02* Inadequate RCRA storage facilities
- 19-03* Excessive waste at satellite accumulation areas
- 19-04* RCRA inspections inadequate
- 19-05 All RCRA units not identified
- 19-06* Hazardous waste improperly stored
- 19-07* RCRA contingency plan is inadequate
- 19-08 RCRA compliance communication ineffective
- 19-09 "Speculative" accumulation of solid waste

CERCLA/SARA

- 01-01* Failure to implement Community Relations Plan
- 01-02* Failure to meet scheduled implementation date
- 01-03 Potential inaccuracies in RI/FS cost reporting
- 01-04* RI/FS inadequately addresses data quality objectives
- 01-05* FFCA deliverable dates not met
- 01-06* RI/FS documents lack timeliness
- 01-07 Completion of RI/FS tasks
- 01-08* RI/FS reporting inadequate
- 01-09* RI/FS management plans are insufficient
- 01-10 RI/FS document change requests not properly approved
- 01-11 RI/FS task orders negotiation after the fact
- 01-12 RI/FS expansion in contract scope of work
- 01-13 RI/FS project management inadequate
- 01-14 RI/FS cost growth justification not documented

- 11-01* Failure to notify Federal and state trustees
- 11-02* K-65 silos may potentially release radioactive constituents
- 11-03* Administrative record is inadequate
- 11-04 Biological and ecological sampling plan is insufficient
- 11-05* Failure to determine reportable quantities
- 11-06* Floodplain/wetlands assessment not done
- 11-07* Lack of timely reporting to national response center

- 15-06 Insufficient training of RI/FS subcontractor
- 15-07 Inadequacies in well installation

Clean Air Act

- 04-01* Gasoline pumps not labeled
- 04-02* Air monitoring station deficiencies
- 04-03* Air emission sources lack permits to operate
- 04-04* Stack sampling inadequate
- 04-05 Unscheduled and fugitive emission releases
- 04-06 Steam plant air emissions compliance record
- 04-07 Elevation of radon monitors
- 04-08 Lack of particle-size distribution measurements
- 04-09 Lack of complete air emissions inventory
- 04-10* Inappropriate analytical procedures for stack analysis
- 04-11* Lack of asbestos projects notification

Clean Water Act/Safe Drinking Water Act

- 03-01* Lack of nitrate monitoring for drinking water
- 03-02 Inadequate sampling techniques
- 03-03 Lack of SOPs
- 03-04* NPDES permit noncompliance - Outfall 001B/C
- 03-05* NPDES permit noncompliance - Outfall 001E
- 03-06* NPDES permit noncompliance - Outfall 001
- 03-07* NPDES permit noncompliance - Outfall 001D
- 03-08* Inadequate implementation of SPCC Plan
- 03-09* Inadequate Implementation of BMP Plan
- 03-10* Noncompliance with Consent Decree (wastewater/runoff)

- 15-01* Contamination of groundwater

- 17-01* NPDES permit noncompliance - Outfall 001A
- 17-02* Inadequate operation and maintenance of sewage treatment plant
- 17-03* NPDES permit noncompliance - Outfall 002

TSCA/FIFRA

- 06-07* Temporary storage of PCB container
- 06-08* Marking/placarding of on-site transport of PCB containers
- 06-09* Storage of PCBs exceeds 1 year
- 06-10* PCB storage inadequate
- 06-11 Inadequate proof of PCB disposal
- 06-12* Toxic materials tracking system is incomplete
- 06-13 Lack of spill containment
- 06-14 Lack of spill containment
- 06-15 Deficiencies in pesticides storage areas

Environmental Monitoring

- 02-01* Placement of thermoluminescent dosimeters
- 02-02* Lack of siting procedures for air monitoring stations
- 02-03* Inadequate labeling of nuclear material drums
- 02-04* Lack of procedures for collection/exchange of TLDs
- 02-05* Contamination of fenced pad
- 02-06* Lack of procedures/criteria for effluent evaluation
- 02-07* Radon-222 release estimates not included in airborne emissions data

- 13-01 Effluent exceeds derived concentration guides
- 13-02 Annual environmental report not formatted
- 13-03* Late environmental monitoring annual report
- 13-04 Data analysis and presentation lacking
- 13-05 Improper reference for radiation protection standards
- 13-06* Effluent report inadequate
- 13-07 Environmental monitoring program report out of date

- 15-02 Lack of formal groundwater monitoring program
- 15-03 Off-site groundwater SOPs inappropriate
- 15-04 Incomplete sampling of on-site wells

QA

- 06-01* Inadequate laboratory QA program
- 06-02 Laboratory practices inadequate
- 06-03* Lack of SOPs for sample handling activities
- 06-04 Training inadequate
- 06-05 Analytical laboratories shift logs
- 06-06 Contract laboratory quarterly blind performance evaluation

* Potential areas where agreement and/or regulatory/DOE requirements are not met.

National Environmental Policy Act (NEPA)

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 08 - Env. - NEPA - 01

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date: 8-19-89Building or Activity N/AReference Data 1) DOE Notice 5400.4 of 8/2/88. 2) FMPC ES&H and WM Plan, Spring 1989 (FMPC-2114).**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

DOE and WMCO personnel at FMPC are having difficulty planning for integrating NEPA into the CERCLA process for current removal actions and future RI/FS actions.

Discussion

Interviews with DOE and WMCO staff responsible for NEPA activities at FMPC showed general concern about the lack of guidance from DOE-HQ on the NEPA/CERCLA integration process, as required by DOE Order 5400.4. Areas of particular concern include: 1) lack of agreement between EPA-HQ and Region V and DOE-HQ on integration and 2) ability of DOE internal system to deal with EPA on issues related to review, timing of the RI/FS and NEPA schedules, and procedures for integration. Five interim removal actions are planned, along with six larger RI/FS actions that will need to be integrated with NEPA. In the absence of guidance on this integration, DOE and Advanced Sciences, Inc./IT Corporation (ASI/IT) are preparing plans to do so. Site personnel are concerned that, in the absence of formal DOE guidance, the FMPC process may become a "model" for other DOE facilities to follow.

Tentative Finding(s)

FMPC is having difficulty planning for integration of the documentation requirements of NEPA and CERCLA into the planning for site restoration.

Probable Root Cause(s)

Written guidance has not been developed as a follow-up to DOE Order 5400.4 (of August 2, 1988) for the integration of NEPA and CERCLA.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 09 - Env. - NEPA - 01

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data DOE/EA-0260, -0333, -0338.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Three EAs examined exceeded the recommended length of 10-15 pages (45 FR 18026).

Discussion

Section 1508.9 of the Council on Environmental Quality (CEQ) regulations states that an EA should be a concise document that serves to briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact. Further, the CEQ (45 FR 18026) recommends that EAs be 10-15 pages in length. All three existing approved EAs prepared for FMPC activities were not concise documents and significantly exceeded the recommended page length. Additionally, all three EAs provided significantly more analysis than recommended by DOE procedures (as outlined in the 1988 Draft NEPA Compliance Manual), with respect to assessments against other Federal, state and local environmental legislation. Potentially, this assessment "overkill" required the use of more resources than necessary to complete the job.

Tentative Finding(s)

The three EAs written for FMPC activities were not concise documents (as per CEQ 1508.9) and exceeded the recommended 10-15 pages (45 FR 18026).

Probable Root Cause(s)

DOE does not follow the CEQ regulations and its own guidance related to producing concise and focused decision-making EAs. The adherence to DOE and CEQ requirements is incomplete.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 09 Env. NEPA 02

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data FMPC - 518. Completion of National Environmental Policy Act (NEPA) Documentation.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Confusion exists among FMPC personnel regarding the application of interim NEPA documents as defined in FMPC-518.

Discussion

With the agreement of EH-25 and ORO (Reafsnyder letter to Borgstrom, June 1, 1988; Reafsnyder Memorandum to Hibbitts, September 1, 1986), the FMPC NEPA review procedure includes interim NEPA questionnaires, checklists, and factsheets. The use of these interim documents for actions that will be taken during the course of an EIS is described in the WMCO Site Policy and Procedure. Once the sitewide EIS is issued, use of these interim "NEPA documents" will be discontinued. At that time, it is assumed that the FMPC NEPA review policy will follow the DOE NEPA review policy as described in the 1988 Draft DOE NEPA Compliance Guide, Volumes 1 and 2, and the DOE NEPA Guidelines (52 FR 47662). Interviews with the DOE Site Office, Lee Wan & Associates, and WMCO NEPA personnel showed that there is some confusion over the definitions and applications of the interim "NEPA documents," and considerable misunderstanding of the nature and use of the DOE NEPA review documents (i.e., categorical exclusions, Memoranda-to-File, and action description memoranda).

Tentative Finding(s)

The DOE Site Office, Lee Wan & Associates, and WMCO staff do not clearly understand the DOE NEPA compliance procedures and review process currently in place at FMPC.

Probable Root Cause(s)

Lack of training in the DOE NEPA compliance procedures and review process and the DOE FMPC and WMCO NEPA requirements.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 09 - Env. - NEPA - 03
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data WMCO Site Policy and Procedure FMPC-518, Completion of National Environmental Policy Act (NEPA) Documentation.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

FMPC-518 is not consistent with standard DOE NEPA procedures.

Discussion

As written, FMPC-518 (dated 6/2/89) is hard to follow, often misleading, and does not reflect DOE policy and procedures as outlined and described in the Draft DOE NEPA Compliance Guide (October 1988). For example:

- Under actions (Section 3.1), there is no definition of what actions at FMPC will come under NEPA review and what actions will not come under NEPA review.
- The definition and use of an Action Description Memorandum (ADM) (Sections 3.2 and 5.3) are incorrect and not consistent with the 1988 DOE Draft NEPA Compliance Manual.
- The definition of a memorandum-to-file (MTF) (Section 3.10) is incorrect and not consistent with either the NEPA Compliance Guide or the NEPA guidelines (52 FR 47662).
- The MTFs and Finding of No Significant Impact (FONSI) are not adequately discussed under the procedures (Section 6.1); the steps that lead to the decision on whether an MTF or FONSI are required should be indicated; it is unclear who makes the decision on whether an MTF or FONSI is issued.
- "NEPA document" is used throughout the procedures. There is a need to be more specific about which documents are specified. In some cases, certain NEPA documents are not applicable for general statements (i.e., Section 6.3A).
- The list of applicable documents (Section 7.0) is out of date (i.e., the revised DOE Environmental Compliance Guide has been distributed as a draft, October 1988; the DOE NEPA guidelines were reissued, December 1987, 52 FR 47662).

- The NEPA Document Flow Diagram is difficult to follow (i.e., the text in the boxes reads "documents," "individuals," "agencies," and "decisions"); the procedures for a "yes" categorical exclusion indicated on the diagram was not adequately addressed in the procedures section.

Tentative Finding(s)

WMCO Site Policy and Procedures for completion of NEPA documentation (FMPC-518) is not clearly written, often misleading, and does not adequately discuss MTFs, FONSI, and incorrectly describes ADMs.

Probable Root Cause(s)

Probable root causes include lack of understanding of the DOE NEPA compliance procedures and review process and lack of use of the draft DOE NEPA Compliance Guide and DOE NEPA Guidelines for preparation of FMPC-518.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 09 - Env. - NEPA - 04
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data General Observations.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Lack of formal training in the DOE NEPA review process and compliance procedures results in misunderstanding and misuse of NEPA procedures and documents.

Discussion

At present, there is no formal training for DOE Site Office or WMCO staff responsible for the NEPA review process. WMCO provides some training on preparation of interim NEPA documents (i.e., NEPA Questionnaires, Checklists, and Factsheets) to the project engineers. However, most of these interim documents are prepared by a subcontractor (i.e., THETA). Interviews showed that the staff responsible for NEPA activities would welcome training in the NEPA review process and compliance procedures. The most desired activities include:

- hands-on workshops,
- formal training from DOE-HQ
- informal exchange on technical issues with DOE-HQ.

It was apparent from interviews with DOE, Lee Wan & Associates, and WMCO staff that there is a general lack of understanding of the DOE NEPA review process and compliance procedures (i.e., categorical exclusions, memoranda-to-file, and action description memoranda) and even some misunderstanding of the FMPC interim NEPA documents (i.e., NEPA questionnaires, checklists, and factsheets). Training is lacking for a smooth transition to the DOE NEPA review process when the FMPC interim NEPA document process is discontinued at the time of publication of the sitewide EIS.

Tentative Finding(s)

There is a need for FMPC personnel to be trained in the DOE NEPA compliance and review process, for current FMPC activities and in preparation for the termination of the interim NEPA process.

Probable Root Cause(s)

Resources and a formal training program for all NEPA staff are lacking.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 09 - Env. - NEPA - 05
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data Interviews with DOE Site Office.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Lack of NEPA coordination in the Program Office according to DOE Order 5440.1C

Discussion

Interviews with DOE Site Office staff suggested that the DOE Office of Defense Programs does not fully consider NEPA in its planning process. The most recent example is the June 26, 1989, memorandum DP/HQ to W.R. Bibb at the Oak Ridge Operations Office (ORO) regarding "Cessation of Nuclear Materials Production Operations at FMPC." That memorandum requested an analysis by ORO of alternative courses of action for ceasing production, but did not consider the NEPA implications, or the direct bearing of this action on the EIS currently being drafted. The analysis of alternatives is the focus of an EIS, and the action requested in the June 26, 1989, memorandum could be incorporated into the current EIS.

Tentative Finding(s)

NEPA compliance at FMPC lacks direction and support from the Program Office.

Probable Root Cause(s)

A low priority has been placed on nonprogram (i.e., NEPA) matters.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 12 - Env. - NEPA - 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data DOE/EIS-0142D and EIS Implementation Plan.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The EIS currently in preparation has not been completed in advance of final decision making.

Discussion

Section 1502.5 of the Council on Environmental Quality regulations states that "An agency shall commence preparation of an environmental impact statement as close as possible to the time the agency is developing or is presented with a proposal... The statement shall be prepared early enough so that it can serve practically as an important contribution to the decisionmaking process and will not be used to rationalize or justify decisions already made." The DOE NEPA guidelines for compliance with NEPA state, in Section B.2(a)(2), that DOE will "Commence preparation of the relevant environmental document [an EIS in this case] as close as possible to the time that DOE is presented with a proposal (40 CFR 1508.23), and complete the document in advance of final decisionmaking."

Renovation planning began in 1982, with construction work commencing in 1985. The determination to prepare an EIS was made in 1986, with scope approved finally in the October 1987 EIS Implementation Plan. This 4- to 5-year gap violates the intent of NEPA to consider the environmental consequences of a proposal early in the planning process. Also, this has confused the choice and analysis of reasonable alternatives in the EIS, as most of the projects (completed and under way) are included in the No Action (i.e., present situation) alternative. NEPA was invoked very late in the planning process and has created schedule problems and delays in the preparation, review, and approval of the EIS.

Tentative Finding(s)

The NEPA process for consideration of environmental consequences early during planning and for preparation of an EIS is not in compliance with the CEQ regulations, the DOE guidelines, or the intent of NEPA.

Probable Root Cause(s)

Placement of program and environmental considerations ahead of NEPA compliance early in the decision-making process may be the root causes.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 12 - Env. - NEPA - 02
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity N/AReference Data DOE/EA-0333.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The assessment of cumulative impacts is inadequate.

Discussion

The analysis of cumulative impacts in the EA is very general and does not assess the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (as defined in Section 1508.7 of the Council on Environmental Quality regulations). No specific analysis is presented, and no assessment is made of the proposed action in association with other emissions and impacts generated at the FMPC site.

Tentative Finding(s)

The conclusion of no cumulative impacts is without supporting technical basis.

Probable Root Cause(s)

There is a lack of guidance and training to assess cumulative impacts. QA/QC of NEPA documentation is inadequate.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 12 - Env. - NEPA - 03
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89

Building or Activity N/A

Reference Data DOE/EA-0260.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The EA is not quantitative enough to support its current use as a document that can be tiered from or one that could support a categorical exclusion for a project that is of similar design and scope.

Discussion

The DOE NEPA guidelines (52 FR 47662, Section D) states that an action may be categorically excluded from NEPA's documentation requirements if the action ". . . is substantially the same as other actions for which the environmental effects have already been assessed in a NEPA document and determined by DOE to be clearly insignificant and where such assessment is currently valid."

The description of the existing environment in DOE/EA-0260 (prepared in 1985) is not quantitative or detailed enough to support its current use as a referenceable document against the above categorical exclusion. The descriptions of impacts are not detailed enough to permit the document to be tiered from for a new project.

Tentative Finding(s)

DOE/EA-0260 is out of date and not usable for tiering or for supporting a potentially categorically excluded action.

Probable Root Cause(s)

QA/QC of NEPA documentation is inadequate.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 12 - Env. - NEPA - 04
Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data DOE/EIS-0142D.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The Draft EIS does not contain an index, and the summary is incomplete.

Discussion

Section 1502.10 of the Council on Environmental Quality (CEQ) regulations establishes the format for EISs, and several sections that follow describe the content requirements for the major sections. DOE/EIS-0142D does not contain an index, as specified in CEQ 1502.10(j). The summary of the EIS does not follow the requirements of CEQ 1502.12, since it does not clearly define the alternatives, choices, or issues to be resolved. It does not clearly differentiate between the alternatives of the proposed action and the no action (present situation).

Tentative Finding(s)

The Draft EIS is not in conformance with the requirements of the CEQ regulations with respect to inclusion of an index and an adequate summary.

Probable Root Cause(s)

Inadequate knowledge of CEQ requirements, need for training, and inadequate QA/QC of NEPA documents are all probable root causes.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 12 - Env. - NEPA - 05
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity N/AReference Data DOE/EIS-0142D.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The assessment of alternatives in DOE/EIS-0142D is not adequate.

Discussion

Section 1502.14 of the Council on Environmental Quality (CEQ) regulations states that the alternatives section of an EIS ". . . should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." Section 1502.14(a) requires the EIS to "Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."

The EIS evaluates two alternatives in detail: 1) the proposed action to complete 125 renovation projects and 2) no action (or present situation) to terminate further renovations with the 175 projects completed or under way as of 9/30/89. A third alternative (with three subalternatives) for relocation of the FMPC facilities and mission is dismissed as an unreasonable and nonviable alternative. The relocation alternative is not defined in sufficient detail to permit meaningful comparison with either the proposed or the no action alternatives. The relocation alternative does not adequately or quantitatively assess site closure or relocation to another site. This appears to be inappropriate, considering the current site shutdown status and the Office of Defense Program's 6/26/89 Lytle to Bibb memorandum on cessation of nuclear materials production operations at FMPC. A clear basis for choice among alternatives is not presented, and the issues are not sharply defined.

Tentative Finding(s)

The EIS does not rigorously explore all reasonable alternatives or provide a clear basis for choice among options for the decision maker or the public, as required by the CEQ regulations.

Probable Root Cause(s)

The changing mission of the FMPC and the protracted delay in completion of the EIS have affected the alternatives under consideration. Also, inadequate consideration of all reasonable alternatives and lack of QA/QC in the NEPA review process are all causes.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 12 - Env. - NEPA - 06
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data DOE/EIS-0142D.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The Draft EIS does not discuss possible conflicts between the proposed action and other Federal, state, and local land use plans and policies.

Discussion

Section 1502.16(c) of the Council on Environmental Quality (CEQ) regulations requires that an EIS include a discussion of "Possible conflicts between the proposed action and the objectives of Federal, regional, state, and local . . . land use plans, policies and controls for the area concerned." No such discussion is included in the EIS, and no land use plan/policy for the FMPC site is discussed.

Tentative Finding(s)

The Draft EIS is not in conformance with the requirements of the CEQ regulations with respect to inclusion of a discussion of the proposed action in relation to other land use plans and policies.

Probable Root Cause(s)

There is inadequate QA/QC of the NEPA review process.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 12 - Env. - NEPA - 07
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data DOE/EIS-0142D.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The analysis of cumulative impacts is incomplete.

Discussion

The EIS does include an assessment of cumulative impacts; however, annual doses (and other effects) in Table 4.6-1 are not summed for any period. EISs are usually written to cover a construction period, an operating period, and a decontamination and decommissioning period. Text page 4-86 states cumulative impacts for future conditions are evaluated. How this is done is not stated. Only an annual dose is provided. An "operational period" has not been defined. Also, Table 4.6-1 does not include applicable standards for comparison. Conversion to health effects is not adequately discussed (i.e., footnote the risk factor and reference it).

Tentative Finding(s)

The assessment of cumulative impacts is incomplete with respect to defining an "operational period" for analysis.

Probable Root Cause(s)

There is a lack of adequate understanding of cumulative impact evaluation, a lack of guidance on developing cumulative impacts, and a lack of QA/QC in the NEPA review process.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 12 - Env. - NEPA - 08
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data DOE/EIS-0142D.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The integration of this NEPA review with the requirements of other environmental laws is incomplete.

Discussion

Section 1502.25 of the Council on Environmental Quality (CEQ) regulations state that EISs shall be integrated to the fullest extent possible with the requirements of other environmental review laws and executive orders. Similarly, the DOE NEPA guidelines (52 FR 47662) state that DOE should coordinate NEPA compliance with the environmental review requirements of other laws.

The EIS does not list all the applicable laws and regulations (local-state-Federal) or indicate that a study was done to determine that those cited are the only ones applicable. The EIS does not provide an appendix or section on applicable laws and regulations. Also, it does not provide a comparison of all emissions, effluents, waste management practices to applicable regulations and/or state intent to comply or cite the specifically applicable regulation or standard.

The EIS does not clearly identify the presence or absence of the following:

- Floodplains or wetlands (E.O. 11988 and E.O. 11990)
- Prime or unique farmlands
- Other unique or sensitive ecological resources (e.g., springs, seeps, mature forests)
- Recreational resources, such as state or national parks, or other areas of recreational, scenic, or aesthetic importance
- Coastal zones
- Wild and scenic rivers
- Significant scientific resources [40 CFR 1508.27 (b) (8)]

- Resources relating to the Fish and Wildlife Coordination Act [40 CFR 1502.25]
- Native Americans' concerns.

The Draft EIS does not establish compliance or intent to comply with the Clean Water Act (CWA) Section 404 (Rivers and Harbors Act, Section 10) and regulations on purchase, use, storage, and disposal of pesticides (FIFRA).

The Draft EIS does not state whether an assessment was made to determine if the proposal is incompatible with the nature or purposes of any part of the National Trails System.

The Draft EIS provides no consideration of: 1) whether the proposal is affected by Federal or state guidelines or regulations concerning the procurement of recycled or recyclable products; 2) the source separation and recycling of recyclable products; or 3) solid waste storage, transport, and disposal.

Tentative Finding(s)

The Draft EIS does not address the associated laws and regulations required by CEQ and DOE or indicate that they were considered and found not to be applicable.

Probable Root Cause(s)

Quality control is inadequate in the NEPA review process.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 12 - Env. - NEPA - 09

Aud. ID Number
Team (Env., S&H, M&O)
Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)
Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data DOE/EIS-0142D.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The assessment of impacts on worker health and safety is incomplete with respect to accidents, spills, and decontamination and decommissioning (D&D) activities.

Discussion

The EIS does not discuss quantitatively protection of worker health and safety for accidents, spills, and D&D activities. Quantitative data on allowable exposure and statistical data on accidents and injuries during construction, operation, and D&D are not assessed.

Tentative Finding(s)

The analysis of worker impacts is inadequate and is not quantified for radiological and nonradiological impacts from accidents and D&D activities.

Probable Root Cause(s)

DOE guidance is not used to analyze impacts to workers in NEPA documentation, and adequate quality control is lacking in the NEPA review process.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 12 - Env. - NEPA - 10
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data DOE/EIS-0142D.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The nonradiological impact analysis for the general public is incomplete.

Discussion

The analysis of nonradiological accidents to the public does not provide a clear comparison between alternatives. At best, it describes baseline (1985) conditions. It does not show that a consistent screening was done to identify the most significant accidents (i.e., highest risk, highest consequence, highest probability). Consequently, improvement in risk to the public cannot be discussed quantitatively for either alternative. Comparison between alternatives cannot be quantitatively presented/discussed. This is of concern as nonradiological accidents are known to have significant consequences. No transportation accident for hazardous chemicals (HF, NH₃) is presented/discussed. Also, the main concerns for public health-related impacts have been from routine operations and radiological sources, not accidents and nonradiological sources.

Tentative Finding(s)

Accident analysis of nonradiological impacts to the public is inadequate and does not permit a quantitative comparison between alternatives.

Probable Root Cause(s)

There is inadequate QA/QC of the NEPA document preparation and review process.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 12 - Env. - NEPA - 11
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity N/AReference Data DOE/EIS-0142D4.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The analysis of impacts to the public is incomplete.

Discussion

The EIS analysis is adequate for routine effects, but a discussion of dose terms, calculation methods, assumptions, and source terms is not provided. Radionuclide inventories that contribute to the 8900-ton uranium production capability are not included even in an appendix. It is not clarified in Chapter 4 and the Executive Summary that doses are really 50-yr dose commitments as discussed in Chapter 3. Doses are stated as "total body," but the cited standard is "whole body." This is confusing. Reference for risk factor used to convert dose commitment to fatal cancer does not follow the current approach, which is to use BEIR III/IV, whichever is appropriate. This is done in other site EAs (DOE/EA-0333, -0338).

No critical organ doses are given to compare with applicable standards. Tables (for example, 4.2-6 page 4-59) do not show standards for whole body and critical organ for comparison with stated impacts. Total annual doses for construction period, operations, and decontamination and decommissioning periods are not included in the EIS. This would permit a clear understanding of impacts if and when they occur, so that an adequate accounting of cumulative impacts over the lifetime of the project can be assessed.

Tentative Finding(s)

Required data are lacking on dose assessment methodology, assumptions, and source terms. No critical organ doses are given and compared to standards, rendering the impact assessment incomplete.

Probable Root Cause(s)

There is a lack of quality control in NEPA document preparation and review process.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 16 - Env. - NEPA - 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89

Building or Activity N/A

Reference Data DOE-FMPC Files for 1987, 1988 and 1989 -- NEPA -- Checklists, Factsheets, and Action Description Memoranda.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The conclusions of no cumulative impacts are without supporting bases in the NEPA Checklists, Factsheets and Action Description Memoranda (ADM) prepared between 1987 and 1989.

Discussion

The DOE October 1988 Draft NEPA Guidance Manual and the June 1989 Westinghouse Site Policy and Procedure (FMPC-518) both specify the content of cumulative impact to be "the incremental impact of an action, when added to other past, present, and reasonably foreseeable future actions regardless of their sponsor. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

Even though the NEPA Factsheets, Checklists, and ADMs state that there are no cumulative impacts, no analysis provided in these documents supports this assertion. In fact, the data provided show (generally) that each project has a minor impact (for example, small amount of construction rubble/solid waste generated), but collectively (i.e., all/most of the 200+ projects taken together) provide a potentially significant impact.

Tentative Finding(s)

The assessments of cumulative impacts in the many interim NEPA documents prepared since 1986 have been inadequate and without supporting bases for the conclusions of no significant impact. The collective impact of the projects potentially is significant.

Probable Root Cause(s)

There is a lack of training in impact assessment.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 18 - Env. - NEPA - 01

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data DOE File 5401.7 Categorical Exclusions for Document Nos. 222 and 223.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The categorical exclusions were documented incompletely and based on previous NEPA documentation (52 FR 47668).

Discussion

The October 1988 Guidance Manual for DOE compliance with NEPA states that "when the categorical exclusion that relies on previous NEPA documentation is used, the Responsible Supervisory Official should prepare documentation similar to a Memorandum to File to support the conclusion that the actions are substantially the same, the effects were determined to be clearly insignificant, and the assessment is still valid. A copy of the memorandum for these determinations is to be submitted promptly (within two weeks) to the office of NEPA Project Assistance."

FMPC utilized this categorical exclusion (CX) three times during FY 1988 and 1989. In two of the three documents prepared (CX Nos. 222 and 223), the previous NEPA documentation relied on was not cited or referenced. No determination on the adequacy of these two documents can be performed, and no basis for their reliance on previous documentation exists. Further, there is no evidence in the file that either categorical exclusion document was submitted to the Office of NEPA Project Assistance.

Tentative Finding(s)

The use of these categorical exclusions was not documented according to DOE procedures and the basis for their use was discussed inadequately.

Probable Root Cause(s)

Lack of understanding of required DOE procedures and inadequate QA/QC of NEPA document review process are probable root causes.

Resource Conservation Recovery Act (RCRA)

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 07 - Env. - RCRA - 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Bldg. 79, WarehouseReference Data Visual observations July 28, 1989.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Leaking drums are dropped into overpack containers while overpacking.

Discussion

Drum handling personnel do not follow good procedures while placing drums into overpack containers. Personnel were observed while overpacking a leaking drum. The leaking drum was lifted by placing the forks of a forklift under the top lip and band of a leaking open head drum. The drum is lifted with the forklift and placed in the overpack container. The forks are let down onto the rim of the overpack drum, then the lifted drum is released with a pry bar and allowed to drop 3 inches into the overpack container. Dust and other particles from both inside the overpack and the outside of the original drum can escape from the overpack during this operation. 40 CFR 265.173(b) requires containers to be managed in a manner that will not cause the containers to rupture or cause it to leak.

An alternative method of lifting the drums with a drum grab has been discussed with management, but ordering this equipment has not been authorized. The use of a drum grab is specified in the SOP 20.C.601 for handling radioactive waste-containing drums. The FMPC advised that as of August 11, 1989, drums would no longer be overpacked in the manner described above.

Tentative Finding(s)

Dropping the fully loaded drum into the overpack may compromise the integrity of both containers.

Probable Root Cause(s)

Waste repacking operations have not been completely assessed.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 07 - Env. - RCRA - 02
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity 79, KC-2Reference Data Visual observation July 28, 1989.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Liquids are stored in open head drums.

Discussion

Mixed waste liquids are stored in open head drums, and during routine movement of these drums in the warehouse, it was observed that liquid can (and does) slosh out of the drums. General Design Requirements 49 CFR 173.411 and 173.412 require that containers be constructed so they will not leak during normal transportation and handling conditions. This use of open head drums is improper for handling liquids. Personnel at the site realize that they cannot ship mixed waste liquids off-site without redrumming in bung head drums. Liquid storage in open head drums is an interim measure before shipping because of the large number of open head drums and few bung head drums. SOP PO-S-06-001 states that drums with lever lock rings will have the lids taped to prevent possible spills.

Tentative Finding(s)

Using open head drums for mixed waste storage does not provide adequate containment for on-site transport of the waste and unnecessarily results in redrumming of the waste prior to off-site transport.

Probable Root Cause(s)

There is a lack of detailed specifications for storing liquid wastes.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 07 - Env. - RCRA - 03
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity RCRA storage areasReference Data Visual inspection July 28, 1989.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Some hazardous waste drums are rusted and have dents.

Discussion

Some hazardous waste drums in RCRA storage were rusted and dented, and may not meet the RCRA requirements for maintaining containers in "good" condition. 40 CFR 265.171 and OAC 3765-66-71 state that if containers holding a hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the owner or operator must transfer the hazardous waste from such a container to a container that is in good condition or manage the waste in some other way that complies with the requirements of the hazardous waste facility standards chapters.

OEPA and EPA have cited the use of rusted and dented drums. This is a subjective judgement that will vary from inspector to inspector because it is not obvious when the existence of rust or dents means that the container is inadequate. To help address this problem, the FMPC inspects for leaking drums daily. The FMPC is also developing a drum inspection manual to determine when rusted or dented drums should be over packed.

Tentative Finding(s)

Some hazardous waste is stored in containers that may not meet applicable regulating requirements.

Probable Root Cause(s)

No procedure specifies exactly when hazardous waste drums are to be overpacked. Resources limit the number of low-level waste drums.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 07 - Env. - RCRA - 04
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Tracking Hazardous WasteReference Data MCA Tracking System.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The Materials Controls and Accountability (MCA) system does not fully track drums, and does not refer a drum to a manifest number.

Discussion

The MCA system tracks radioactive low-level products and waste by drum, contents, and location. This system has recently been used for tracking RCRA mixed waste, but the system cannot at present track drums of mixed waste received from off-site to the shipping manifest. According to 40 CFR 265.73(b)(2) and Ohio Administrative Code (OAC) 3745-65-73B(2), the site must keep an operating record listing the location of each hazardous waste within the facility and the quantity at each location. For all facilities, this information shall include cross references to specific manifest document numbers, if the waste was accompanied by a manifest.

Tentative Finding(s)

The on-site RCRA waste tracking system needs to be improved.

Probable Root Cause(s)

The probable root cause is either incomplete RCRA training or incomplete review of procedures.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 07 - Env. - RCRA - 06
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Waste Pit AreaReference Data Interview with Region V EPA, August 3, 1989.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The use of potential treatment, storage, and disposal (TSD) facilities is not included in a Part A or B application.

Discussion

EPA Region V personnel stated that some potential RCRA TSD facilities at FMPC were used that were not included in the original Part A and Part B application. 40 CFR 270.10(e)5 or f states that failure to submit in full information required by Parts A and B can result in termination of interim status.

Areas used for storage of mixed waste were not listed in their first FMPC Part A submittal (Bay 6 of the old RCRA warehouse). Facilities in use on July 3, 1986, may qualify for interim status the FMPC must submit a Part B application, that includes these units, by September 23, 1989.

Loss of interim status would require that FMPC to start closure on the unit in question.

Tentative Finding(s)

RCRA TSD facilities may have been operated without filing for interim status.

Probable Root Cause(s)

All waste streams and facilities have not been characterized for RCRA applicability.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 07 - Env. - RCRA - 07
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Plant 1 PadReference Data Visual observation.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Low-level waste drums are stored on broken pallets.

Discussion

Numerous pallets on the Plant 1 pad had boards broken that allowed the stored low-level waste containers on them to tilt. The drums could fall off and rupture when moving the pallet because the containers were tilted.

Tentative Finding(s)

There is an inadequate SOP for storing and moving nuclear materials.

Probable Root Cause(s)

There is an inadequate performance measurement system.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 14 - Env. - RCRA - 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Land-Disposal-Restricted Hazardous Waste StorageReference Data Visual Observation (7/28/89), WMCO Waste Inventory (as of July 20, 1989).**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The storage of waste is subject to land disposal restrictions (LDRs) for over 1 year.

1	2	3	4	5
—	—	X	—	—

The storage of waste is subject to LDRs without an accumulation date.

Discussion

Currently, the FMPC generates and stores mixed waste (primarily F001 solvent waste) subject to LDRs (40 CFR 268). These wastes are currently stored in RCRA storage facilities (Buildings KC-2 and 79). 40 CFR 268 prohibits the land disposal of certain wastes and establishes standards for storage, treatment, and disposal of these wastes. The storage requirements in 40 CFR 268 prohibit storage of certain wastes for over 1 year.

Based on physical inspections of the RCRA storage facilities (KC-2 and Warehouse 79) and review of the hazardous waste inventory, FMPC has and will continue to accumulate LDR waste on-site for over 1 year (843 drums as of August 2, 1989).

40 CFR 268 also requires that certain wastes have a label indicating when the facility began accumulating the waste. Although the FMPC is currently labeling LDR waste with accumulation dates, the facility has drums of LDR waste generated in the past that do not have accumulation dates. This is based on physical inspections and review of the waste inventory (164 barrels as of August 2, 1989).

The DOE Site Office and WMCO management are aware of this problem. They intend to ship the liquid waste to the TSCA incinerator at the DOE Oak Ridge Gaseous Diffusion Plant. In 1987, the FMPC shipped 900 drums of waste to the Oak Ridge facility, but the facility has not received a permit to operate, and there is no additional storage capacity at Oak Ridge. There are no other treatment or disposal facilities available for FMPC mixed wastes.

This problem also is complicated because there are no EPA or DOE standards establishing de minimus levels of radioactive contamination (e.g., levels below regulatory concern). Virtually all FMPC hazardous wastes (except for the small amount of excess laboratory chemicals) have some detectable quantity of radiation. It would be difficult for the FMPC to unilaterally establish radiation contamination levels that are below regulatory concern.

Tentative Finding(s)

Conditions at the FMPC do not meet the LDR storage and labeling requirements specified in 40 CFR 268.

Probable Root Cause(s)

No permitted mixed waste treatment or disposal facilities are available for FMPC waste.

There are no below regulatory concern standards that would allow the FMPC to dispose of waste with low levels of radioactive contamination as non-mixed hazardous waste.

Problems with accumulation dates are because of past lack of adequate procedures for identifying and labeling hazardous waste.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 14 - Env. - RCRA - 02
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Hazardous Waste DeterminationReference Data Visual Observation (7/20/89, 7/28/89) Hazardous Waste Inventory, Waste Sampling and Analysis Plan.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

There is no accurate or current assessment of whether wastes stored or generated on-site are hazardous and subject to RCRA.

Discussion

40 CFR 265.13 requires an owner or operator who treats, stores, or disposes of hazardous waste to maintain a detailed chemical and physical analysis of a representative sample of the waste. This analysis must be repeated as necessary to ensure that it is accurate and up to date [40 CFR 265.13 (a)(3)] and includes analysis of wastes received from off site [40 CFR 265.13 (a)(4)]. The facility may characterize wastes through process knowledge, but must update this characterization when the facility makes process changes.

The FMPC has been previously cited by the Ohio and Federal EPAs for not having an adequate waste analysis plan. In response, the facility has developed a waste analysis plan, but has not established an effective sampling plan. This is evidenced by the large number of uncharacterized on-site waste drums. For example, The FMPC currently has 1000 drums of suspect waste in its RCRA storage facilities (KC-2 and Warehouse 79). While it is better to place suspect waste in a RCRA storage area than store it as nonhazardous, delays in sorting out nonhazardous waste unnecessarily strains the capacity of limited RCRA storage areas. It also delays ultimate disposal of the nonhazardous waste.

In addition to the wastes in the RCRA storage facilities, there are low-level radioactive wastes that have not been adequately characterized. In March 1988, the FMPC completed a characterization of nonrecoverable process residues (approximately 35,000 drums) for RCRA applicability; however, there are additional wastes that have not been characterized. Specifically, this is a problem with regard to in-process residues (27,000 drums) classified as waste in November 1988 because of a

change in the Economic Discard Limit. The waste is currently stored in a manner that would not meet RCRA storage requirements (e.g., on the Plant 1 pad and other uncontrolled areas throughout the site).

If any of this waste is determined to be mixed, the site would be in noncompliance during the time it takes to transfer the waste to existing RCRA storage facilities and, if necessary, to build additional storage areas. In addition, continued management of the waste as nonhazardous (e.g., inadequate storage) may result in contamination requiring RCRA corrective action.

The FMPC recognizes this problem and has initiated a program to characterize all suspect on-site waste. The first two steps include sampling of suspect waste in the RCRA storage areas and conducting a process determination for wastes now classified as low-level radioactive waste. Based on the results of the process determination, the facility will develop a sampling plan for the suspect waste.

This characterization plan will be incorporated in the FMPC Part B application scheduled for submittal in September 1989. It will take several years to perform definite RCRA/Non-RCRA determinations on all suspect wastes.

Tentative Finding(s)

The number of known suspect and unknown suspect wastes on-site indicate that the FMPC has not established or implemented an effective waste sampling program.

Probable Root Cause(s)

For many years, FMPC considered mixed wastes to be exempt from RCRA and did not adequately characterize its waste streams.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	14	-	Env.	-	Waste Management	03
	Aud. ID Number		Team (Env., S&H, M&O)		Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)	Seq. Data Sheet No.

Date 8-19-89Building or Activity Plant 1 PadReference Data Visual Observation (7/27/89).**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

There are cracks in the Plant 1 pad.

Discussion

The Plant 1 pad (317,000 ft²) is used to store low-level radioactive waste. This includes refuse (e.g., wooden pallets), scrap copper (1350 tons), and nonrecoverable process residues (48,000 containers). The pad is uncovered and does not provide for adequate control of runoff; it is badly cracked and not adequately diked. DOE Order 5820.2A requires low-level waste to be managed in a manner that maintains releases of radioactivity in effluents to the general environment as low as reasonably achievable. In addition, the WMCO Regulatory Compliance Guide (RCAW3) indicates that drum or containers of materials should be stored under cover on a controlled pad.

Many drums on the pad are severely deteriorated. As a result, the runoff from the pad is likely to be chemically and radioactively contaminated. The FMPC has a program to inspect drums and replace leaking or badly deteriorated drums. However, given the large number of drums runoff will continue to be a problem until the pad is renovated or the drums are removed.

The condition of the pad also is of concern because it was used to store RCRA wastes. Once identified, these wastes were moved to RCRA storage, but could have caused contamination of the soil beneath the pad. In addition, some of the process residues on the pad may be determined to be RCRA waste.

The FMPC intends to build an 85,000 ft² diked and covered pad adjacent to the current Plant 1 pad. The existing Plant 1 pad will be evaluated for soil contamination and will be resurfaced and diked. This project is expected to begin in FY 1990, and based on current architect-engineering plans, it is expected to be completed within 3 years.

Tentative Finding(s)

The Plant 1 pad is currently inadequate for storage of low-level waste and suspected mixed waste.

Probable Root Cause(s)

Past planning has been inadequate for long-term disposal and storage of low-level waste.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 14 - Env. - RCRA - 04
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity AllReference Data Review of training records (8/2/89), and observation of waste management practices.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Facility personnel who handle hazardous wastes are inadequately trained.

Discussion

40 CFR 265.16 requires facility personnel who handle hazardous wastes to be trained in appropriate waste management procedures (including contingency plan implementation). 40 CFR 265.16 also requires personnel to participate in an annual review of training. New employees must complete a training program within 6 months after the date of their employment. The facility must maintain a job title for each position at the facility related to hazardous waste management and maintain a written job description for each position.

The number of trained personnel and the training that they have received are inadequate. The last RCRA 24-hour training course was given in 1987. This course was deficient in contingency plan training and was attended by only 43 people. Past inspections by State and Federal EPAs have noted deficiencies in contingency plan training, and have cited the FMPC for deficiencies in record keeping, notably the absence of job descriptions in individual training records. There is also no evidence of annual updates or documentation that new employees (or employees who may have been assigned to a new position) received training within 6 months. Over the past 6 months, the FMPC has begun to address these training deficiencies. For example, it has developed a comprehensive 24-hour RCRA training course for personnel who may handle hazardous waste (approximately 700 of the 1000 WMCO employees will take this course). This training will begin in August and will be complete by the end of September. WMCO also is training personnel in the facility standard operating procedures (SOPs) governing the handling and storage of hazardous waste on-site. In addition, WMCO has also developed a 1-hour RCRA awareness course for all employees. WMCO completed this sitewide training on August 3, 1989.

Tentative Finding(s)

All personnel handling hazardous waste have not been adequately trained in accordance with 40 CFR 265.16.

Probable Root Cause(s)

Training needs are not evaluated for managing RCRA hazardous waste and for the specific job position.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 14 - Env. - RCRA - 05
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity AllReference Data Review of training records (8/2/89).**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

RCRA orientation training is required for all FMPC personnel.

Discussion

The FMPC has developed a 1-hour RCRA orientation course for all WMCO employees. This course is not a substitute for detailed RCRA training, but provides all employees with an understanding of RCRA and how it applies to the FMPC. This is particularly useful since RCRA compliance is a high site priority.

Tentative Finding(s)

The 1-hour RCRA orientation course will improve sitewide understanding and awareness of RCRA requirements.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 14 - Env. - RCRA - 06
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Railcar tankReference Data Visual observation (7/31/89).**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

A railcar tank is unmarked.

Discussion

An unmarked railcar tank was observed during a tour of the metal scrap pile at the north end of the site. No marking identified if the tank was empty, full, or contained residues from previous use. WMCO personnel verified that the tank was empty and was being kept on-site, along with two other tanks, as backup containers for liquid materials. To ensure proper management of these tanks (e.g., prevent unauthorized filling and if filled to ensure proper inspection), they should be labeled. This would be particularly useful at the FMPC because of the large number of empty and full containers scattered throughout the site.

Tentative Finding(s)

Empty railcar tanks are not adequately labeled.

Probable Root Cause(s)

There is a lack of administrative control for empty railcar tanks

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 14 - Env. - RCRA - 07
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Decontamination facilityReference Data Visual observation (7/31/89). EMPC Environmental, Safety, and Health Management Report.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

A limited capacity exists for decontamination of radioactive materials.

Discussion

There is a backlog of material (i.e., retired vehicles, office equipment, production equipment) that requires decontamination of surface radioactivity. This backlog will increase as the site retires existing production operations. The decontamination facility is inadequate to handle the existing backlog of contaminated material.

For example, the facility only can support two operators per shift and only has a limited number of decontamination methods (i.e., acid and caustic baths, steam/water, and hand cleaning). There are plans (construction is pending permit approval) for a new facility with greater capacity and number of decontamination technologies.

Tentative Finding(s)

The current decontamination facility is inadequate to decontaminate the existing backlog of contaminated metal and equipment.

Probable Root Cause(s)

The FMPC decontamination needs have not been adequately considered.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	14	Env.	RCRA	08
	Aud. ID Number	Team (Env., S&H, M&O)	Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)	Seq. Data Sheet No.

Date 8-19-89

Building or Activity All

Reference Data Visual Observations (7/21 - 8/4) EMPC Environment, Safety, Health and Waste Management Plant.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
			X	

There is a large backlog of low-level radioactive wastes.

Discussion

Currently, there is a large amount (approximately 100,000 drum equivalents) of low-level wastes stored on-site (nonrecoverable process residues, refuse, and construction waste). The majority of wastes are stored on the Plant 1 pad (process residues, and wooden pallets). The waste is being stored, pending off-site shipment.

The drums are stored outside, unprotected and are corroding. This, combined with the fact that the waste is stored in inadequate (Plant 1 pad is not completely diked and is cracked) or otherwise uncontrolled areas (e.g., on wooden pallets not pads) may contribute to soil and groundwater contamination (see data sheet 3). In addition, this large backlog complicates the FMPC's need to identify all RCRA mixed wastes.

The FMPC has reduced the amount of low-level waste on-site by 60,000 drum equivalents over the past 3 years and has a plan in place to eliminate this backlog by 1992 (based on 600 truck shipments per year). The site expects to acquire a super-compactor next year, which will speed reduction of the backlog.

Tentative Finding(s)

Continued storage of a large backlog of waste creates potential environmental contamination problems and complicates effective waste management.

Probable Root Cause(s)

Past planning has been inadequate for disposal and storage of low-level radioactive wastes.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 14 - Env. - RCRA - 09
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity AllReference Data Visual observation (7/21 - 8/4/89), DOE July 89 Environmental Surveillance Report.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The operating record is in several different locations throughout the site.

Discussion

40 CFR 265.73 requires owners or operators to keep a written record at the facility. This record should include all records required to be maintained by RCRA regulations such as the description, quantity, and location of wastes on-site; records and results of waste analysis; reports of incidents involving the contingency plan; and records of inspections.

At the FMPC, different parts of the operating record are maintained by at least six different organizations. The location of certain documents is clearly delineated. For example:

Document	Organization
manifests	transportation
inspections	waste operations
training	human resources
incidents	emergency operations
inventory	material control and accountability

The remaining records (e.g., correspondence with regulators, waste analysis records, permits and closure plans) are maintained by a combination of different offices, but are located primarily with the Environmental Compliance Office.

While this procedure complies with EPA requirements to maintain a record at the facility, it makes it more difficult for the site to manage its records and to demonstrate compliance. This is evidenced by previous state and Federal EPA violations for incomplete operating records. In addition, a WMCO letter [March 13, 1989, letter from Christiansen (WMCO) to Reafsnnyder (DOE)] indicates that the FMPC RCRA program file was incomplete. For example, the site did not maintain a copy of its 1980 original notice of hazardous waste activity until July 1989. A more centralized system or at least an index and formal assignment of record maintenance to the different offices may prevent operating record deficiencies.

Tentative Finding(s)

The RCRA operating record is not adequately maintained.

Probable Root Cause(s)

There is no definition of the appropriate contents of the operating record, and the organization responsible for maintaining the record is not clear.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 14 - Env. - RCRA - 10
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity RCRA StorageReference Data Visual observation (7/28/89).**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

A RCRA drum inspection manual is being developed.

Discussion

The FMPC is developing a drum inspection manual to help ensure compliance with the RCRA requirements for managing hazardous waste containers. 40 CFR 265.171 states that hazardous waste containers must be maintained in "good" condition. The regulation does not establish clear criteria concerning what constitutes "good" condition. This has presented a problem for the FMPC because past EPA and DOE inspections have noted that rusted and dented drums may be out of compliance with 40 CFR 265.171.

"Good condition" is a subjective determination and will vary from inspector to inspector. The existence of rust (e.g., surface rust) or minor dents is not necessarily an environmental or health problem. For example, drums with surface rust or minor dents may still meet the regulatory intent (i.e., to prevent spills or leaks of hazardous wastes).

To develop this manual, the FMPC must first survey the condition of all drums (e.g., rust, dents, bulges). Based on this survey, Waste Operations will classify drums according to condition (e.g., no rust, minor surface rust, severely rusted) and develop criteria for determining when drums should be overpacked. Waste operations will take pictures of drums in each category and incorporate these pictures in a manual for conducting drum inspections.

Tentative Finding(s)

The FMPC is taking the initiative to develop criteria for evaluating drum condition.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 15 Env. GW (RCRA) 05

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/A

Reference Data 1.) Gels, et al.; 1989, Feed Materials Production Center, Environmental Monitoring Report for 1988; 2.) Bendula, 1989, OEPA, personal communication; 3.) McCord, 1989, USEPA, personal communication; 4.) Harmon, 1989, WMCO, personal communication.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Some inadequacies exist in the RCRA groundwater monitoring program.

Discussion

Statistically significant changes have occurred in groundwater quality downgradient of a regulated unit (Waste Pit #4). In response to these changes and in accordance with 40 CFR Part 265, Subpart F, the FMPC has submitted a groundwater quality assessment plan to EPA and OEPA. Deficiencies were noted by OEPA in this plan, and responses have been prepared by WMCO. WMCO is currently operating under a plan submitted but not yet approved.

During discussions with EPA, it was suggested that recent groundwater monitoring data collected in the waste pit area may indicate leakage of waste constituents from Waste Pits #5 and #6. If this is the case, a local assessment would be required. In a possibly related action, EPA is intending to file a notice of violation for the RCRA groundwater monitoring program for unspecified delays associated with the program. The OEPA has some concern over the adequacy of the groundwater monitoring system with regard to RCRA. The current program may not adequately monitor all zones within the aquifer. Series 2000, 3000, and 4000 wells are obviously absent on the south and west sides of the waste pit area. There could reasonably be some southerly flow, implying a downgradient situation with respect to the waste pit area.

The RCRA requirements for groundwater monitoring are different than those associated with the RI/FS process. It appears that the original consolidation of the RCRA groundwater assessment program with the RI/FS could result in some long-term compliance issues. For example, wells and procedures acceptable for the RI/FS program may not be acceptable to the future RCRA program.

Some minor problems observed in current RCRA groundwater sampling by Advanced Sciences, Inc./IT Corporation involve sampling techniques for volatile organic analyses. Samples collected for volatile organics were taken after removing the submersible pump that had been used for collecting previous samples, then left temporarily churning with discharge hose valve shut. In addition, the teflon bailer was dropped a number of times while sampling. WMCO personnel are being trained during the current round of RCRA sampling.

Tentative Finding(s)

The potential impacts on the FMPC groundwater monitoring activities from 1) the need to perform RCRA monitoring outside the scope of the RI/FS, 2) the potential need for RCRA monitoring on Waste Pits #5 and #6 (if these units are reclassified as RCRA-regulated units), and 3) the lack of approval by EPA and OEPA of the current program have not been adequately evaluated by the FMPC.

Probable Root Cause(s)

Inadequate staffing and training of personnel exist.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 19 Env. RCRA 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Hazardous Waste Satellite Accumulation AreasReference Data Inspection and tour of satellite accumulation areas, WMCO SOP 20-C-605 (Packaging and Inspecting Hazardous Waste at Satellite Accumulation Areas).**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Operation, maintenance, and management of hazardous waste satellite accumulation areas are inadequate.

DISCUSSION

There are eight hazardous waste satellite accumulation areas (SAAs) at FMPC for waste generated in the production area of the facility. These SAAs are located in the following production areas: the basement of the laboratory building, Plant 2/3, Plant 5, the Garage, Plant 6, Plant 12, the Boiler Plant, and the Boiler Plant Shop.

Three additional SAAs are located in the OS&H (Dosimetry) Laboratory, the Analytical Laboratory, and the Water Treatment Plant Laboratory. The operators of these laboratories are aware of standard operating procedure (SOP) 20-C-605, but have not fully implemented the procedure.

During inspection of the SAA, several containers were observed to be either open (a potential regulatory noncompliance) or unbolted (a potential noncompliance with the current SOP). An open drum in the SAA garage was being used for the accumulation of potentially hazardous oily rags. In the SAA Boiler Shop, an open pan of potentially hazardous waste oil or solvent had been placed on top of the drum for solvent-contaminated rags. Unbolted drums were observed in the SAAs located in Plant 2/3, Plant 5, the Garage, and the Boiler Plant.

Black drums are located in Plant 5 and the Garage. SOP 20-C-605 specifies that white drums be used for accumulation of hazardous waste in the SAAs. The black drums are left over from before the current SOP was issued. Personnel intend to remove these containers when they are filled and replace them only with white drums.

The waste accumulation inventory sheets (required by SOP 20-C-605) on many of the SAA drums are not complete. Although the contents of the drums are properly identified, the actual accumulation record had not been completed in accordance with SOP 20-C-605. The facility intends to start using these forms once facility personnel have been trained in the SOP.

In the Paint Shop in the Maintenance Building, the sign identifying the manager responsible for that SAA is located in the back of paint booth adjacent to where the painting occurs and is partially obscured by sprayed paint. Although the sign can be read, it may become completely illegible within a short time.

The personnel using the SAAs are not trained on the requirements of SOP 20-C-605 and RCRA requirements for operation of satellite accumulation areas. Training these personnel is currently in progress. In addition, these personnel are not yet trained to ensure compliance with state hazardous waste management regulations. The facility is scheduled to complete all appropriate training by September 1989. The training for the SOP is being managed through a RCRA Management Program established to reach RCRA compliance.

Tentative Finding(s)

The SAAs are operated in a manner that may not meet the requirements of the Ohio Hazardous Waste Management Regulations OAC 3745-55-73 (management of containers-accumulation containers not closed).

Personnel using the SAAs are not properly trained, and may not meet the requirements of Ohio Hazardous Waste Management Regulations OAC 3745-54-16 (personnel training).

The SAAs are not being operated in accordance with the FMPC SOP addressing hazardous waste SAAs, SOP 20-C-605.

The facility is potentially not adhering to Best Management Practices in determining where to position the required signs at the SAAs.

Probable Root Cause(s)

Probable root causes include a lack of personnel training in hazardous waste management and incomplete implementation of established procedures.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 19 - Env. - RCRA - 02

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Hazardous Waste Storage FacilitiesReference Data Inspection and tour of hazardous waste storage facilities.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

There are inadequate facilities and conditions at RCRA storage facilities.

Discussion

The facilities and conditions of the hazardous and mixed waste storage facilities at the FMPC, including the old RCRA warehouse, the new RCRA warehouse, and the southwest RCRA warehouse do not meet all regulatory requirements and Best Management Practices.

At the old RCRA warehouse, the concrete floors in all three bays are cracked. Personnel are aware that the cracked floors are a potential RCRA noncompliance and are in the process of repairing the floors. The cracks were being cleaned and filled with cement. A new one-quarter-inch-thick chemical resistant enamel coating is scheduled to be installed over the existing concrete floor in the three old RCRA warehouse within a few weeks. Floor cracks previously had been filled with a mastic-type sealant. However, the inadequacy of the sealant was identified during a 1988 inspection of the facility.

The old RCRA warehouse is used to store RCRA ignitable wastes; however, the lighting is not explosion proof (best management practices). The FMPC advises that based on review of the National Electric Code the old RCRA warehouse does not need explosion protect lighting.

Chainlink fence gates serve as entrances to the KC-2 bays. "Danger - Authorized Personnel Only" and "Danger - No Smoking, Matches, or Open Flame" signs are located on these gates. These signs are required by the current SOP for hazardous waste storage and by 40 CFR 265.14 and 265.17. When the gates are open, the signs are not visible since the front of the signs face away from personnel entering the building. Personnel have ordered signs to place on both sides of the gate.

At the southwest warehouse, the signs are located on the chainlink fence surrounding the building, but not on the building itself.

Tentative Finding(s)

The cracked containment floors of the old RCRA warehouse bays do not meet the requirements of 40 CFR 264.175(b) (containment).

The lighting at the old RCRA warehouse bays is not rated as explosion proof and is not designed to be compatible with the potential explosion hazard present at the facilities.

The signs located at the three old RCRA warehouse bays are not located so that they can adequately perform their required purpose in accordance with SOP 1-C-605 and 40 CFR 265.14 and 265.17.

Probable Root Cause(s)

RCRA inspections are incomplete.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 19 - Env. - RCRA - 03

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Hazardous Waste Satellite Accumulation Areas

Reference Data Inspection and tour of satellite accumulation areas, interviews with Environmental Compliance and RCRA Management personnel, WMCO SOP 20-C-605 (Packaging and Inspecting Hazardous Waste at Satellite Accumulation Areas).

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

There is excessive waste at satellite accumulation areas (SAAs).

1	2	3	4	5
—	—	X	—	—

The SAAs are not under control of an operator.

Discussion

The regulations addressing SAAs (OAC 3745-52-34) state that the maximum quantity of hazardous waste that may be accumulated at a SAA is 55 gal; once the 55-gal limit has been reached, the accumulated waste must be removed to either a 90-day storage facility or a treatment, storage, and disposal facility within 3 days. In addition, these regulations state that the SAA shall be under the control of the operator of the process generating the waste.

The SAAs in the basement of the laboratory building, Plant 2/3, Plant 5, the Garage, Plant 6, Plant 12, the Boiler Plant, and the Boiler Plant Shop are equipped to accommodate two to four 55-gal drums for the collection of hazardous and potentially hazardous waste. The site rationale for allowing more than one 55-gal drum at each of the SAAs is that each drum has its own secondary containment. Each drum is placed in a portable polyethylene container designed to hold one 55-gal drum, and each of these containers is defined as one SAA.

The SAAs include individual drums for accumulation of up to four different wastes, including 1) spent 1,1,1-trichloroethane and other spent solvents, 2) rags contaminated with spent solvents, 3) waste oil potentially contaminated with spent solvents, and 4) oily rags potentially contaminated with spent solvents. All of these wastes are potentially mixed (hazardous/radioactive) wastes.

The FMPC also is using this arrangement to minimize hazardous waste generation by segregating the various wastes generated in these areas. Effective segregation of spent solvent from the waste oil and oily rag waste streams will allow the oil and oily rags to be classified as non-RCRA (i.e., nonhazardous) wastes and can be managed accordingly, pending the results of verification sampling.

Having more than one 55-gal drum adjacent to each other does not meet the RCRA 55-gal limit. The facility has been aware of the question of the correct regulatory interpretation for approximately 3 months, but had not attempted to resolve the issue with either the EPA or the OEPA until August 1989. In an August 2, 1989, inspection, the OEPA indicated that this arrangement was satisfactory; however, this is a subjective judgment that could vary by inspector. The delay in obtaining EPA clarifications of this issue also reflects poor communication between WMCO, DOE, and the EPA.

Another problem is that one SAA in Plant 8 serves all maintenance activities in both Plant 2/3 and Plant 8. Since Plant 2/3 is currently not operating because a stack maintenance project, the SAA is only receiving potentially hazardous waste from Plant 8 maintenance activities. The other SAAs serve an entire building or a portion of a building. An inspection by OEPA (August 2, 1989) identified this activity as a potential noncompliance.

In addition, the waste segregation procedure is not yet fully implemented and all of the wastes in the SAAs are classified as hazardous waste. The personnel using the SAAs are not trained in the proper use of the SAAs or waste segregation; however, WMCO is scheduled to complete training of all personnel who may be using SAAs by mid-September 1989 in the proper use of the SAAs and the proper implementation of SOP 20-C-605.

Tentative Finding(s)

The SAAs are operated in a manner that may not meet OAC 3745-52-34 (accumulation time for hazardous waste) with regard to 1) the maximum allowable quantity of hazardous waste permitted to accumulate at a SAA and 2) the requirement that the SAA be under the control of the operator who is actually generating the waste.

Probable Root Cause(s)

There is incomplete RCRA follow-up.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 19 - Env. - RCRA - 04
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Hazardous Waste Storage FacilitiesReference Data Review of inspection records and interview with Waste Operations personnel.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Inactive RCRA facilities waiting closure are not all inspected.

1	2	3	4	5
—	—	X	—	—

Inspection records for tanks T5 and T6 are missing for 1987.

Discussion

The only RCRA facilities regularly inspected are the RCRA storage warehouses, tanks T5 and T6, and Waste Pit 4. Except for Waste Pit 4 and tanks T5 and T6, the facilities are all active. Other inactive RCRA and potential RCRA facilities scheduled for closure are not regularly inspected as RCRA units. These include the Trane Incinerator, Plant 2/3 pad, Plant 1 pad, and the Plant 6 pad.

Draft RCRA closure plans for the Trane Incinerator, the Plant 2/3 pad, Plant 1 pad, and Plant 6 pad have been or are being prepared or internally reviewed for inclusion in the RCRA Part B application to be submitted to Ohio EPA in September 1989.

WMCO could only find inspection records for tanks T5 and T6 going back to January 4, 1988. Earlier records could not be located. These tanks have been used for hazardous waste storage since 1986. WMCO personnel could not confirm whether tanks T5 and T6 were regularly inspected before January 1, 1988.

Until recently, the T5 and T6 tanks were not inspected daily in accordance with the requirements of 40 CFR 265.195. WMCO has clearly established the positions of responsibility for conducting inspections and retaining inspection records.

Tentative Finding(s)

Regular inspections are not conducted for all active and inactive RCRA facilities in accordance with the requirements of OAC 3745-54-15.

Inspection records for tanks T5 and T6 are not retained for 3 years in accordance with the requirements of OAC 3745-54-73.

Probable Root Cause(s)

The root cause appears to be inadequate RCRA training and incomplete RCRA program implementation.

RCRA inspection activities have been incomplete.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 19 - Env. - RCRA - 05

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Waste Pit 5, Waste Oil Incinerator, Salt Oil Tank, Fire Training Pit, K-65 SilosReference Data Interviews with Environmental Compliance and RI/FS personnel.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

All potential RCRA units have not been identified.

DISCUSSION

FMPC has not adequately characterized past process, storage, or disposal units to determine RCRA applicability. For example:

- Waste Pit 5--It was discovered in RCRA assessment performed by the DOE Site Office in July 1989 that P- and U-listed wastes may have been disposed of through laboratory sink drains. This discovery was based on review of the facility's original 1980 notification to EPA for hazardous waste activities. This original notification form was not kept on-site before July 1989, reflecting an incomplete site operating record (the notification was retrieved from ORO archives). Prior to this discovery, Waste Pit 5 was a non-RCRA facility based on analytical results of the pit contents and was investigated as part of a CERCLA RI/FS of the entire waste pit area. On July 12, 1989, DOE notified EPA that P- and U-listed wastes had potentially been disposed of in Waste Pit 5 and, consequently, began preparation of a RCRA interim closure plan. During the Environmental Compliance Assessment, DOE backed away from this position. Based on further review of past practices, DOE believes that P- and U-listed wastes may have been poured down the lab drains in dilute form and are not subject to RCRA. A historical review to determine the conditions of disposal has not been completed.
- Waste Oil Incinerator--Based on the belief that the waste oil incinerator may have received solvent-contaminated waste oil, the FMPC included this unit in its revised March 22, 1989, Part A application and began development of a RCRA closure plan to be included in its Part B application to be submitted in September 1989. In July 1989, the FMPC completed a review of historical records and determined that the unit had been inactive since 1979 and was, therefore, exempt from RCRA.

- **Salt Oil Tank**--It was noted during a RCRA assessment performed for the DOE Site Office in July 1989 that a salt oil tank in Plant 6 may have been contaminated with barium chloride. Obvious signs of spillage were observed on the tank pad and the surrounding soil. Depending on when the spillage occurred and whether the tank was adequately purged of barium chloride, this unit and surrounding soil may be subject to RCRA.
- **Fire Training Burn Pit**--In the past, this pit has been used for fire training exercises, which may have burned waste solvents and contaminated lumber. This pit is to be investigated as part of the FMPC RI/FS program; however, the pit has not been characterized for RCRA applicability. This potential problem had been previously identified in the 1987 DOE Environmental Survey.
- **K-65 Silos**--The K-65 silos are used to store a pitche blend residue thorium by-product material. If the silos have received by-product material only, they are exempt from RCRA. However, an unspecified quantity of uncharacterized material was added to one of the silos on an unknown date. The uncharacterized added material has not been adequately characterized to determine if it is also exempt waste.

The fact that the site has not adequately characterized these disposal units for RCRA applicability reflects inadequate review of historical records. It also raises questions about whether additional uncharacterized non-RCRA units may be subject to RCRA in the future. Delay in assessing these units may complicate effective waste management, RCRA compliance activities, and restoration efforts since several of these units are part of the RI/FS process.

Tentative Finding(s)

The FMPC has not conducted a comprehensive evaluation of process, disposal, or storage areas for RCRA applicability.

Probable Root Cause(s)

Probably root causes include poor planning of site characterization activities and an incomplete historical record of the facility.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 19 - Env. - RCRA - 06
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Hazardous Waste Storage in Front of Building 79Reference Data Visual observations, interviews with Waste Operations personnel.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Grit blast hazardous waste has been improperly stored.

Discussion

An off-site contractor "grit blasted" a water tower on the site to prepare the tower for repainting. The mixture of grit and paint fell from the tower. Some of the mixture spread over a large portion of the site. Much of the mixture fell directly beneath the tower. A sample of the material was determined through TCLP analysis to be EP toxic because of the lead content in the paint. The grit blast was also determined to be a mixed waste because of uranium contamination from the soil. The resultant mixture of grit, paint, and soil was vacuumed, excavated, and placed in drums.

During July, the drums were placed on small trailers for transport to one of the on-site RCRA hazardous waste container storage facilities. The trailer full of drums was transported the short distance from the water tower to the area in front of the new RCRA warehouse (one of the RCRA hazardous waste container storage facilities). At this time, the drums are still on the carts in the road in front of the new RCRA warehouse.

The FMPC has only marginal capacity for storage of the hazardous waste grit blast. However, WMCO is scheduled to bring a new hazardous waste management facility into operation to store hazardous nonliquid waste. The new facility will have the capacity to store the grit blast.

WMCO does not consider moving the grit blast into an existing storage facility to be a priority, since the grit blast would have to be transferred again to the new facility. Additionally, WMCO believes, based on discussions with the EPA, that the trailer storage arrangement meets the requirements for a 90-day storage facility.

Tentative Finding(s)

The hazardous waste grit blast was not transported from its point of generation to either a 90-day accumulation area or a RCRA storage facility within 3 days in accordance with the requirements in 40 CFR 262.34.

Probable Root Cause(s)

There is an inadequate capacity for the storage of mixed waste.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 19 - Env. - RCRA - 07
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity RCRA Contingency PlanReference Data FMPC Emergency Plan, FMPC Contingency Plan, FMPC Draft Contingency Plan.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Current RCRA contingency plan is not adequate.

Discussion

WMCO prepared a contingency plan by combining the FMPC Emergency Plan, the Spill Prevention Control and Countermeasures (SPCC) Plan, and several attachments. WMCO considered this combination of documents to fulfill the RCRA requirements for contingency plans. However, this plan has not been updated to identify Building 79, which is an active RCRA hazardous waste container storage facility. The plan also does not identify the inactive RCRA facilities at the site in accordance with the requirements of 40 CFR 265, Subpart D and OAC 3745-65-50 through -56.

The local police, fire departments, hospitals, and emergency planning departments have not been provided with the current plan. The only existing agreements with these outside entities are from before 1986, with some dated as early as 1980. The corresponding letters of agreement are located in the FMPC Emergency Plan, FMPC-2046, dated February 1988.

WMCO has prepared a draft contingency plan that incorporates the requirements of 40 CFR 265, Subpart D. The draft plan is being reviewed by the DOE Site Office. This plan is scheduled to be submitted to OEPA in September 1989 as Part of a sitewide RCRA Part B application.

Prior to late 1988, updating of the contingency plan had not been a priority. Currently, preparation and submission of the sitewide RCRA Part B application, which includes an updated contingency plan, is a high priority at the FMPC.

Tentative Finding(s)

WMCO does not have an accurate, updated, fully implemented contingency plan in accordance with the requirements of 40 CFR 265, Subpart D and OAC 3745-65-50 through -56.

Probable Root Cause(s)

Shortcuts have been taken for contingency plan development without incorporating the plan elements required by RCRA.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 19 - Env. - RCRA - 08
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Effective Dialogue with Regulatory Agencies on RCRA issues

Reference Data Interviews with personnel in Environmental Compliance, RCRA Management, and DOE Site Office, EPA's pre-hearing exchange in the matter of WMCO, Fernald, Ohio, EPA I.D. No. OH6890008976, June 2, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

WMCO, DOE, OEPA, and EPA are not communicating effectively to achieve and maintain RCRA compliance.

Discussion

As the site contractor, WMCO should be in contact with EPA and OEPA to receive RCRA technical guidance. Such guidance is essential to develop proposals that identify items necessary to ensure RCRA regulatory compliance for submittal to the DOE Site Office.

In April, WMCO began informal technical information consultations with EPA on RCRA issues. Prior to that time, effective communications did not occur because WMCO believed that initiation of discussions with EPA for clarification of regulatory interpretation required concurrence by the DOE Site Office.

This interpretation, however, is not consistent with the DOE Site Office policy or the WMCO contract, which states that "The Contractor shall maintain open and candid communications with regulatory agencies on technical issues and shall routinely provide them information regarding ES&H program status."

Despite recent progress, lines of communication between WMCO, DOE, OEPA, and EPA need to be improved. For example, it took 3 months for FMPC to ask the OEPA or EPA for an opinion about the site's satellite accumulation areas. Lack of adequate clarification of such issues could lead to notices of violation.

Tentative Finding(s)

WCO, DOE, EPA, and OEPA are not communicating effectively to achieve and maintain RCRA compliance.

Probable Root Cause(s)

Lines of communications are not clear between DOE and WMCO regarding outside contact.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 19 - Env. - RCRA - 09
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Storage of Potentially Recyclable MaterialReference Data Visual Observation.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

There is potential speculative accumulation of solid waste.

Discussion

Approximately 40,000 drum equivalents of uranium processing by-product are being stored at various on-site locations. Until late 1988, this by-product was considered potentially recyclable material since it met the requirements of the DOE-established economic discard level (EDL) for recovery of uranium. In late 1988, the requirements of the EDL were made more stringent and approximately two-thirds of the material has been reclassified as nonrecoverable waste.

The reclassified material will be characterized according to process knowledge as either RCRA, non-RCRA, or suspect RCRA waste. The FMPC expects to complete this characterization by August 1989, and will be followed by an extended sampling and analysis program to further characterize all RCRA and suspect-RCRA waste.

The remaining recoverable material stored on-site may, however, be considered a solid waste under RCRA. Although recoverable material meet the EDL, the EDL may not be consistent with RCRA definitions of solid waste. The EDL considers only the economic feasibility of recovery, while RCRA imposes the additional requirement that 75% of the material be recovered annually. If this criterion is not met, the material is considered a solid waste and is potentially subject to RCRA hazardous waste requirements.

The FMPC should evaluate its reprocessing plans for this waste to assess RCRA applicability.

Tentative Finding(s)

The retention of the 13,000 drums of potentially recoverable material may meet the definition of speculative accumulation of solid waste under 40 CFR 261.1 and 261.2. Any hazardous wastes contained in them could, therefore, be subject to RCRA.

Probable Root Cause(s)

The RCRA requirements for speculative accumulation are not adequately considered in determining which potentially recoverable materials could be considered solid wastes by EPA.

**Comprehensive Environmental Response,
Compensation and Liability Act (CERCLA)
and
Superfund Amendments and Reauthorization Act (SARA)**

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 01 - Env. - CERCLA/SARA - 01
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity RI/FS

Reference Data 1.) DOE, Remedial Investigation and Feasibility Study, Feed Materials Production Center, Fernald, Ohio, Rev. 3, Volume III: Community Relations Plan, March 31, 1988, Section 1.0, pp. 2-3 and Section 4.0, pp. 2-4. 2.) Mr. William E. Muno, EPA Region 5, Letter to Mr. James A. Reafsnyder dated January 6, 1989, Re: Notice of Violation, Community Relations, DOE - Fernald, OH6 890 008 976. 3.) Mr. James A. Reafsnyder, FMPC Site Manager, Letter to Mr. William E. Muno dated February 10, 1989, Re: Notice of Violation, Community Relations, DOE - Fernald OH6 890 008 976. 4.) Handout materials from the Technical Information Exchange Meeting held at FMPC on July 18, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

There was a failure to fully implement the Community Relations Plan (CRP) as provided in the Remedial Investigation/Feasibility Study (RI/FS) Project Plan approved by EPA.

1	2	3	4	5
—	X	—	—	—

There was a failure to submit a revised CRP that reflects current activities.

Discussion

The Federal Facility Compliance Agreement (FFCA) requires DOE to conduct an RI/FS at FMPC. To perform this task, an RI/FS Work Plan was developed that included a CRP as required in the 1986 and 1988 EPA Guidance on Conducting RI/FS under CERCLA. According to the guidance, two-way communication with community members should be maintained throughout the RI. The plan for interacting with the public is to be explained in the CRP.

The CRP obligated DOE to conduct three meetings per year with community members to discuss the RI/FS progress in detail, to answer questions, and to elicit community viewpoints. In 1988, DOE participated in a town meeting (March 15, 1988) during which one of the topics addressed

included the status of the RI/FS. On April 28, 1988, DOE attended a meeting with the Fernald Residents for ES&H (FRESH) citizens group. Additional meetings, with the explicit purpose of discussing the progress of the RI/FS in detail, were not held in 1988 by DOE.

The CRP also obligated DOE to prepare and distribute a quarterly newsletter that would provide substantive information about the RI/FS, including data collected and interpreted, types of problems encountered during the investigation, and future plans or changes in scope based on the analytical results. This newsletter was not published by DOE during 1987 or 1988.

In December 1988 and again in January 1989, EPA notified DOE that they were in violation of the EPA-approved RI/FS Work Plan because of failure to follow the CRP. EPA requested a response to this notification within 15 days of receipt of the letter. DOE submitted a letter to EPA on February 10, 1989 (22 days after receipt of the EPA letter) and agreed to provide a tentative schedule for the 1989 public meetings along with a schedule for issuance of the quarterly newsletters.

The first meeting was held as planned on January 31, 1989, the second meeting was held on May 15, 1989, and the third meeting has tentatively been set for September. Publication of quarterly newsletters dedicated to providing information on the progress of the RI/FS has not occurred to date.

In the spring of 1989, it was recognized that the CRP needed to be revised, with the scope more refined to reflect ways to learn the community concerns. Consequently, the RI/FS subcontractor developed a systematic approach to selecting community members for interviews. These interviews have been conducted, and the initial concerns of the public have been compiled. With this new information, current plans are to revise the CRP.

Therefore, the CRP as issued in Revision 3 of the RI/FS Work Plan is no longer current. The approach to addressing community concerns is changing, by attempting to establish effective two-way communication. Also, the list of managers with major responsibilities for the RI/FS contains errors. For example, the plan fails to list a DOE representative as one of the possible contacts for information on the RI/FS. The telephone number for the WMCO Community Relations Manager is incorrect. Also, the RI/FS subcontractor Project Director listed in the plan is no longer in this position and his replacement has not been announced.

Tentative Finding(s)

Failure to fully implement the necessary community relations activities under the RI/FS program.

Probable Root Cause(s)

There has been inadequate attention given to implementing the CRP under the RI/FS.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 01 - Env. - CERCLA/SARA - 02
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity RI/FS

Reference Data 1.) DOE, Remedial Investigation and Feasibility Study, Feed Materials Production Center, Fernald, Ohio, Rev. 3, Volume IV: Data Management Plan, March 31, 1988. 2.) Federal Facility Compliance Agreement, July 19, 1986 and modification dated July 6, 1988, U.S. EPA Docket No. FFCA- HW-001. 3.) DOE, ERA Project Status Review Meeting Handouts, August 2, 1989. 4.) Mr. James A. Reafsnnyder, FMPC Site Manager, Letter to Mr. George Wolfe, Senior Vice President, Advanced Sciences, Inc. dated August 25, 1988, Re: RI/FS Project Management Plan Revision 2, DOE 1337-88.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

Failure to meet the schedule implementation date for development and operation of the Data Base Management System (DBMS)

Discussion

The RI/FS currently ongoing at the FMPC, as required by the FFCA, includes development and implementation of a DBMS. According to the EPA-approved RI/FS Work Plan, Revision 3, the Data Management Plan established a schedule that shows that the DBMS would be fully operational by March 31, 1988. This schedule was not met and to date, the system does not provide the capabilities originally described in the work plan. One of the drawbacks with the system appears to be that its design was based on the data input requirements rather than the user output needs.

The DBMS was intended to be used by task managers and technical staff who are conducting the remedial investigation and involved in data interpretation. Its purpose, as described in the Data Management Plan, is "to ensure that the collection, handling, verification, analysis, and display of information acquired throughout the investigation is accomplished efficiently, accurately, and in a manner that can be reproduced. To effectively model and evaluate results and to provide information necessary to complete an acceptable feasibility study, an integrated computerized containing capabilities for graphics, statistical analysis, and technical assessment is required."

Problems with the DBMS have been recognized by DOE and WMCO since 1988. Correspondence prepared by WMCO to the RI/FS subcontractor points out that the DBMS is an "area of marginal or poor performance." Since this time, a task force has been developed to help improve the RI/FS DBMS; yet, the system remains incapable of performing the full complement of analysis described in the work plan. Furthermore, the prevalent attitude appears to be one of acquiescence where staff are now willing to let the existing system serve as a centralized library of remedial investigation data, but that the DBMS will not be able to facilitate data evaluation.

In preparation for the growing needs of the feasibility study and progressive studies of the remedial investigation, work currently has been initiated by WMCO to identify a more user-friendly system that will meet the functional needs of the technical staff.

Tentative Finding(s)

Failure to satisfy the requirements of the RI/FS Work Plan, Revision 3 and subsequently, failure to meet the commitments of the FFCA in a timely manner.

Probable Root Cause(s)

There are inadequate resources and insufficient number of qualified, trained personnel to manage the RI/FS program.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	01	-	Env.	-	CERCLA/SARA	-	03
	<u>Aud. ID Number</u>		<u>Team (Env., S&H, M&O)</u>		<u>Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)</u>		<u>Seq. Data Sheet No.</u>

Date 8-19-89

Building or Activity RI/FS

Reference Data 1.) Advanced Sciences, Inc. Monthly Report - May 1989, Remedial Investigation and Feasibility Study, Feed Materials Production Center, Fernald, Ohio, Contract No. DE-AC0586OR21659, pp. 21-22. 2.) Advanced Sciences, Inc. Monthly Report - June 1989, Remedial Investigation and Feasibility Study, Feed Materials Production Center, Fernald, Ohio, Contract No. DE-AC0586OR21659, pp. 19-20.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
			X	

There are potential inaccuracies in the RI/FS cost reporting.

1	2	3	4	5
			X	

Contractor is operating at 90% of total authorized.

1	2	3	4	5
			X	

Late submittals of monthly progress report have been made.

Discussion

The status of the RI/FS contract as reported in the May 1989 monthly report indicated that the contractor had exceeded the current authorized funding for the RI/FS. In Section 3.1 of the monthly report, it is stated that the cumulative "estimated actual costs" incurred as of this reporting period were \$22,764,500. In Section 3.2 of the monthly report, the current authorized funding for the RI/FS is provided based on the latest contract modification and was reported to be \$21,337,000 through Modification No. 34. Consequently, the costs incurred exceeded the amount authorized by \$1,427,500. Inquiries on this subject found that no one was really sure what the contract cost to date totalled, nor was it realized that the DOE-authorized amount may have been exceeded.

In the June monthly report, submitted on August 8th, it was noted that the cumulative cost to date was incorrectly reported in May. The error was explained as a carryover of a mistake made in the February monthly report where the costs for Task 3 were reported to be \$1,000,000 over the actual incurred.

The RI/FS subcontractor has been operating at a 90% or greater level of the total authorized by DOE for a number of months. This situation is not conducive to long-term planning and commitments for a program requiring extensive work in the future. At the same time, this situation shows that the administrative portion of managing the RI/FS contract is a substantial task that apparently has been given low priority by DOE.

According to the RI/FS contract, the monthly report is to be submitted to DOE by the 20th of each month. The May report was submitted 3 days late and the June report was 14 days late. According to WMCO personnel, reports have been delivered late in the past as well.

Tentative Finding(s)

Cost accountability and contract administration are inadequate.

Contractual reporting schedules are not being met.

Probable Root Cause(s)

There seem to be inadequate resources within the DOE Site Office to manage the RI/FS program.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 01 - Env. - CERCLA/SARA - 04
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89

Building or Activity RI/FS

Reference Data 1.) Remedial Investigation and Feasibility Study, Feed Materials Production Center, Fernald, Ohio, Revision 3, Work Plan and Volume V: Quality Assurance Project Plan.
2.) Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, DC, May 1985. 3.) Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, U.S. Environmental Protection Agency, Hazardous Site Control Division, Washington, DC, May 1985.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

The RI/FS inadequately addresses data quality objectives (DQOs) and data validation.

Discussion

The RI/FS Work Plan serves to document the scoping process for the investigation and explains the need for collection and analysis of additional data. One of the steps in the scoping process is to determine the end uses of the data collected for each task of the remedial investigation. This thought process then influences the level of detail and data quality needed to make the necessary decisions at the outcome of each phase of the study. EPA guidance [Data Quality Objectives for Remedial Response Activities (EPA/540/G-87/003)] recommends that the DQOs are specified in the planning process to ensure that sufficient data of known quality are collected to support sound decisions concerning remedial action selection. The RI/FS Work Plan does not clearly explain whether the DQO process was used in developing the scope of further characterization.

Establishing DQOs in turn sets the framework for the level of data validation needed for the analytical data produced in the remedial investigation. The overall objective of the work as stated in the FMPC RI/FS Quality Assurance Project Plan is to produce "legally defensible" data. When the end use of the data involves critical decisions related to protection of public health, such as preparation of a risk assessment or selection of action levels targeted for cleanup, it is recommended that stringent validation procedures be used to ensure data reliability. These procedures are given in the EPA documents cited above. It should be noted, however, that EPA

does not have guidelines on the procedures for validating radiological data which are a major portion of the FMPC RI/FS.

According to personnel involved in the RI/FS project, the chemical data collected in the remedial investigation for FMPC have not been validated according to these EPA guidelines. Without this review, it is unknown whether current decisions related to additional information needs have been made using reliable chemical data. Furthermore, the credibility of the conclusions drawn from the remedial investigation data and, ultimately, the selection of the remedial action can be questioned by external reviewers.

Tentative Finding(s)

The insufficient identification of the DQOs for the remedial investigation tasks and subsequent failure to validate data may compromise the results of the RI/FS.

Probable Root Cause(s)

Personnel are unaware of the significance of the DQO process and data validation to the overall outcome of the RI/FS.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 01 - Env. - CERCLA/SARA - 05
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity RI/FS

Reference Data 1.) DOE, Remedial Investigation and Feasibility Study, Feed Materials Production Center, Fernald, Ohio, Revision 3, Volume: Work Plan, March 31, 1988. 2.) Federal Facility Compliance Agreement, July 19, 1986 and modification dated July 6, 1988, U.S. EPA Docket No. FFCA- HW-001. 3.) DOE, ERA Project Status Review Meeting Handouts, August 2, 1989. 4.) Reafsnyder, J., December 9, 1988, Letter to Mr. Basil Constantelos, U.S.EPA -Region V, Re: Remedial Investigation/Feasibility Study (RI/FS) - Feed Materials Production Center - Revised Master Schedule (DOE-279-89). 5.) Mr. Basil G. Constantelos, Director Waste Management Division, U.S.EPA - Region V, January 19, 1989, Letter to Mr. James Reafsnyder, U.S. DOE, Re: Operable Units/Schedule - U.S. DOE Fernald, OH6 890 008 976. 6.) Mr. Robert G. Lenyk, Project Manager, ASI, February 17, 1989, Letter to Ms. Mary Stone, U.S. DOE, Re: RI/FS Operable Unit Schedules.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

The FMPC has not met the deliverable dates established by the FFCA.

Discussion

The approved version of the RI/FS Work Plan provides a schedule for deliverables, and because the plan is now incorporated into the FFCA, DOE is legally committed to this schedule. According to the approved work plan, the Draft Remedial Investigation Report was due to EPA on August 12, 1989, and should include the results of the sitewide remedial investigation. This is a significant milestone in the performance of the remedial investigation, in that it is the first formally published document explaining the nature and extent of contamination identified through the collection and analysis of hundreds of environmental samples. DOE has failed to meet this commitment and, subsequently, it is virtually impossible for DOE to meet its final commitment for submittal of the Record of Decision (ROD) in September 1990.

In August 1988, DOE submitted a detailed feasibility study work plan to EPA Region V. The schedule provided in the feasibility study work plan indicated project completion in September 1990 as agreed on in the FFCA. This plan introduced the concept of dividing the site into

operable units for both the remedial investigation and the feasibility study. DOE has proposed six operable units as listed below:

- No. 1--Waste Storage Area: Pits 1,2,3,4,5,6, clear well, and burn pit
- No. 2--Solid Waste Areas: Lime sludge ponds, fly ash piles, and sanitary landfill
- No. 3--Facilities and Suspect Areas: Production area facilities, production area suspect areas, fire training, and other suspect areas (incinerator, rubble mounds, abandoned drum locations)
- No. 4--Special Facilities: K-65 silos, metal oxides silo, and thorium inventory
- No. 5--Environmental Media: Soils, on-site groundwater, flora and fauna, regional aquifer, ambient air, Great Miami River, Paddy's Run, and the stormwater outfall ditch
- No. 6--South Plume: Groundwater off-site south of the facility.

EPA Region V has not formally approved the feasibility study work plan and, thus, they have not signed off on the concept of operable units. However, discussions have been held between DOE and EPA such that DOE is continuing to operate with the understanding that these operable units will be approved.

In February 1989, FMPC proposed a revised schedule for DOE's submittal of the ROD for each operable unit to EPA. The revised schedule set a deadline for the first ROD in September 1990 and the last ROD for January 1992. Negotiations with EPA on this proposed schedule brought out the concept of implementing removal actions as interim measures to accelerate work on the operable units that pose the greatest risk to the public and the environment. Six removal actions were then suggested by DOE and are listed below:

- south plume groundwater pumping
- Plant 6 perched groundwater pumping
- other facilities perched groundwater pumping
- waste pit area stormwater runoff control
- K-65 silo sand fill
- underground storage tank removal.

In May 1989, DOE and EPA initiated development of an Interagency Agreement (IAG) that would eventually supersede the CERCLA portion of the FFCA. This was done in expectation of the FMPC being listed as a candidate site for the National Priorities List (NPL). The FMPC was actually proposed for inclusion on the NPL in July 1989. Negotiations on the draft IAG are currently in progress and are expected to include a revised RI/FS schedule based on the operable unit concept.

*The feasibility study work plan originally proposed operable unit No. 6 as surface-water courses (Paddy's Run, Great Miami River, and stormwater outfall ditch), but the issue of the south plume became recognized and operable unit No. 6 was changed to be the south plume. The surface-water courses were then incorporated into operable unit No. 5.

Tentative Finding(s)

DOE has not met the schedules established in the FFCA.

Probable Root Cause(s)

Inadequate project planning has resulted in an overcommitment to EPA Region V.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 01 - Env. - CERCLA/SARA - 06

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89

Building or Activity RI/FS

Reference Data 1.) DOE, Remedial Investigation and Feasibility Study, Feed Materials Production Center, Fernald, Ohio, Revisions 0, 1, 2, and 3. 2.) Federal Facility Compliance Agreement, July 19, 1986 and modification dated July 6, 1988, U.S. EPA Docket No. FFCA-HW-001. 3.) Reafsnnyder, J., June 20, 1989 Letter to U.S.EPA - Region V Hazardous Waste Enforcement Branch, Re: Federal Facility Compliance Agreement (FFCA) - Progress Report for May 1989 - Feed Materials Production Center.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

The review/revision cycle of RI/FS documents lacks timeliness.

Discussion

The time required for the cycle to review, comment, and revise FMPC RI/FS documents can be extremely lengthy and has possibly contributed to slowing the progress of the remedial investigation. In addition, the time allotted for the review cycle appears to be unrealistic and inevitably results in missing deadlines.

The problem with timeliness is caused by both internal and external reviewers and reaches back to the initial submittal of the RI/FS Work Plan. For example, an 18-month period elapsed pursuing approval of the RI/FS Work Plan, during which time the plan was in the hands of EPA for 7 months. The draft feasibility study Work Plan was submitted to EPA 12 months ago and neither approval nor comments from EPA have been received. DOE has recently experienced a 4-month period to receive EPA's comments on the facilities testing work plan, but at the same time, resolution of comments and preparation of the revision have been ongoing for over 3 months.

For each of these extended comment periods for external agency review, DOE faces the choice of waiting for EPA or proceeding with work in lieu of knowing EPA's concerns. Each time DOE chooses to initiate work, they risk having EPA criticize the task after the fact or request that certain aspects of the work be repeated to satisfy their concerns. This uncertainty tends to place DOE in a defensive position when interacting with EPA.

The amended FFCA includes a review of submittals section where the review process is outlined together with the time constraints placed on each step of the process. Both parties, the FMPC and EPA Region V, have not abided by the time frames established in the FFCA.

Tentative Finding(s)

Schedules established in the FFCA are not being met.

Probable Root Cause(s)

Scheduling of deliverables as outlined in the FFCA was unrealistic.

There is an inadequate commitment of necessary personnel to ensure schedules are met.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 01 - Env. - CERCLA/SARA - 07
And. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89

Building or Activity RI/FS

Reference Data 1.) DOE, Remedial Investigation and Feasibility Study, Feed Materials Production Center, Fernald, Ohio, Revision 3, March 31, 1988. 2.) Weekly Meeting on July 28, 1989 with DOE/WMCO/ASI/IT regarding the status of the RI/FS.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

No one can be sure of the completion of all aspects of the RI/FS tasks.

Discussion

During the weekly status meeting for the RI/FS project involving DOE, WMCO, Advanced Sciences, Inc., and IT Corporation personnel, it was realized that no one could state with certainty whether all aspects of the tasks described in the RI/FS Work Plan had been completed in accordance with the plan. In response, an action item was assigned to the subcontractor to identify all elements of the tasks and subtasks described in the work plan and then to determine the completion status of each subtask. It was reported that this request would likely require at least 2 months before submittal to DOE. This situation is indicative of insufficient tracking and control over the RI/FS activities.

Tentative Finding(s)

Tracking and control over the RI/FS activities are insufficient.

Probable Root Cause(s)

Management of the RI/FS project is inadequate.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 01 - Env. - CERCLA/SARA - 08
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity RI/FS

Reference Data 1.) DOE, Remedial Investigation and Feasibility Study, Feed Materials Production Center, Fernald, Ohio, Revision 3, March 31, 1988. 2.) Weekly Meeting on July 28, 1989 with DOE/WMCO/ASI/IT regarding the status of the RI/FS.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

A formal, systematic approach to reporting the results of the remedial investigation is lacking.

Discussion

Data from the remedial investigation are provided to EPA Region V and Ohio EPA in Technical Information Exchange (T.I.E.) meetings, usually in the form of handouts or outlines presenting the results. In addition, EPA Region V receives analytical results electronically by computer. For the FMPC RI/FS, there is no provision or requirement for the subcontractor to prepare written interim task reports giving the initial interpretation of these analytical results. Consequently, there is no centralized compilation of reports and it is difficult to measure the progress of the remedial investigation.

Informal communication does occur among the RI/FS project staff and is encouraged through attendance at the weekly status meetings and at the Project Director's meeting. Decisions for additional sampling and investigation are made through this informal exchange; yet, the rationale and/or justification for these decisions is not always well documented.

Tentative Finding(s)

There is an inability to adequately measure progress of the remedial investigation.

Probable Root Cause(s)

There are no requirements that foster systematic reporting and compilation of remedial investigation task results.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 01 - Env. - CERCLA/SARA - 09

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity RI/FS

Reference Data 1.) DOE, Remedial Investigation and Feasibility Study, Feed Materials Production Center, Fernald, Ohio, Revision 3, March 31, 1988. 2.) Neal, M. Letter to M. Stone Re: Project Management Plan dated November 3, 1988. 3.) McCord, C.A., Region V EPA, RCRA Enforcement Branch, Letter to Mr. J.A. Reafsnnyder, DOE Site Manager Re: Project Management - U.S. DOE - Fernald, OH6 890 008 976, dated December 5, 1988. 4.) Reafsnnyder, J.A., DOE Site Manager, Letter to Mr. William Muno, Region V EPA, Re: Modification of the Project Management Section of the Remedial Investigation/Feasibility Study Work Plan, dated December 22, 1988. 5.) Lenvk, R.G., ASI Project Manager, Letter to J.A. Reafsnnyder, DOE Site Manager, Re: RI/FS Project Management Plan Rev.4, dated August 1, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Management plans are insufficient in describing actual procedures used for project control.

1	2	3	4	5
—	X	—	—	—

Section 6.0, Management Plan, of the RI/FS Work Plan is out of date.

1	2	3	4	5
—	X	—	—	—

RI/FS Project Management Plan, Rev. 4 not yet approved by DOE.

Discussion

A fundamental weakness in the Management Plan and the Project Management Plan for the RI/FS is that the methods or procedures to actually maintain control of the project are not identified or described. The plans state that project control will be provided, but they do not give the means by which this will be accomplished. A discussion on the types of reports that will be generated

for DOE oversight is included in the plans, but these reports do not equate to an effective management tool. Interviews with RI/FS project personnel were not successful in identifying the routine procedures used to manage the project.

The FMPC RI/FS is a large, multi-task project involving numerous personnel from different office locations. Coordination and planning of personnel availability, approval of expenditures, and scheduling are essential to the successful completion of such a complex project. There appears to be substantial reliance on informal communication among task managers, which is an integral part of project management, but this should not substitute for more formalized procedures.

Section 6.0 of the approved RI/FS Work Plan no longer reflects the current management structure or key personnel involved in the project. In November 1988, DOE informed EPA Region V of the major changes in management structure (i.e., shifting the management/ oversight of the project from WMCO to DOE). In December 1988, EPA notified DOE that the work plan should be modified. At present, this modification has not been submitted to EPA. Additionally, there is a commitment in the work plan to produce a Project Management Plan. Although the Project Management Plan does not appear to be a deliverable to EPA, it also requires updating as appropriate. On August 1, 1989, Revision 4 of the Project Management Plan was submitted to DOE for approval.

Tentative Finding(s)

RI/FS management plans do not provide an adequate explanation of procedures used to ensure project control.

Probable Root Cause(s)

There are insufficient personnel who are experienced in management and oversight of a complex, multi-task project.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 01 - Env. - CERCLA/SARA - 10

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity RI/FS

Reference Data 1.) DOE, Remedial Investigation and Feasibility Study, Feed Materials Production Center, Fernald, Ohio, Rev. 3, Volume: Work Plan and Volume V: Quality Assurance Project Plan, Section 15.0, March 31, 1988. 2.) ASI Document Change Requests 7 through 32.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Document Change Requests (DCRs) for the RI/FS Work Plan are not promptly approved by DOE.

Discussion

As the RI/FS is implemented, it has been necessary to change procedures and activities based on new information or events that occur during the work. The RI/FS subcontractor's Quality Assurance Project Plan provides a mechanism to incorporate these changes into the Work Plan through use of DCRs. Thirty-two DCRs have been prepared as of March 1989, with subjects ranging from the number of rinseate samples to be collected to provisions for installation of additional groundwater monitoring wells. Many of these DCRs were prepared by the RI/FS subcontractor in 1988 and are over a year old. Even though DOE is informed of these changes, they have not formally approved a significant number of the DCRs. This practice does not conform with the RI/FS Quality Assurance Project Plan and inevitably places the subcontractor in a position of receiving deficiencies in a quality assurance (QA) audit or surveillance.

Tentative Finding(s)

DOE does not provide prompt response and formal approval to DCRs as required by the RI/FS Quality Assurance Project Plan.

Probable Root Cause(s)

There has been insufficient attention on the part of DOE given to conformance with the RI/FS Quality Assurance Project Plan.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 01 - Env. - CERCLA/SARA - 11

Aud. ID Number
Team (Env., S&H, M&O)
Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)
Seq. Data Sheet No.

Date 8-19-89Building or Activity RI/FS

Reference Data 1.) Eilerman, K.M., WMCO Contracts Administrator, Letter to Mr. James F. Ransone, ASI Corporate Contracts Manager, Re: DOE Contract No. DE-AC05-86OR21659 With Advanced Sciences, Inc., dated May 10, 1989. 2.) Hopper, J.P., WMCO MCS Implementation Team Leader, Letter to M.E. Stone, DOE COTR, Re: Advanced Sciences, Inc. (ASI) Management Control System Review, dated June 12, 1989. 3.) Ransone, J.F., ASI Corporate Contracts Manager, Letter to K.M. Eilerman, WMCO Contract Administrator, dated July 11, 1989. 4.) Boswell, M.B., WMCO President, Letter to J.A. Reafsnyder, DOE Site Manager, Re: Proposed WMCO Management of RI/FS Contract, dated August 1, 1989. 5.) Eilerman, K.M., Memo to M. Stone, Re: Task Order Procedure, dated March 23, 1989. 6.) Interviews with ASI, WMCO, and DOE personnel, July 17 - August 10, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Negotiations on costs for RI/FS task orders often occur after the work is complete.

1	2	3	4	5
—	—	—	X	—

RI/FS activities are often conducted in reaction to others and are not well planned.

Discussion

Many activities on the RI/FS project are conducted as a sudden reaction to either Region V EPA's requests, realization that a task is behind schedule and a deadline may be missed, or as the result of informal assessments of data as they become available. This constant change in priorities dispels the ability to effectively plan and control a project. This is not meant to imply that the project should be so rigidly structured that quick-response tasks cannot be performed; however, these fast-track requests should not become the norm.

According to the references cited above, the costs for the RI/FS task orders are often negotiated near the completion or actually after completing the scope of work assigned by the task order. Simply stated, DOE and WMCO are placed in the situation of "negotiating" actual costs incurred rather than proposed costs.

Based on discussions with FMPC and subcontractor personnel, it is difficult to pinpoint the reasons for allowing work to be completed before the task orders are approved. One reason may be the current trend of making decisions in reaction to others, instead of being able to implement an organized, planned action. Also, this situation has been caused by the subcontractor's late submittals of the cost proposal. A third reason may be that the system of processing task orders (see description provided below*) is cumbersome and requires several weeks. The net effect is that it is very difficult to assess the adequacy of the control over costs and schedules for the RI/FS activities under these circumstances.

Description of the RI/FS Task Order Approval Process

The procedure for issuing task orders under the RI/FS subcontract begins with a requisition prepared by WMCO that explains the scope of work and provides WMCO's estimate of the detailed cost. Once this requisition is approved by the WMCO RI/FS Section Manager, it is then processed through the WMCO Contracts Administrator. WMCO submits the requisition to the DOE Contracting Office Technical Representative (COTR) who reviews and either concurs or disapproves the activity. The requisition then returns to the WMCO Contracts Administrator and a task order is prepared and transmitted to the RI/FS subcontractor. The subcontractor has 3 days to acknowledge receipt of the task order and to meet with DOE and WMCO to discuss the details of the scope of work. The subcontractor is then required to submit a detailed cost proposal within 10 calendar days following receipt of the task order -- in some cases, this time period is extended to 30 days. The cost proposal is reviewed by the WMCO Contracts Administrator and forwarded to the DOE COTR who is responsible for preparing the technical evaluation. The COTR often obtains assistance from the WMCO RI/FS Section to provide the technical evaluation. The DOE COTR submits the evaluation to the WMCO Contracts Administrator who negotiates any questioned costs with the subcontractor and then prepares the final task order for approval. The approval cycle requires five signatures. The final approved task order is returned to the subcontractor in the form of a Contract Modification.

Tentative Finding(s)

There is an inability to plan project activities and maintain control of costs and schedules.

Probable Root Cause(s)

DOE has insufficient resources to oversee the RI/FS program.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 01 - Env. - CERCLA/SARA - 12
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89

Building or Activity RI/FS

Reference Data 1.) DOE Contract No. DE-AC05-86OR21659 with Advanced Sciences, Inc. - Modifications 01 - 38. 2.) Boswell, M.B. WMCO President. Letter to J.A. Reafsnyder, DOE Site Manager. Re: Proposed WMCO Management of RI/FS Contract, dated August 1, 1989. 3.) Interviews with ASI, WMCO, and DOE personnel, July 17 - August 10, 1989.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

There has been an expansion in the contract scope of work.

Discussion

During interviews with DOE, WMCO, and RI/FS subcontractor personnel, and through review of the contract modifications, it is apparent that both the RI/FS scope and budget are regularly changing as shown below by the number of contract modifications issued to date:

<u>Year</u>	<u>No. of Contract Mods.</u>
1986	1
1987	13
1988	16
1989 as of August	5 with 3 pending

One explanation for the expansion in scope involves the initial planning of the project. The original scope of work identified for the RI/FS was significantly underestimated and, as such, DOE lost the ability to effectively plan the project.

An example of the expansion in the project scope is the additional work required in the production area to investigate potential sources of contamination, which is estimated to cost approximately \$4 million. Apparently in 1986 and 1987, DOE held firm in their decision to keep the production area out of the RI/FS in the development of the work plan submitted for EPA approval. EPA's approval subsequently was given but with certain stipulations -- one of which was inclusion of the production area in the study. The FFCA clearly states that the RI/FS is to

characterize "all materials emitted, discharged, released or potentially released into the environment." DOE recognized that contamination existed in the production area; however, the extent of contamination had not been defined. In 1988, DOE agreed to include the production area in the RI/FS and with the area potentially representing a major source of contamination, this decision added substantially to the workload for the RI/FS.

Also, failure to take an aggressive, up-front approach to define the extent of the off-site groundwater contamination plume has impeded the progress of the RI/FS. The FMPC has recognized the problem of uranium contamination south of the facility since 1981 and the initial plans for the remedial investigation should have focused significant resources on addressing the extent of the contamination. However, when the operable units were developed, the south plume initially was not included. Now the south plume has become the subject of one of the removal actions being discussed with Region V EPA in an effort to accelerate progress on the project. Currently, negotiations are under way to obtain access to properties south of the site where additional data are needed.

A number of the contract modifications issued to date deal with Task 9 work that is RCRA related and needing quick response. This Task 9 work affects the ability to plan utilization of resources, and may influence the ability to meet the schedules of the RI/FS. Twenty-five subtasks have been issued for this Task 9 work and although it does not represent a significant portion of the total cost, it does affect the availability and use of subcontractor resources. According to DOE and WMCO personnel, there is a current concern that the Task 9 work may be overcommitting the subcontractor's resources and causing delays in the overall RI/FS project schedule. To alleviate this concern, DOE is currently considering preparing a solicitation for another contractor to help with environmental support work such as that represented by the RI/FS Task 9 work.

Tentative Finding(s)

Numerous changes in the scope of work are indicative of inadequate project planning.

Probable Root Cause(s)

DOE Site Office has inadequate resources and personnel with experience managing CERCLA-related projects.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 01 - Env. - CERCLA/SARA - 13

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity RI/FS

Reference Data 1.) Interviews with ASI, WMCO, and DOE personnel, July 17 - August 10, 1989.
2.) Interview with Region V EPA Regional Project Manager, August 3, 1989. 3.) Minutes of the
RI/FS Task Team on February 23, 1989. 4.) Minutes of the RI/FS Meeting between DOE,
WMCO, ASI, and IT on March 8, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Management of the RI/FS project is inadequate.

Discussion

Currently, DOE does not have a permanent, full-time professional whose responsibility is to manage the multimillion dollar RI/FS and, consequently, the DOE Site Manager has encumbered himself with this responsibility. Also, the Oak Ridge Operations Office (ORO) is supplementing the DOE Site Office staff by providing an Acting Environmental Group Manager, who is on temporary detail. This situation has led to the feeling that no one is really in charge of the project and places the success of the project in jeopardy.

There has been a history of management problems associated with the RI/FS. A number of changes have been made in the subcontractor's project management staff throughout 1988, many due to DOE's dissatisfaction with their performance. In November 1988, management and oversight of the RI/FS were shifted from WMCO to DOE. This change was made without DOE fully realizing the level of effort required to successfully manage the project, and sufficient resources were not made available. One way that this weakness has manifested itself is in the difficulties that DOE and WMCO have experienced in satisfying EPA Region V. Another area of confusion has been the division of responsibility in the Environmental Remedial Action (ERA) Project between the RI/FS work and the design/engineering work. Only recently have DOE and WMCO worked out a separation of responsibilities. Poor communication and lack of corporate/management commitment also appeared to be a problem. Therefore, DOE initiated holding a project directors' meeting at regular intervals that is designed to inform upper level management of the progress and problems encountered in the RI/FS and to encourage their support.

Earlier this year, weaknesses in the RI/FS program were elevated to the level of upper management in ORO. A task force was established to identify and resolve the problems. These efforts have increased the awareness within DOE of the importance and sensitivities associated with the RI/FS work; however, continued efforts and resources are needed to regain credibility and to effectively implement the project.

Tentative Finding(s)

Project management of the RI/FS is inadequate.

Probable Root Cause(s)

Insufficient resources are available to manage the RI/FS project.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 01 - Env. - CERCLA/SARA - 14

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity RI/FS

Reference Data 1.) Stone, M. Letter dated December 30, 1988 to Mr. Richard T. Wilde, ASI, Re: Cost Account Plans (DOE-347-89). 2.) Hopper, J.P., WMCO MCS Implementation Team Leader, Letter to M.E. Stone, DOE COTR, Re: Advanced Sciences, Inc. (ASI) Management Control System Review, dated June 12, 1989. 3.) Boswell, M.B. WMCO President, Letter to J.A. Reafsnnyder, DOE Site Manager, Re: Proposed WMCO Management of RI/FS Contract, dated August 1, 1989. 4.) Interviews with ASI, WMCO, and DOE personnel, July 17 - August 10, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Justification for the cost growth associated with the RI/FS is not clearly documented.

Discussion

The RI/FS program has operated with insufficient accountability for working within prescribed budgets. Cost for the RI/FS was initially estimated to be \$1.7 million. Total project funding through FY 1989 is approximately \$25.5 million. For completion of the RI/FS, current estimates are that the cost will range from \$40 to \$50 million. Justification for this growth in cost is not clearly documented.

There appears to be a lack of incentive to budget and track costs accurately and in a timely manner. DOE and WMCO have repeatedly requested cost account plans to facilitate maintaining control of project costs and schedule, but the subcontractor has not been very responsive to this request. Earlier this year, DOE and WMCO became dissatisfied with the responsiveness of the RI/FS subcontractor, particularly since the budget was tight nearing the end of the fiscal year. Therefore, WMCO personnel, themselves, spent several weeks calculating total project cost, including directly contacting firms subcontracted to the RI/FS subcontractor. However, neither WMCO nor DOE personnel believe that this recent effort resolved the cost accountability problem.

Tentative Finding(s)

There is an inability to plan project activities and maintain control of costs and schedules.

Probable Root Cause(s)

Inexperience in conducting RI/FS projects in accordance with CERCLA has resulted in an underestimation of the work involved.

Also, insufficient accountability exists for costs associated with the RI/FS.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 11 - Env. - CERCLA - 01

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity AllReference Data Oak Ridge Operations (ORO) Memo (Bill Snyder to Henry Gill Jr.) dated 2/23/88; site files; subject: "Damages to Natural Resources."**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

There has been a failure to notify and coordinate with other Federal and state trustees.

1	2	3	4	5
—	—	—	X	—

Knowledge of requirements for a Natural Resource Damage Assessment is lacking.

Discussion

The referenced memo indicates that the FMPC has not invited the State of Ohio to participate in a Natural Resource Damage Assessment (NRDA). The memo also indicates that the U.S. Justice Department had advised the Secretary of Energy to make the invitation to the Governor of Ohio. The Secretary is the primary federal trustee for natural resources within the property lines of FMPC. Co-trustees at FMPC include OEPA and the U.S. Department of the Interior.

DOE has not formally notified the State of Ohio trustees (appointed by the Governor; i.e., OEPA) and Federal trustees (although DOE is a trustee at the site, the U.S. Department of the Interior also has trustee status at this site because of the presence of migratory birds) about the potential for damage to natural resources. The State of Ohio is trustee for a majority of resources outside of the FMPC property line that may be affected by releases from FMPC. The U.S. Department of the Interior will need to perform a "preliminary natural resource survey (PNRS) according to its procedures.

The ORO analysis states that the RI/FS "is covering all the meaningful things that would be covered by an assessment at this time." The RI/FS as it currently stands cannot substitute for the NRDA because the RI/FS will not assess residual damages (i.e., injuries not remedied by

whatever remedial action is taken), and the current RI/FS is technically deficient in the biological resource testing. It does not now assess risk or injury from the direct effects of contact with contaminated media, and it does not address itself to all potential biological receptors. There are virtually no habitat alteration studies (e.g., the wetlands assessment) and no chronic toxicity and reproductive toxicity studies for the higher taxonomic groups of potential interest to the State of Ohio and the U.S. Department of the Interior.

Compliance would involve formally notifying the Governor of the State of Ohio, the Ohio Natural Resource Trustee, and the appropriate Federal Resource Trustees, including the U.S. Department of the Interior of CERCLA Section 120 IAG Negotiations, and of the potential risk to natural resources at FMPC. After notifying these parties, DOE is required to coordinate its activities for any resource assessments, RI/FS studies, etc., with these parties, and seek their input into the RI/FS process. If the natural resource trustees decline to perform formal NRDAs, this should be ascertained and releases obtained from the trustees, if appropriate.

Tentative Finding(s)

DOE is not fulfilling its responsibilities as a natural resource trustee in the public interest at FMPC.

Probable Root Cause(s)

The interpretation of natural resource trustee responsibilities is incomplete.

The DOE policy on natural resource trustee issues has not been developed.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 11 - Env. - CERCLA - 02
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity K-65 Silos

Reference Data July 19, 1986 Federal Facilities Compliance Agreement with EPA; Interviews with DOE, ASI, WMCO and IT personnel at FMPC; Field Inspection of K-65 Silos; RI/FS Work Plan, revision 3; Technical Information Exchange, Notes (Draft) - 7-18-89; Implementation Plan for the K-65 and Metal Oxide Residue Sampling Project at FMPC, Revision 5, Dec. 1988. RI/FS uranium isopleth maps dated July 26, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
X	—	—	—	—

The K-65 silos may potentially release radioactive constituents to the environment.

Discussion

The K-65 silos contain incompletely characterized radioactive materials, pitchblende uranium ore extraction process material, and other waste materials. The project residues were mixed with water and pumped into the silos, where solids settled. The liquids at the surface were decanted from the silos into a treatment facility. There are about 9700 tons of residual material in the silos.

A testing program in 1985 concluded that the silo domes showed evidence of instability; the walls and base concrete slabs were thought to be stable. The domes required remedial action. In January 1986, wooden protective covers were installed. In late 1987, a foam coating was applied to the domes which was intended to further reduce weathering, temperature fluctuations, and radon gas emission. A radon treatment system also was installed.

Release of the K-65 materials represents a risk to human health and the environment, should any of the components of the system fail or deteriorate from present conditions. This risk would result from the escape of radioactive material under a "failure" condition.

The most salient causes for a "failure" scenario are:

- catastrophic atmospheric event, such as tornado touchdown or other severe storm conditions
- earthquake

- water infiltration of walls and base slabs.

The weak points in the K-65 silo system include:

- domes
- interface with earthen berm
- concrete walls (and decant ports)
- concrete slab
- undertank drainage system
- radon control system (pipes, valves, connectors, caulking, and treatment housing).

Potential failures at any of these points will result in releases of radioactive constituents to either air, earthen berm, surface soils, subsoils, groundwater, and/or the undertank drainage system that exists under the K-65 silos.

Paddy's Run Creek is a very short distance to the west of the K-65 silos. Any release to Paddy's Run via rainwater runoff, accidental rupture or sabotage, catastrophic storm damage, or earthquake could result in contamination of downstream areas, including the groundwater.

Complicating the RI/FS for the K-65 operable unit is the existence of an undertank drainage system. WMCO personnel and the RI/FS contractor and subcontractor personnel talked about this possibility. A tour of the tops of the K-65 silos revealed a sump casing on the west side of the berm, between silos #1 and #2. On opening this casing cover, liquid was observed at the bottom of the sump, which was estimated to be about 20 to 30 ft below the top surface of the earthen berm. According to drawings recently reviewed, this is a pipe going to the decant sump tank, which receives any liquid from the collection system under the tank floor.

The structure of the silo domes and the earthen berm would allow rainwater runoff to infiltrate the berm because the berm top is sufficiently flat to allow delayed residence time for runoff water. The appearance of the corroded metal of the sump casing, the corroded silo metal (dome rim), the existence of pools of rainwater on the domes and on berm debris, the existence of an undertank drainage system, and the possibility of leakage through silo walls must be considered in the RI/FS because of the potential contamination of the groundwater. Preliminary maps of groundwater contamination indicated a uranium "hot spot" around the K-65 silos. Slant drilling in 1982 also showed uranium in the soil 5 ft under one silo. This was observed in the 1000 series wells of the till. It is unclear whether the silos are a contributing source of the contamination of the sand and gravel aquifer (isopleth maps of July 26, 1989) or whether the contamination is the result of operations when the silos were filled. Radium concentrations in the soil and the groundwater under the silos are less than the uranium concentrations. The reverse would be expected if the solubilities of the two isotopes are roughly similar and the silos are leaking.

A program to sample and completely characterize the wastes in the K-65 silos has not resulted in definitive answers to what the precise physical and chemical form the material is in at all levels in the silo. Complete characterization is important to the design and implementation of potential corrective actions; therefore, the precise nature of the corrective action to finally be taken remains undetermined.

Tentative Finding(s)

The K-65 silos represent a potential source of releases of radioactive materials to the environment.

Probable Root Cause(s)

Probable root causes include:

- historical waste disposal practices involving the pitchblende ore acquisition and extraction
- inadequate generation of records and/or record keeping on data about the substructures.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 11 Env. CERCLA 03

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity FMPC CERCLA Removals and CERCLA Operable Units

Reference Data FMPC Administrative Record Index. EPA Administrative Record Guidance: FMPC "On-site" Administrative Record - Public Reading Room. EPA (memo - AA/OSWER to Regional Administrators (3/1/89). National Contingency Plan.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

Administrative record is inadequate for CERCLA response actions.

Discussion

Pursuant to E.O. 12580, Federal agencies must establish an administrative record for Federal facilities under their jurisdiction when using CERCLA for a response action. The administrative record established pursuant to CERCLA 113 (K) serves two purposes. First, the basis of the response action selection is set forth in the record, and under section 113(j), judicial review of any issue concerning the adequacy of a response action is limited to the record; therefore, it is to DOE's benefit to have a complete record that can stand legal challenges. Second, CERCLA 113(k) requires that the administrative record act as vehicle for public participation in the selection of the response action.

The basis of DOE's selection of response actions at FMPC must be documented in the administrative record for that action. The record must include documents considered or relied on by DOE in making the response action selection. For purposes of compiling FMPC's administrative record, these are the documents that were relied on, or comments that DOE solicited or received from interested parties.

Generally, the following principles must be adhered to in order to be in compliance with EPA's administrative record guidance issued pursuant to the National Contingency Plan:

- The record should be compiled as documents, relating to the selection of the response actions, are generated or received (except in the case of certain removal actions that have time-related requirements).

- The record should include documents that form the basis for the response decision even if they do not support the response selection.
- The record should be a contemporaneous explanation of the basis for the selection of a response action.

Some examples of documents not available in the administrative record at the public reading room of the FMPC administrative building include:

- Preliminary Assessment/Site Inspection reports, or the DOE equivalent Phase I report (not necessary to include hazards ranking scoring package)
- Community Relations Work Plan and Plan
- public notices
- public comments
- transcripts of public meetings
- responses to public comments
- responses to Federal and state agency comments
- documentation of state involvement
- documents that demonstrate the public's opportunity to participate in and comment on the selection of the removal actions
- WMCO comments on any RI/FS matter
- ASI/IT comments on removals or EE/CAs performed by other parties, such as WMCO
- WMCO comments of ASI/IT acute, chronic, and benthic macro-invertebrate studies
- comments from advisory and citizen's groups.

As a Best Management Practice, the administrative record (which is now in the public reading room) should be arranged in a much more orderly manner. The current record is scattered about the bookshelf, amidst many documents and reports that are irrelevant to the CERCLA record. Reviewing the current record was found to be extremely difficult. It is disorganized, disjunct, and generally unusable in its current arrangement. The quarters for viewing the record are not conducive to careful, thoughtful analysis. An individual attempting to view the record has no place to work in a reasonable manner. There are no copying facilities nearby; generally speaking, employees attempting to view the record in its present location may feel a bit intimidated because the proximity to the administrative offices of WMCO and DOE may result in the perception on the part of an employee that he or she is being observed by management while reviewing the record.

Tentative Finding(s)

FMPC has not assembled a complete administrative record for its CERCLA response actions [CERCLA section 113(k)]. The current record does not provide for any meaningful public participation.

Probable Root Cause(s)

The following are the probable root causes: insufficient staffing to comply in a timely manner, insufficient DOE training on requirements of administrative record, lack of protocol for compiling administrative record.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 11 - Env. - CERCLA - 04

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity RI/FS Operable Unit

Reference Data 1.) RI/FS Work Plan - Revision 3, 1989; 2.) "Biological and Ecological Site Characterization of FMPC" (Miami University Study, 1988 Revision; 3) Acute and Chronic Toxicity Studies - IT Corp for ASI, 1989; 4.) "Risk Assessment Guidance for Superfund Vol. II Environmental Manual" (EPA/540/1-89-001 Interim Final, March 1989). Interviews with DOE, WMCO, ASI-IT, U.S. EPA, OEPA.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The biological and ecological sampling and evaluation plan is insufficient in the RI/FS Work Plan.

1	2	3	4	5
—	—	—	X	—

Record keeping is incomplete for RI/FS biological work.

Discussion

The current revision of the RI/FS Work Plan does not take into account several potential risks to biological resources. The current revision of the RI/FS Work Plan contains Section 6.0, Biological Resources Sampling Plan. There are four stated objectives in the plan: 1) determination of exposures in flora and fauna of radiological or hazardous substances, 2) determination of agricultural impact, 3) elucidation of additional pathways of radiological or hazardous substances to humans, and 4) determination of potential for impact on endangered or threatened species. All four objectives are laudable, and the biological resources sampling plan will likely be capable of fulfilling the objectives. However, these objectives and the plan are now insufficient for a CERCLA RI/FS. Changes to CERCLA were mandated by SARA, which was signed into law about 3 months after the FFCA was signed. One of the changes to the CERCLA program brought about by SARA was much more emphasis on protecting environmental organisms and ecosystems, regardless of the potential links to public health considerations, such as those identified in the Miami University study. EPA has responded to these additional CERCLA requirements by providing specific program and protocol guidance for ecological testing and evaluation.

Although not covered in the original Work Plan, additional work items are now required for the biological resources plan. These should include a "bioassessment" evaluation of surface waters, soils, and sediments potentially impacted by FMPC. Guidance for ecological evaluation is cited above (EPA/540/1-89/001).

The acute and chronic aquatic toxicity data being developed by Advanced Sciences, Inc./IT Corporation will only partially address some ecological concerns (i.e., toxicity of treated wastewater). It is more important also to perform "Bioassessment" testing (i.e., biological toxicity of soils, sediments, and surface waters).

In addition, a search of the records of the RI/FS contractor showed that chain-of-custody forms required by the Quality Assurance Project Plan (QAPP) for biological samples were not available in the contractor's file. While sample identification sheets appeared to be properly filled out, there was no indication of how the field storage and sample shipment procedures also required by the QAPP, were carried out. Without these data, it is very difficult to validate the scientific integrity of the sample results.

Tentative Finding(s)

The RI/FS Work Plan provides only a limited view of the potential ecological effect of releases or potential for releases from the FMPC.

Probable Root Cause(s)

The following are the root causes:

- DOE policy on protection of ecological resources has not been issued
- deficiency of the RI/FS contractor to determine appropriate data needs
- failure to document field storage, shipment, and chain-of-custody activities for biological work.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 11 - Env. - CERCLA - 05
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity All

Reference Data Minor Event Report: PO (UT) 89:004 Technical Information Exchange Meeting Minutes of May 16 1989; site manager DOE letter of July 3, 1989 with attachment; Draft TIE minutes of July 18, 1989; WMCO: R: (EC): 89-0196 (MEMO) MER Reports - C (CC): 89-008, PO (ME): 88-029; PO (CH) 88-065; PO (CH): 88-064, PO (UT) 88-064, PO (UT) 88: 016, PO (UT) 88: 012, TD: 88-551, PO (CH) 88-001, PO (CH) 88-029, PO (CH) 88-008, R (WO): 001, R (WO): 89-010, R (WO): 89-013, UOR reports - WMCO:88-008, 88-002, 88-006, 88-023. WMCO:EVP:89-099 letter to FMPC Site Manager, 7/19/89 with attachment. FMPC-DOE Environmental Survey, Sampling and Analysis Data Document, June, 1988 (Draft).

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

There is a failure to consistently determine if reportable quantities (RQs) of hazardous substances (including radionuclides) are released from the FMPC.

Discussion

DOE governs its radiation protection activities under the AEA by a series of internal orders issued under DOE's AEA authority. When such releases of "source, by-product and special nuclear material" are in compliance with the applicable order(s), these releases are federally permitted under CERCLA Section 101(10)K. The DOE order establishing a federally permitted release of radionuclides such as uranium is Chapter XI of DOE 5480.1A, which contains derived concentration guides (DCGs) for release of radionuclides to the environment through air and water.

DOE Order 5480.11 (12/21/88) superseded and effectively cancelled the entire Chapter XI of DOE 5480.1A including the radiation release guides. DOE Order 5400.XX is still in the appeal process; therefore, DOE does not have an order that qualifies DOE radionuclides releases as "federally permitted" (as of 1/1/89; the effective date of 5480.11). Only radionuclide air emissions are federally permitted under NESHAP. Therefore, any non-NESHAP release of radionuclides to the environment equal to or exceeding an RQ in 24-hour periods is not exempt from CERCLA reporting, and must immediately be reported to the National Response Center. This situation is

being addressed at DOE-HQ as a DOE-wide problem. The "fix" to this problem is not expected to be retroactive.

It is, therefore, clearly necessary for facilities to be able to determine whether or not an RQ of a hazardous substance has been released, especially for hazardous substances that do not qualify for the "source, by-product and special nuclear" exemptions.

Minor event reports and unusual occurrence reports were reviewed because they involved actual or potential releases of hazardous substances outside of buildings. The reports generally indicated that when releases occur from process equipment (the normal facility operation equipment), the quantities of substances released could more or less be estimated with some degree of assurance. However, when spills or releases occurred from other than operational equipment or processes, the quantity of hazardous materials was not estimated with a quantifiable degree of assurance. Therefore, it could not be determined just how FMPC knows whether it has released an amount of material equal to or greater than an RQ, or whether a report to the National Response Center is necessary, as required by CERCLA 103.

One recent example that captures both the RQ estimation problem and the lack of federally permitted release authority for radionuclide uranium (due to the cancellation of Chapter XI of DOE 5480.1A) is the effluent line overflow of April 4, 1989, as described in the referenced Technical Information Exchange (T.I.E.) meeting minutes cited above, and PO (UT) 89-004 dated 4/5/89 (an unusual occurrence report for this event was not available at the time of this writing), but WMCO:EVP:89-099 letter to DOE Site Manager from WMCO Executive Vice President (7/19/89), with attached 2nd quarter unusual occurrence report summaries states:

"Analysis of the samples taken from the storm sewer and manhole 175 downstream revealed no unusual amounts of uranium or fluorides present. In the final analysis of the sump water, this event did not involve reportable quantities of uranium or hydrogen fluoride." "STATUS: Awaiting preparation of the Final UOR."

The above statement appears to describe what may have been an incomplete evaluation of how the RQ for uranium (which on the date of the event, and for the 24-hours following the event, was equal to 1 pound) should have been estimated. This incident is more completely described in the T.I.E. and minor event reports. The CERCLA response action was to remove contaminated soils around manhole 180. Based on the data in the T.I.E. report for uranium concentrations in soil samples, it was estimated that at least 0.6 pound of uranium was contained in the soils that were taken away from the site. A potentially substantial amount of uranium remains (35 pCi/g) in an undetermined amount of soil contaminated by the incident. It is not possible, therefore, to state that an RQ of uranium was not involved, and points out one important instance of the inability to accurately estimate a release of an RQ. It is particularly important in this case because the uranium release was not federally permitted on this date (4/4/89) due to the lapse in DOE 5480.1A authority for environmental release of radionuclides.

Tentative Finding(s)

RQs for non-NESHAPs and other non-federally permitted radionuclide and hazardous substance releases has been superseded from FMPC are not adequately determined, and releases are not accurately characterized.

Probable Root Cause(s)

DOE Order 5480.1A Chapter XI, authorizing non-NESHAP releases of radionuclides, has been superseded without reauthorizing releases.

A protocol is not available that indicates when and how all unscheduled releases must be evaluated for exceedance of RQs.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	11	-	Env.	-	CERCLA	-	06
	Aud. ID Number		Team (Env., S&H, M&O)		Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)		Seq. Data Sheet No.

Date 8-19-89Building or Activity Wetlands on the FMPC

Reference Data WMCO:R (RI/FS):89-142 (6-22-89); EPA Memorandum of 8-5-85 "Policy on Floodplains and Wetlands Assessments for CERCLA Actions." EPA OSWER Dir. No. 9355.3-01 (RI/FS Guidance); EPA OSWER Dir. NO. 9285.7-01 and EPA OSWER Dir. No. 9360.03B (Remedial and Removal Guidance Ecological Risk Assessment); S-1 Letter of 6-12-89 to Assistant and Deputy Assistant Secretaries of DOE (Wetlands Assessment). FS WP: Rev.0, (8/15/88) Sec. 5 (ARARS). DRAFT Risk Assessment, Sec. 2 "Potential ARARs for the FMPC". Memo, J. Yeastead to "Distribution" (4/11/89), Subject: "ARARs....RI/FS".

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

A floodplain/wetlands assessment for actions contemplated under the RI/FS has not been conducted.

Discussion

Based on E.O. 11988, "Floodplain Management" and E.O. 11990, "Protection of Wetlands," the EPA Superfund program issued a policy statement on August 5, 1985, that discusses situations that require preparation of a floodplain and/or wetlands assessment. This policy is reiterated and amplified in EPA guidelines for RI/FS "Risk Assessment Guidance for Superfund - Environmental Evaluation Manual," and "Superfund Removal Procedures."

E.O. 11990 requires Federal agencies in carrying out their responsibilities to take actions to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. E.O. 11988 also emphasizes the importance of evaluating alternatives to avoid effects and incompatible development in floodplains, of minimizing potential harm to floodplains if the only practicable alternative requires citing an action in a floodplain, and of providing early and adequate opportunities for public review of plans and proposals involving actions in floodplains. Procedures for a floodplain/wetlands assessment are set forth in Appendix A to 40 CFR Part 6 (NEPA). DOE has further delineated policies and procedures at 10 CFR Ch. X (1/8/88) Subpart B, "Procedures for Floodplain/Wetlands (FP/WL) Review."

The FMPC Site Manager has been advised of a determination by the Hamilton County Soil and Water Conservation District of the U.S. Department of the Interior that there are several locations on the FMPC property that could be classified as wetlands.

Superfund's CERCLA policy indicates that while time-critical removals (e.g., manhole-180 soil removal) are exempt from performing a floodplain wetlands assessment, the On-Scene-Coordinator (OSC) should specify the reasons for not performing the FP/WL in the OSC's report of the removal. At the OSC's discretion, considering the exigencies of the situation, the OSC should consult with the EPA (Chicago) staff where wetlands or floodplains are involved or suspected.

Non-time-critical removals require an FP/WL assessment, which should be performed during the environmental evaluation/cost analysis. WMCO has indicated to the DOE that it intends to include an FP/WL in EE/CAs that WMCO performs. This FP/WL should consider:

- whether the action is located in a floodplain/wetland
- whether the action will affect the floodplain/wetland
- the alternative actions
- measures to minimize potential harm to the floodplain/wetland if there are no practical alternatives.

For DOE removal actions where a floodplain/wetland assessment is performed and is proposed to be in or affecting a floodplain/wetland, the OSC shall document the decision in the OSC's report. This must include a statement of findings that includes:

- reasons for locating action in floodplain/wetland
- affects of floodplain/wetland
- significant facts considered in making decision to locate in or to affect floodplain/wetland, including alternative site
- whether the proposed action meets applicable or relevant and appropriate requirements (ARARs) state or local floodplain/wetland
- description of steps taken to design or modify the proposed action to minimize potential harm
- statement to indicate how the proposed action affects the natural or beneficial values of the floodplain/wetland.

The Superfund policy memorandum should be consulted for details because public notice and public comment are required and in some cases, a Community Relations Plan must be developed for the removal action.

Since a number of potential actions could result from the RI/FS that also could involve impacts to these wetlands areas (e.g., stream rerouting, surface flow alteration, sediment removal, and/or streambed lining operations), a wetlands assessment based on the procedure of 40 CFR Part 6, Appendix A, should be performed.

For remedial response actions, a floodplain/wetland assessment must be incorporated into the analysis conducted during the planning of remedial actions. During scoping of response actions, DOE, in conjunction with the EPA regional 404 staff, should identify any floodplain or wetlands

located within the site area or that could be affected by the response action. If there are no floodplain/wetland either on-site or off-site that could be affected, the feasibility study should so state. If floodplain/wetland are potentially involved in the remedial action, DOE must conduct an assessment of them and be integrated into the feasibility study (see 40 CFR Part 6, Appendix A, for procedures for an floodplain/wetland assessment).

Substantial public notice, public comment, and community relations activities are involved, but most of those can be covered by implementing the Community Relations Plan for the RI/FS. However, floodplain/wetland procedures require several additional public notices (see 40 CFR Part 6, Appendix A), including one early notice.

The wetland section of the RI/FS biological sampling work plan (Section 6.3.1.4) does not address the requirements of an FP/WP, which are listed at 40 CFR, Part 6, Appendix A, and are therefore inappropriate and inadequate to satisfy the floodplain/wetland assessment requirements of NEPA, and cannot be used to integrate the RI/FS with NEPA requirements.

Unlike other identified ARARs in FS:WP Rev.0 (8/15/88), the RI/FS contractor does not have a task manager assigned to these requirements (FS:WP Rev.0, 8/15/88). The issue came to light only through communications between the FMPC Site Manager and WMCO, after a general inquiry by the Secretary of Energy about the potential for wetlands impact of DOE projects. WMCO apparently took the initiative to identify the wetlands designation criteria. WMCO also recognized the need for the CERCLA process to include a wetlands assessment and has informally notified the RI/FS contractor.

Tentative Finding(s)

Wetlands and floodplains could be affected by CERCLA activities at the FMPC, but integration of CERCLA response actions and NEPA requirements has not yet occurred at FMPC with regard to the requirements for a floodplains/wetlands assessment. Removals appear to be on track for coming into compliance.

Probable Root Cause(s)

Training and experience of the RI/FS subcontractor is insufficient in CERCLA/NEPA procedures and wetlands regulations

DOE policy on CERCLA/NEPA integration has not been issued.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 11 - Env. - CERCLA - 07

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity AllReference Data Interviews with WMCO. WMCO: Enclosure 2-Liquid Radiation Discharges, April-June, 1989.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

Release reporting strategy involves a lengthy process that does not result in timely reports to the National Response Center (NRC).

Discussion

CERCLA Section 103 requires "any person in charge of . . . facility" to report releases of hazardous substances equal to or greater than a reportable quantity (RQ) (as determined through regulations published pursuant to CERCLA Section 102), "as soon as he has knowledge of any release . . ." immediately to the NRC.

In interviews with WMCO personnel, it was learned that WMCO never reports directly or immediately to the NRC. When the Assistant Emergency Duty Officer (AEDO) receives notification of a release of any type, the AEDO contacts the "spill advisor" (WMCO, Environmental Compliance). WMCO's spill advisor then tells AEDO of the compliance requirements. The AEDO then contacts QRO to inform of details and of whom needs to be notified. WMCO then will report to Westinghouse corporate, and then checks back with ORO. It could not be determined what, if any, reports are ever made to the NRC by the other parties. FMPC does make quarterly reports to the EPA of all releases. The WMCO Environmental Compliance personnel indicated that the above procedures are the result of ORO guidance.

The CERCLA 103 requirement for "any person in charge" of the facility or vessel releasing a hazardous substance and the requirement that a report be made "as soon as he has knowledge of any release" indicates that timely reports from individuals with precise knowledge of the situation are to be available to the NRC for purposes of evaluating the release. The requirements for report are just that . . . reporting. Action will not necessarily be required; however, EPA (40 CFR 302) has made it clear that the hazard evaluation and the decisions on whether and/or

how to proceed with further evaluations and/or actions are to be made by the NRC (in situation where NRC has the legal authority; i.e., for release of hazardous substances greater than or equal to an RQ in 24 hours). To accomplish this goal, NRC must have accurate, timely reports. A facility subject to CERCLA 103 reporting requirements cannot decide that a release of an RQ or more of a reportable substance does not have to be immediately reported to NRC just because actions have been taken in the interim or other parties have been notified.

Based on the discussion in 11-ENV-CERCLA-05, radionuclide releases and other releases of hazardous substances from FMPC in amounts greater than or equal to an RQ in 24 h may indeed have been subject to CERCLA 103 reporting requirements for most of 1989 to date. Appropriate reports to the NRC are, as was said, not made by personnel in charge of FMPC, per se, but rather to ORO, which is "in charge" of FMPC due to ORO's oversight responsibility at FMPC.

Tentative Finding(s)

Reporting releases of hazardous substances is cumbersome.

Probable Root Cause(s)

Understanding of the risk evaluation role of NRC and its statutory responsibility is insufficient.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 15 - Env. - GW(CERCLA) - 06

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity RI/FS

Reference Data 1.) Interviews with RI/FS subcontractor personnel July 17 - August 14, 1989;
2.) USDOE, 1988, Remedial Investigation and Feasibility Study, Feed Materials Production Center,
Volume II: Health and Safety Plan, Revision 3.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Action levels for radioactivity are not clearly stated in the RI/FS Health and Safety Plan (HSP).

1	2	3	4	5
—	—	—	X	—

There is insufficient training of RI/FS subcontractor personnel regarding the HSP.

Discussion

During the observation of RI/FS drilling activities, personnel were queried about procedures that would be followed in the event that a soil sample obtained from the drilling process was found to be radioactively contaminated. The field personnel were not aware of any procedures or action levels that had been established for the situation where radioactivity above background was encountered. Review of the HSP indicated that, indeed, no levels have been established at which a sample should be considered significantly radioactive. (Note that this is independent of the personal monitoring required under the HSP).

Field personnel were further queried with regard to what level of organic vapors in the breathing zone constituted a level at which a response was required. Two answers were given: the first was 20 ppm and the second was 5 ppm. However, it was deemed appropriate to proceed with drilling activities with organic vapor concentrations less than 5 ppm in the breathing zone. It appears that field personnel are not familiar with HSP requirements. The HSP has specific requirements and action levels established for organic vapors. In addition, drillers were observed fully bearded and obviously unable to utilize air purifying respirators.

Tentative Finding(s)

Health and safety procedures are not fully established and implemented for certain aspects of the field activities.

Probable Root Cause(s)

Lack of supervision and training exists.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 15 - Env. - GW(CERCLA) - 07
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/A

Reference Data 1.) USDOE, 1988, Remedial Investigation and Feasibility Study, Feed Materials Production Center, Volumes I, II and V, Revision 3 and Work Plan Addendum Section 4.2.1.7, Facilities Testing Work Plan, November, 1988; 2.) Geraghty & Miller, Quality Assurance Data Reports: 88-083, 88-084, 88-127, 88-128, 88-227, 88-234, 88-284, 88-336, 89-044, 89-046, 89-047, 89-048; 3.) Bendula, 1989, OEPA, personal communication; 4.) Nelson, 1989, ASI, personal communication.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

General inadequacies exist in well installation, decontamination, and documentation practices.

Discussion

Recent QA surveillance reports prepared by Geraghty & Miller suggest that a number of deviations from the work plan requirements have been documented. These have included items such as:

- lack of documentation on logs
- incorrect log entries
- incorrect sampling techniques
- improper decontamination of equipment.

All audits and EPA comments appear to have been addressed, and the facility testing work plan is currently being revised.

However, based on the July 27-28, 1989, observations, potential problems still exist with the procedures specified in the RI/FS Work Plan with respect to decontamination of the submersible pump. Deionized (DI) water alone is used for the decontamination of the submersible pump when the pump is not "visibly contaminated." The use of 5 gallons of DI water alone is probably not adequate to truly decontaminate the pump, and is generally contrary to accepted practice. OEPA has indicated that this procedure is not acceptable.

In addition, observations of the installation of the piezometer at Boring 1234 were made. These observations indicated that the intent of the requirements of the work plan may not have been met in the following areas:

- Drillers proceeded with the installation of the piezometer without the presence of the on-site Advanced Sciences Inc. geologist, even after being specifically instructed not to begin without him being present. Fortunately, the first attempt at installing the piezometer was unsuccessful, which allowed the geologist to return for the installation.
- The sand pack was not entirely placed around the screened section of the piezometer because it was necessary to insert the piezometer into caved material at the bottom of the boring.

Tentative Finding(s)

Results of subsequent samples and analyses may be questionable.

Probable Root Cause(s)

Technical guidance and training are not sufficient in some areas related to the RI/FS field investigation.

Clean Air Act (CAA)

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 04 - Env. - CAA - 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Gasoline Pumps-Engine House Garage (Outside Building 31)Reference Data Direct Observations, 7-25-89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The gasoline pumps are not labeled.

Discussion

40 CFR 80.22 (d and e) require labels on each gasoline pump stand. Both pumps at FMPC (outside Building 31) should be labeled "UNLEADED GASOLINE" and "Federal law prohibits the introduction of any gasoline containing lead or phosphorous into any motor vehicle labeled "UNLEADED GASOLINE ONLY". When observed by a Tiger Team member on July 25, 1989, no labels were present on either pump.

Tentative Finding(s)

Labeling of gasoline pumps is deficient.

Probable Root Cause(s)

Probable root causes include incomplete knowledge of regulations and inadequate oversight by environmental compliance staff.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 04 - Env. - CAA - 02
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Ambient Air Monitors

Reference Data Direct Observations, 7-25-89. Letter, W. Franz (USEPA) to J. A. Reafsnyder, May 3, 1989; Letter, J. A. Reafsnyder to W. Franz, October 16, 1989; Letter H. W. Christiansen (WMCO) to J. M. Reafsnyder May 19, 1988.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Air monitoring stations are sited poorly.

1	2	3	4	5
—	—	—	X	—

Air monitoring stations are maintained poorly.

1	2	3	4	5
—	—	X	—	—

Air samples are dried improperly.

Discussion

Siting of several stations is improper. Stations AMS-11 (Crosby School) and AMS-13 (Elda School) are not the proper elevation 2 m above ground level. Stations AMS-1, AMS-5, and AMS-7 (perimeter monitors) are shielded from FMPC emissions by trees (siting criteria in 40 CFR 58 specify minimum distances from such obstacles). Siting problems were indicated by EPA in a letter from W. Franz to J.A. Reafsnyder on May 2, 1987. The problem of improper elevation was estimated to be corrected by February 1988 in the October 16, 1987, reply from J.A. Reafsnyder to W. Franz. DOE was advised by letter from H.D. Christiansen to J.A. Reafsnyder, May 19, 1988, that "work has been completed and all FMPC air monitoring stations are now in compliance with applicable EPA siting criteria." In reality, some stations had not been raised to the proper elevation and the impact of trees had never been addressed. EPA regulations

(40 CFR 58, Appendix E) specify a minimum elevation of 2 m above ground level for siting particulate monitors. DOE Draft Order 5400.XY (6/15/89) also specifies 2 m as the recommended elevation.

Frequent pump failures result in loss of data. During the July 25, 1989, inspection of air monitoring stations by Tiger Team members, 5 of the 14 stations were out of service because of pump failures. Inclement weather had some effect; however, one station (AMS-8) had been out of service for over 72 hours.

Inadequate drying of samples (and filters prior to use) can distort data. Regulations in 40 CFR 50, Appendix B, specify drying conditions (24 hours at relative humidity less than 50% varying by not more than 5% and temperature of 15 to 30°C varying by not more than 3°C. Room 53-237, where the samples are conditioned, is dehumidified, but has no temperature control and no continuous humidity or temperature recording.

Tentative Finding(s)

Ambient air quality data are suspect because of poor attention to recommended quality control specifications.

Probable Root Cause(s)

No periodic review is apparent of quality control of air monitoring station data. There is poor verification of completion of work.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 04 - Env. - CAA - 03

Aud. ID Number
Team (Env., S&H, M&O)
Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)
Seq. Data Sheet No.

Date 8-19-89Building or Activity Reservation

Reference Data Letter "Status of Permits," J. A. Reafsnyder to J. A. Ford, 6-27-89. Letter "Ohio EPA Permits to Operate Required Equipment," J. A. Reafsnyder to M. B. Boswell, March 30, 1989. Letter, David Kee (USEPA) to J. A. Reafsnyder, 2-23-89 "Finding of Violation".

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Numerous sources at the FMPC lack proper permits to operate.

Discussion

A recent status report shows about 47 FMPC sources have never received permits to operate. An additional 135 to 140 permits to operate have not been renewed. Many of these can operate because the Federal Facility Compliance Agreement (FFCA) allows operation while Ohio EPA (OEPA) is reviewing the application. This waiver applies only to applications filed before March 18, 1987, and also does not apply to facilities requiring National Emissions Standards for Hazardous Air Pollutants (NESHAPs) permits.

Fourteen (of the 47) sources also require approval under NESHAPs. Since OEPA does not have primacy under NESHAPs, approval is handled by EPA Region V. Several of these facilities and others have been operated without proper permits and/or approvals. Examples include the West Separation Booth in Plant 5 (operated intermittently during 1987, 1988, and 1989), permit issued July 21, 1989; the gasoline storage tanks outside Building 31, permit expired April 11, 1989, new permit issued June 2, 1989; and seven Plant 6 milling machines cited by EPA (ref. letter February 23, 1989) for failure to obtain timely approvals for modifications.

Tentative Finding(s)

Some facilities have been operated without permits.

Probable Root Cause(s)

There is no single department with authority for directing permitting activities. Lack of permits was not previously thought to be a basis for shutdown.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 04 - Env. - CAA - 04
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity SiteReference Data Interview with Manager, Dust Collector Projects, August 4, 1989.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Many stack samples are not collected under representative conditions.

Discussion

At FMPC significant sources are required by permits to have isokinetic sampling to ensure that representative samples are obtained. Draft DOE Order 5400.XY requires isokinetic sampling. Oak Ridge Implementing Order 5484.1 (May 5, 1982) states: "Reference (O) of DOE Order 5484.1 implies that stack sampling should be isokinetic and probe placement carefully considered to obtain representative sampling."

Isokinetic sampling requires that a sample be taken by probes of specified shape and that the velocity of the sample stream be identical to the stack velocity. The FMPC sample probes are not the specified shape, and no estimate of current stack velocity is available to operators who periodically adjust sample velocity. This is only likely to be significant when damaged bags result in increased flow. During such times, erroneously low results are probable with larger particles blowing past the sample probe.

Recently, new monitors have been placed on a small number (five) of stacks to provide representative sampling. These samplers are in full compliance. In addition, newly developed samplers will be installed on nine wet sources that were not previously monitored.

This leaves about 56 stack monitors with nonisokinetic samplers. These sources, if operated, would not be in full compliance with permit conditions.

Tentative Finding(s)

Most stack samples at FMPC are not taken under representative conditions.

Probable Root Cause(s)

Low priority is assigned to stack sampling. There is an inability to judge applicability of existing or proposed guidance.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 04 - Env. - CAA - 05
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity SiteReference Data History of EMPC radionuclide discharges addendum to FMPC-2082, March 1989.
(Table 1, page 4).**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Unscheduled and fugitive releases are significant sources of radionuclide air emissions.

Discussion

Unscheduled and fugitive emissions have increased in importance as stack emissions have been decreased. Unscheduled releases and fugitive emissions recently (1985-1988) account for over 70% of total FMPC releases. In the early years of operation (1951-1977), this percentage was less than 25%. In the intermediate years (1978-1984), the percentage was about 35%. This is largely because of the decrease in stack emissions from 4900 kg/yr during 1951 through 1977 to 295 kg/yr during 1978 through 1984 to 63.5 kg/yr during 1985 through 1988.

Unscheduled releases during 1987 and 1988 have varied in size (and in importance) from the gulping releases (e.g., 200 kg in 1987 and 65 kg in 1988) to others that are so small (e.g., the October 1988 uranium chip fire in Plant 6) that no off-site release occurred.

FMPC has made an intensive effort recently to review past releases (see referenced report) and to estimate the quantities of releases from past unmonitored activities. The impact of this study and ongoing reviews of unscheduled releases is difficult to predict.

Tentative Finding(s)

Unplanned and fugitive releases are not being reduced and have become a significant portion of FMPC radionuclide releases.

Probable Root Cause(s)

Incomplete analysis of potential sources.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 04 - Env. - CAA - 06
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Boiler PlantReference Data Quarterly Reports: "Excess Opacity Report and Coal Analysis Report." Reports 1987, 1988, First and Second Quarter 1989.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

A program at the Steam Plant results in an excellent air emission compliance record.

Discussion

Compliance with air emission limitations at the FMPC Steam Plant is excellent. Emissions of total suspended particulates average well below the permit limitation of 0.06 kg per million Btus. Sulfur dioxide permit limitations of 0.9 kg per million Btus are accomplished by purchasing only coal with a sulfur content below 1.0%. The 1987-88 purchases average about 0.7% to 0.8%. For reference, compliance would be marginal at a sulfur-in-coal content of 1.3%.

Most remarkable, however, is the record of compliance with respect to visible emissions (opacity). Opacity is monitored continuously (as 6-minute averages) at the FMPC Steam Plant. Ohio regulations allow no 6-minute average opacity over 60%. In addition, opacity above 20% is allowed only for 6 minutes in any 60-minute period. From 1987 to June 1989, FMPC averaged excursions above either 60% for 6 minutes or 20% for two consecutive 6-minute periods only 2.1 times per month. Therefore, excursions average only 12.6 minutes per month.

Tentative Finding(s)

The air emission compliance record at the FMPC Steam Plant is excellent.

Probable Root Cause(s)

Management attention to details results in an excellent attitude by all Steam Plant personnel.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 04 - Env. - CAA - 07
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity K-65 SilosReference Data Direct observation (8-01-89)**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Elevation of radon monitors leads to uncertain detection of releases.

Discussion

Real-time radon monitoring, which would provide the only early warning of a large radon release, is conducted only at ground level. Therefore, any larger than normal release occurring other than during atmospheric inversions would probably pass over the monitors and not be detected. The numerous (29 mentioned in the 1988 Annual Monitoring Report) sampling stations, where samples are taken to document quarterly averages, provide no early warning.

The real-time radon monitors were installed because they "are expected to provide data for estimating occupational doses near the K-65 silos" (Environmental Monitoring Annual Report 1988). Real-time radon monitors provide no advantage as an early warning alarm without studies to determine optimum sampling elevations.

Tentative Finding(s)

Large radon releases would not be promptly detected.

Probable Root Cause(s)

No studies have been performed to determine best elevation(s) for radon monitors. The potential for an unscheduled release has not been properly evaluated.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 04 - Env. - CAA - 08
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity AllReference Data Interviews with DOE-FMPC personnel and WMCO Managers of Operations support both on 8/7/89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

No particle-size distribution measurements are conducted.

Discussion

Particle-size distributions are not determined annually at FMPC. DOE Order 5400.XY (draft) requires annual particle-size testing of emissions if the projected dose equivalent exceeds 1 mrem effective dose equivalent or 15 mrem to the skin of off-site individuals or 10 person-rem collective effective dose equivalent within a radius of 80 km. In 1988 the projected dose equivalent was 2.9 mrem and the collective effective dose was 59 person-rem.

During 1985 FMPC measured particle sizes at 15 major dust collectors. Samples were collected from the inlet and outlet ducts. Dust from collector bins also was sampled. Although outlet duct sizes varied from 0.72 to 9.8 microns (14 of 15 values were above 1.0 micron), the conservative estimate of 1.0 micron is used in modeling. Some of the 1985 measurements are suspect because results (on 5 of 15 dust collectors) indicate a larger particle size in the outlet stack compared to the inlet.

Tentative Finding(s)

Annual particle-size distribution measurements are not conducted. These data were not previously recognized as useful by WMCO.

Probable Root Cause(s)

There are incomplete quality assurance procedures for the air monitoring program.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 04 - Env. - CAA - 09
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity AllReference Data Direct observation and an interview with DOE-FMPC, 8-07-89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

No complete inventory of nonradioactive air emissions has been performed.

Discussion

No comprehensive air emission inventory has been conducted at the FMPC. Some states or counties require (Ohio does not) such an inventory annually because of its value in 1) guiding management and agencies in the need for controls and 2) trends in emissions from sources not requiring permits.

Ohio requires estimates to be submitted quarterly or annually on some emissions related to criteria pollutants (e.g., SO₂ from coal burning and volatile organics from gasoline transfers). In addition, SARA 313 (40 CFR 372) requires reporting of releases of compounds from a list of about 330 chemicals. FMPC submits timely reports of these estimates. Emission estimates of other chemicals would provide assurance that substantial emissions do not occur without management attention.

Tentative Finding(s)

No air emission inventory has been prepared.

Probable Root Cause(s)

Nonradioactive emissions are given low priority.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 04 - Env. - CAA - 10
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity AllReference Data Interview with Manager, Chemical Analysis 8-03-89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Inappropriate analytical procedures are used for total suspended particulate stack analysis.

Discussion

Analyses of stack samples are not analyzed for particulate matter according to required procedures. Filters are ashed rather than dried to constant weight as required by specified analytical procedures. The high temperatures required by ashing result in lower weights because some species are changed in composition. Drying at 105°C is required by Ohio Administrative Code 3745-17-01(B)(11) and 40 CFR 60, Appendix A, when analyzing for particulate matter.

Ashed results are available in less time than the dried results. Analytical accuracy of uranium contents are unaffected. Considering that samples are collected over a minimum period of 7 days, the faster availability of results appears insignificant.

Studies comparing the results by the modified procedure with those from the standard method might reveal a direct relationship that could be used to petition Ohio EPA to qualify the use of the modified procedure.

Tentative Finding(s)

Improper analytical procedures are used for stack analysis.

Probable Root Cause(s)

Nonradioactive emissions are given low priority.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 04 - Env. - CAA - 11

Aud. ID Number
Team (Env., S&H, M&O)
Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)
Seq. Data Sheet No.

Date 8-19-89Building or Activity Scrap pileReference Data Interview with Manager, Waste Operations 8-4-89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Advance notice to Ohio EPA is not given on minor asbestos projects.

Discussion

Normal FMPC procedure requires that no notifications be given to agencies when moving or packaging (for disposal) materials containing asbestos. Standard procedures are used to minimize air emissions. National Emission Standards for Hazardous Air Pollutants (NESHAPs) (40 CFR 61, Subpart M) and Ohio Administrative Code 3701-34 require advance notice to the appropriate agency; i.e., the Southwest Ohio Air Pollution Control Agency (SWOAPCA). Since the placement and storage of asbestos in the scrap pile have breached regulations, agency notification is mandatory. FMPC has made routine agency notifications when asbestos demolition projects are initiated. The SWOAPCA asserts that it requires notification. This is reasonable since the repackaging is the final step in a demolition project.

Tentative Finding(s)

Some asbestos projects are conducted without agency notification.

Probable Root Cause(s)

Fugitive emissions are given low priority.

**Clean Water Act (CWA) And
Safe Drinking Water Act (SDWA)**

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 03 - Env. - SDWA - 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Water Plant - drinking water samplingReference Data Letter from R. Brown, OEPA to J. Reafsnyder, DOE re: Major Non-Community Water Supply, October 19, 1987.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

There is a noncompliance with Ohio Administrative Code (OAC) 3745-81-23 (lack of nitrate monitoring for drinking water).

Discussion

The FMPC derives all of its water for plant use from three production wells that are located on the site. In October 1987, the water system at the FMPC was identified as a major noncommunity drinking water supply according to OAC 3745 since it services a population greater than 1000 people. The facility is required to submit Ohio Environmental Protection Agency (OEPA) Form 5003 for the analyses listed for the "groundwater, lime softening" column. These samples must be analyzed by a certified laboratory. The FMPC uses Environmental Enterprises Inc., Cincinnati, Ohio, for most analyses; Q Laboratories, Cincinnati, Ohio, performs the coliform analysis. The required daily analyses include:

- alkalinity--phenolphthalein
- alkalinity--total
- chlorine--free and total
- hardness
- phosphate
- pH.

In addition, the facility is required to submit weekly analyses for alkalinity stabilization, monthly analyses for phosphate, and quarterly analyses for coliform bacteria.

The 1987 inspection report specified that nitrate analyses are required every 5 years for noncommunity water supplies, but that the frequency is subject to change as deemed necessary by the OEPA. The report also stated that the OEPA would be collecting the nitrate sample in the near future. This sample was apparently never collected according to FMPC Utilities personnel, who subsequently informed OEPA. The OEPA indicated that this sample should be taken every 3 years. Utilities personnel indicated that the required sample would be collected by FMPC personnel in the near future and submitted for analysis.

The FMPC has performed nitrate analysis of its production wells, however, as part of its routine groundwater monitoring program. The latest sampling results (for samples taken in February 1989) indicate that all nitrate analyses (i.e., nitrate and nitrate-nitrogen) have been below the drinking water limit of 10 mg/L.

The 1987 inspection report also indicated that the untreated well water was to be sampled for radiological parameters by the OEPA. It is not known whether these samples were ever collected.

Tentative Finding(s)

The FMPC has failed to comply with the drinking water regulations specified in OAC 3745-81-23 for the analysis of its drinking water supply for nitrates.

Probable Root Cause(s)

There was poor communication between the OEPA and the FMPC regarding drinking water.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 03 Env. CWA 02

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity On-/off-site water and sediment sampling

Reference Data Direct observations on July 27 and 28, 1989; FMPC Environmental Monitoring Annual Report for 1988, June 1989; SOP-Environmental Surface Water Sampling (ESH-P-52-016), July 1, 1987; SOP-Environmental Sediment Sampling (OSH-P-52-007), March 6, 1989; SOP-Sampling FMPC Water Supplies (43C-324), June 26, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

There are inadequate sampling techniques in use.

Discussion

The FMPC sampling program for water pathways includes National Pollutant Discharge Elimination System (NPDES) sampling, environmental sampling, routine sampling, and groundwater sampling. The groundwater sampling procedures are addressed in data sheet 15-03. The NPDES sampling program includes seven effluent locations: two primary outfalls (numbered 001 and 002) and five secondary outfalls (numbered 001A through 001E). The five secondary outfalls all flow into manhole 175 (outfall 001), which is the final sampling point prior to discharging into the Great Miami River. Outfall 002 is located at the effluent from the stormwater retention basin (SWRB), which overflows to the storm sewer outfall ditch (SSOD). The SSOD, in turn, discharges into Paddy's Run during rainfall events.

The environmental sampling program includes surface-water and sediment sampling on the Great Miami River and in Paddy's Run, and sediment sampling in the SSOD to Paddy's Run. Three locations are sampled on the Great Miami River for surface-water samples: one is upstream of NPDES outfall 001 and two are downstream of the outfall. On Paddy's Run, six locations are sampled for surface water (when water is present): one upstream of the FMPC, one downstream of the FMPC, and four on FMPC property.

For sediment monitoring, nine locations are sampled on the Great Miami River, extending from above the FMPC outfall to the mouth of Paddy's Run. Samples from Paddy's Run are collected at 100-m intervals north of the SSOD and at 200-m intervals south of the SSOD to the confluence of Paddy's Run with the Great Miami River. Samples in the SSOD are collected at 100-m intervals.

Routine sampling includes those locations that are monitored for the NPDES program. These locations are sampled daily for use by the Water Plant and the Health and Safety group to assess FMPC operations, although the parameters are often different from those required by the NPDES permit. The NPDES parameters are not often analyzed at more frequent intervals than required by the permit. If they are, the analyses are usually performed at an on-site laboratory other than that which performs the NPDES analyses. If the NPDES parameters are run by the laboratories that do the NPDES analyses at a higher frequency than that required by the permit, they are reported in the monthly NPDES monitoring report as required by 40 CFR 122.41 (1) (4) (ii).

The procedure for the routine water sampling and for the NPDES sampling are specified in standard operating procedure (SOP) ESH-P-52-016, Environmental Surface Water Sampling. The procedure for the sediment sampling is in OSH-P-52-007, Environmental Sediment Sampling. A third SOP (43-C-324, Sampling FMPC Water Supplies) is published by the Operations Department. This SOP specifies the sample locations, frequencies, etc., but does not specify the procedure itself.

Numerous inadequate sampling techniques were noted during observation of the routine water sampling and annual sediment sampling. The proper techniques were either specified in the SOPs and not being followed, or were not specified in the SOPs at all. The water sampling locations observed included the storm sewer lift station, manhole 175, the sewage treatment plant ultraviolet (UV) unit, and the Miami River at New Baltimore and the Venice bridge. Sediment sampling was observed on Paddy's Run, beginning at the confluence with the SSOD (at 000 m) to the north for approximately 800 m. Sampling in this reach of the creek is performed every 100 m. The inadequate techniques that were observed for the water sampling included the following:

- sample times not on containers
- samplers not wearing gloves
- no field/trip blanks prepared (except for NPDES samples)
- poor dissolved oxygen sampling procedure (river sample was aerated while pouring from bucket)
- sample bucket not prerinsed prior to collecting first sample
- no thermometers (composite water samplers)
- Chain of custody times not correct/not completed in field (against SOP)
- Chain of custody broken for some samples delivered to laboratory (against SOP)
- No field logbooks (against SOP).

For sediment sampling, the inadequate techniques noted included the following:

- sample times not on containers
- samplers not wearing gloves (against SOP)
- acid and water used for decontaminating equipment washed onto ground instead of being collected (against SOP)
- trowels used to collect samples not wrapped between sampling locations to prevent contamination (against SOP).

The SOP for sediment sampling also requires that "...affected personnel are informed or trained to the extent necessary prior to implementation of that work." One of the sediment samplers was trained in surface water sampling, groundwater sampling, and chain-of-custody procedures, but none of the three people performing sediment sampling have been trained specifically in the sediment sampling procedure, according to records retained by the Human Resources Department Training Section. No training information was documented in the records for the two other people performing sediment sampling. These two samplers were observed to be given instructions prior to and while collecting the samples in the field.

SOP 43C-324 for water also requires training for sampling personnel. The person performing the surface water sampling was trained in 1987 for surface-water sampling procedures. However, no records of periodic refresher training courses were found for any of the four samplers involved in surface water and sediment sampling.

Tentative Finding(s)

The NPDES and environmental monitoring sampling procedures are not being followed and, in some cases, are not complete for on-site water and off-site water and sediment sampling.

Probable Root Cause(s)

Insufficient knowledge exists to prepare complete and applicable SOPs.

Samplers do not take SOPs with them while sampling.

Oversight is inadequate to ensure correct sampling techniques.

Initial training and/or refresher training are inadequate or nonexistent.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 03 - Env. - CWA - 03
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-22-89Building or Activity Ultraviolet unit, general sump

Reference Data Direct observations on July 26 and 27, 1989; SOP-General Sump Operation (43C-701), September 26, 1983; SOP-General Sum Operation (43C-701)-Draft, October 5, 1988; SOP-Water Treatment Plant Operation (43C-301), June 23, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

An SOP is nonexistent for the UV unit.

1	2	3	4	5
—	—	—	X	—

A current SOP is not available at the general sump.

Discussion

SOPs should be available at each work station where either routine operations or maintenance functions are performed. This is necessary to enable these functions to be performed correctly and consistently each time and to ensure reproducible results.

Two instances were discovered at the FMPC that dealt with problems with SOPs for operations and maintenance activities. The first deviation deals with the UV unit for treating the effluent from the sewage treatment plant (STP). Although SOP 43C-301 (rev. June 23, 1989; Items 7-16-18 and 7-16-19) indicates that the panel board indicators should be checked and a sample obtained at the sample cock, the procedures for doing so are not detailed in an SOP. As stated above, an SOP should exist for those performing the routine operation, checks, and maintenance of the UV unit, as well as for obtaining the sample from the sample cock. The SOP should be available at the UV unit to enable personnel to refer to it as needed. A logsheet was posted next to the UV unit for personnel to record the date that the unit was cleaned, which is supposed to be weekly according to water plant personnel. The last date listed on the log, however, indicated that the unit was last cleaned on May 24, 1989. The dates previous to this were April 3 and March 7, 1989.

The second deviation with respect to SOPs involves the general sump. During an inspection of the area, it was observed that the SOP (43-C-701, rev. September 26, 1983) in the control room was out of date (i.e., it described a procedure for routing of the solids from Tank 12 to Pit 4, the latter of which has been out of use for a number of years). FMPC personnel indicated that the SOP has been revised and a draft version should have been present. The assessment team was later provided with the draft version dated October 5, 1988. This SOP has not yet been formally issued in final form.

Tentative Finding(s)

Current FMPC SOPs for operations and maintenance are unavailable at facility locations or, in some cases, have not been written.

Probable Root Cause(s)

The probable root causes are the following:

- inadequate communication/notification of change in operations
- poor tracking of revisions to/distribution of SOPs
- inadequate resources.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 03 - Env. - CWA - 04
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-22-89Building or Activity NPDES location 001B/C (general sump/clear well)Reference Data FMPC Environmental Monitoring Annual Report For 1988, June 1989; monthly NPDES monitoring reports, January 1988 - May 1989; NPDES Permit Application, August 1, 1988.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

There is noncompliance for NPDES 001B/C permit requirements [Permit No. OH 0009580; total suspended solids (TSS) and iron limit exceedances].

Discussion

Outfall 001B/C is reported as a combined outfall for the general sump / clear well, respectively, under the FMPC NPDES permit. The general sump consists of a number of tanks used for the treatment of the FMPC's process wastewaters. Wastewaters from the various plants are routed to the general sump for treatment prior to discharge to manhole 175.

In the past, process wastewaters were directed from Pit 5 to the clear well. In 1987, the Pit 5/clear well operation was replaced by the BDN facility as a result of the OEPA Director's Findings and Orders of June 26, 1987. The clear well currently only receives stormwater runoff from the pit area. Discharge from the clear well is directed to the biosurge lagoon (BSL). During 1987-1988, the BSL was out of service to enable its liner to be upgraded. While this occurred, two temporary tanks were put into service to hold the wastewaters normally discharged to the BSL.

During periods of heavy rain, the clear well reaches its capacity, and must be pumped out rather than overflow to Paddy's Run as per the OEPA Director's Findings and Orders. The rains, however, likely cause the sediments and solids to become suspended, resulting in high TSS and iron concentrations at the outfall from the clear well.

NPDES violations occurred in 1988 and 1989 for the combined effluent from outfalls 001B and 001C. During this period, with one exception for iron, only TSS violations have been noted. These violations were caused by the heavy precipitation that required discharges from the clear well to prevent its overflowing.

Tentative Finding(s)

FMPC has violated its NPDES permit limitations for TSS during 1988 and for TSS and iron in April 1989 at combined NPDES outfalls 001B/001C for the general sump/clear well.

Probable Root Cause(s)

There was inadequate planning of required settling capacity for clear well discharges during periods of heavy rainfall.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 03 Env. CWA 05

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-22-89Building or Activity NPDES location 001E (BDN unit)

Reference Data FMPC Environmental Monitoring Annual Report for 1988, June 1989; NPDES monthly monitoring reports, January 1988 -May 1989; FMPC NPDES Compliance Strategy for Process Wastewaters, August 31, 1987; FMPC NPDES Permit No. OH 0009580, October 2, 1980; FMPC Draft NPDES Permit, July 17, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

There is noncompliance for NPDES 001E permit requirements (Permit No. OH 0009580; nitrate-nitrogen limit exceedances).

Discussion

To reduce its nitrate discharges, the FMPC was required by its 1980 NPDES permit to operate a bioreactor beginning July 1, 1984. Due to delays attributed in part to a lack of funding, however, the FMPC did not conduct a demonstration-scale test of its BDN unit until March 2 to July 2, 1987. The unit has been operating at essentially one-half of its four-tower bioreactor production capacity since that time. Effluent from the facility is discharged to Tank 8 at the general sump for aeration, then to a box clarifier for settling of suspended solids, and finally to the STP, which discharges to manhole 175. The influent to the unit is from the BSL or two temporary tanks that hold high-nitrate and low-nitrate waste streams for influent blending/equalization.

The major producers of high-nitrate wastewaters at the FMPC include the digestion, extraction, and denitration operations that occur in Plant 2/3. On June 30, 1988, the gulping system in Plant 2/3 was shut down. This date is the last day any significant operations occurred that would produce high-nitrate wastewaters. The processing of the remaining high-nitrate wastewaters was completed on July 15, 1988.

The BSL was upgraded during 1987-1988 for the installation of a second flexible membrane liner and a leak detection and collection system. During 1988, the NPDES limits for nitrate-nitrogen (124 kg/d maximum, 62 kg/d monthly average) were complied with only 77% of the time. This

was reported to occur for a number of reasons (i.e., high-nitrate influent, methanol feed problems, heavy precipitation, and use of the temporary tanks while the BSL was under construction, which provided less buffering capacity). The BDN unit also caused noncompliances at the STP (see related Data Sheet 17-01).

No NPDES violations have been noted at the BDN unit outfall during the first 5 months of 1989. It is unknown whether this is due to the lack of production of significant quantities of high-nitrate wastewaters or due to the BSL coming back on line. The full-scale BDN facility is scheduled to be constructed between February 12 and June 1, 1990.

Tentative Finding(s)

FMPC has violated its NPDES permit limitations for nitrate-nitrogen during 1987 and 1988 at outfall 001E, the effluent from the BDN unit.

Probable Root Cause(s)

There was inadequate funding to build the BDN facility by the date specified in the 1980 NPDES permit.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 03 - Env. - CWA - 06
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-22-89Building or Activity NPDES location 001 (manhole 175)

Reference Data FMPC Environmental Monitoring Annual Report for 1988, June 1989; Consent Decree between State of Ohio and USDOE, December 2, 1988; FMPC NPDES Permit No. OH 0009580, October 2, 1980; monthly NPDES monitoring reports, January 1988-May 1989; NPDES Permit Application, August 1, 1988.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

There is noncompliance for NPDES 001 permit requirements (Permit No. OH 0009580; TSS limit exceedances).

Discussion

The FMPC is currently operating under NPDES permit No. OH 0009580 that expired on February 1, 1985. The permit was issued by the U.S. Environmental Protection Agency (EPA) on October 2, 1980. On January 28, 1983, authorization was given to the OEPA to regulate the Federal facilities NPDES program. Under the 1980 permit, the FMPC was required to construct a facility by 1984 to reduce its nitrate levels to meet permit limits. Due to a lack of funding, the facility was not constructed by this date. The FMPC submitted an application to renew its NPDES permit in 1984, but OEPA would not act on it because of the noncompliances with the existing permit.

On July 18, 1986, a Federal Facilities Compliance Agreement (FFCA) was reached between EPA Region V and DOE that required various measures to be initiated to ensure compliance with the various environmental regulations, including the Clean Water Act (CWA). On June 26, 1987, the OEPA issued the Director's Findings and Orders that addressed wastewater/runoff issues, with accompanying schedules for compliance. The Director's Findings and Orders were incorporated into the Consent Decree reached between the State of Ohio and DOE on December 2, 1988. The Consent Decree requires that DOE "...make every effort to manage its wastewater in such a way as to comply with the biochemical oxygen demand, suspended solids, and fecal coliform limitations of its present NPDES permit" until the OEPA issues a new NPDES permit for the FMPC. The FMPC submitted an application for a new NPDES permit on August 1, 1988. The Draft NPDES Permit was issued by OEPA on July 17, 1989, and will be finalized pending public comment and approval by EPA Region V.

The NPDES permit for the FMPC currently regulates two primary outfalls: 001 and 002. Outfall 001, located at manhole 175, receives influent from five other outfalls: outfalls 001A through 001E. Outfalls 001B and 001C are combined and reported as one location. Outfall 001 discharges to the Great Miami River.

During 1988, the FMPC met the NPDES daily maximum and monthly average permit limits more than 88% of the time for outfall 001. However, noncompliances were noted at all six compliance points for at least one parameter during this period. Violations were noted at outfall 001 for TSS. Violations also were noted at all other outfall locations that discharge to outfall 001 for TSS, except outfall 001E (the BDN unit) which does not have a TSS limit. The overall cause of the TSS violations at outfall 001 appears to be due to rainfall causing high TSS levels at the secondary outfalls that then contribute to TSS levels at outfall 001. Violations also have been noted for TSS at outfall 001 during 1989.

Tentative Finding(s)

The FMPC has violated its NPDES permit limitations for TSS during 1988 and 1989 at manhole 175 (NPDES outfall 001), the final monitoring point at the FMPC prior to discharge to the Great Miami River.

Probable Root Cause(s)

There is inadequate planning to control flows during rainfall events.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 03 - Env. - CWA - 07

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-22-89Building or Activity NPDES location 001D (storm sewer lift station)

Reference Data FMPC Environmental Monitoring Annual Report for 1988, June 1989; monthly NPDES monitoring reports, January 1984-May 1989; Letter from M. Burt, OEPA to J. Reafsnyder, DOE, September 29, 1988; Letter from J. Reafsnyder, DOE to T. Winston, OEPA, December 15, 1988.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

There is noncompliance for NPDES 001D permit requirements (Permit No. OH 0009580; TSS limit exceedances).

Discussion

Most of the storm sewers at the FMPC discharge to the manhole-34 lift station. The effluent from this lift station discharges to manhole 175 via NPDES outfall 001D. Overflow from the lift station during periods of heavy runoff is directed to the SWRBs for settling prior to discharge to manhole Number 175. Should the SWRBs reach capacity, any overflow will exit via the spillway into the SSOD, which discharges to Paddy's Run.

From 1984 through 1987, no NPDES violations were noted at outfall 001D for the storm sewer lift station. However, violations were noted for 4 months during the period January 1988-May 1989 at this location for TSS, resulting in only 90% compliance for 1988. The 1988 and 1989 TSS violations occurred during periods of heavy rainfall and were attributed to the large amount of ongoing construction at the FMPC.

The violations in 1988, which occurred successively in July and August, resulted in an inquiry (September 29, 1988) from the OEPA relating to whether "...all practical measures (are) being taken at each construction area to minimize silt and solids runoff to storm sewers." A response was requested by October 21, 1988, but was not received. A response was again requested during an October inspection; on November 9, 1988; and on December 8, 1988. A response was finally written to OEPA on December 15, 1988, that indicated that straw bales, dams or dikes, and silt fences would be implemented (as erosion and sedimentation controls) within 45 days, and that additional techniques would be investigated and implemented within the next 120 days.

Furthermore, the letter indicated that the storm sewer lift station is being upgraded to monitor TSS as well as pH and conductivity, and that diversion capabilities to the SWRB will be implemented.

During the environmental assessment of the FMPC, a number of deficiencies still were apparent with respect to the protection offered to stormwater catch basins. For example, many of the basins were covered with dirt and gravel, which may get washed into the storm sewer system during rainfall events. Evidence of soil erosion was also noted around some catch basins during the assessment, indicating that the proper erosion and sedimentation controls have not yet been taken at all needed locations at the FMPC.

Tentative Finding(s)

FMPC has violated its NPDES permit limitations for TSS during 1988 and during 2 of the first 5 months of 1989 at outfall 001D (storm sewer lift station).

Probable Root Cause(s)

There is inadequate planning for environmental controls for construction areas.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 03 - Env. - CWA - 08

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-22-89Building or Activity Sitewide

Reference Data FMPC SPCC Plan, January 26, 1987; Environmental Compliance Monthly Report-FMPC, July 31, 1989; Memo from J.R. Leist to BMP Committee meeting attendees, May 26, 1989; Memo from M.J.Galper to BMP Committee meeting attendees, June 26, 1989; monthly NPDES monitoring reports/files, January 1984 - May 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

There is inadequate implementation of the Spill Prevention Control and Countermeasures (SPCC) Plan.

Discussion

The SPCC Plan for the FMPC was prepared on January 26, 1987, and is due to be revised in January 1990, as required by 40 CFR 112.5. Several discrepancies, concerns, and recommendations were included in the plan by the contractor who wrote the plan. Some of these items also were included in the Best Management Practices Plan as action items (see related Data Sheet 03-09). The FMPC does not specifically track any of the items identified in the SPCC Plan to ensure that they are implemented.

Two items identified as requiring action in both plans are containment systems and labeling. As mentioned in Data Sheet 03-09, improper drum storage (i.e., stacking) and inadequate labeling were observed at the FMPC. In addition, spills and leaks have occurred in April, May, and June 1989 of nitric acid, waste oil, and diesel fuel, respectively. The latter incident was reported to be a result of inadequate containment, indicating that proper controls have not been implemented in accordance with the SPCC Plan. The other two releases were attributed to equipment failure and operator error.

Several other incidents have occurred, which indicate that adequate spill prevention, control, and countermeasures are not being taken at the FMPC. Two spills into the storm sewer system occurred: 1) September 1987 (120 gallons of anhydrous hydrofluoric acid from an overhead pipeline in the Pilot Plant) and 2) February 1988 (15 gallons of diesel fuel from locomotive refueling operations). These incidents caused the pH at NPDES location 001D (the storm sewer

lift station) to drop below 6.5 and the oil and grease to exceed the maximum limit of 15 mg/L (although this grab sample was not a reportable violation), respectively. A reported NPDES violation for oil and grease at this location in June 1989 also occurred. Although the concentration of the initial sample obtained at this location exceeded the NPDES limits, the concentration of a retained duplicate sample did not exceed the limits. The results of both sample analyses were reported to OEPA.

Tentative Finding(s)

The SPCC Plan for the FMPC is not being adequately implemented.

Probable Root Cause(s)

There are inadequate planning and tracking of deficiencies to enable proper spill prevention, control, and countermeasures to be implemented.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 03 - Env. - CWA - 09
 And. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-22-89Building or Activity Sitewide

Reference Data Table of Commitments for Completing BMP Action Items dated July 26, 1989; Memo from J.R. Leist to BMP Committee meeting attendees, May 26, 1989; FMPC BMP Plan, February 1988; Letter from R.L. Shank, OEPA to J.A. Reafsnyder, DOE re: BMP Plan approval, July 10, 1989; Letter from J.A. Reafsnyder, DOE to T. Winston, OEPA re: Stormwater Sampling Program - Planned BMP Actions, January 26, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

There is inadequate Best Management Practices Plan implementation.

Discussion

A Best Management Practices Plan was required to be developed and implemented for the FMPC by March 1, 1988. The development and/or implementation of this plan was required by the June 26, 1987, OEPA Director's Findings and Orders; the December 2, 1988, Consent Decree between the State of Ohio and DOE; and by the Clean Water Act regulations published in 40 CFR Part 125, Subpart K. The plan was prepared in February 1988. The approved plan included 1) a schedule dated June 6, 1988; 2) the plan received by the OEPA on June 20, 1988; and 3) the projects and schedules identified in a letter to the OEPA dated January 26, 1989. The plan was approved by the OEPA on July 10, 1989, and was required to be implemented on receipt of notification of approval.

A list of action items was developed that details various projects and schedules to be implemented as part of the Best Management Practices Plan. These action items are binding with the OEPA and are now governed under the Consent Decree. A tracking system was developed by WMCO that gives a description of the action item, the remaining action agreed to, the FMPC lead person for the action, the OEPA due date, and a revised due date, if applicable. The action items are listed by departmental commitment (i.e., Administration, Restoration, Quality and Safety, and Operations), as applicable.

A review of the schedule dated July 26, 1989, indicates that only seven items are listed as completed. The majority (over 35) of the items are past the OEPA due date; an additional number of items had revised due dates. Although some of the items that require action are similar, a separate action is often required since different groups are affected. The above breakdown of items is based on the number of separate items identified on the referenced list.

Several observations indicate that the plan has not been implemented in a timely manner. This includes deficiencies relating to improper stacking of drums, inadequate aisle space, clogged drains/grating, and unlabeled tanks. These items are among those listed in Table 8-2 of the Best Management Practices Plan, which require weekly inspections and logging of the inspection observations. Many of these deficiencies are described in more detail in the Waste Management section of the report (e.g., Section C1.3.2, Data Sheet 07-07, and Data Sheet 14-06).

Another item mentioned in the plan and apparently not being adequately addressed is the potential for releases from overhead pipelines in the operations areas. As described in Data Sheet 03-08, a release of anhydrous hydrofluoric acid into the storm sewer system occurred in September 1987 from an overhead pipeline.

The active and inactive fly-ash piles are believed to have resulted in contaminants entering the drainage ditches to Paddy's Run from runoff. This concern was raised by the OEPA and must be addressed as part of the Best Management Practices Plan. An agreement was reached with the OEPA that indicated that the active fly-ash pile should be protected from erosion by rain and wind by an engineered soil cover and thereafter operated with a cellular method of cover. The FMPC is under agreement with the OEPA to identify funding and to initiate corrective action to cover the area within 120 days after the agreement was reached on January 26, 1989. The FMPC has not yet initiated this action. The inactive fly-ash pile is being addressed as part of the FMPC remedial investigation/feasibility study activities.

The FMPC should institute measures to minimize the discharge of potentially hazardous substances into its drains and underground pipelines, given the deteriorating condition of this system. For example, the washing of potentially hazardous substances into floor drains during floor cleaning activities may result in further deterioration of the underground pipelines and potential leakage to the groundwater. The lines in the process area also carry product and wastewater that may be potentially leaking into the aquifer. In addition, potential leaks may exist in the sanitary wastewater lines, resulting in inflow/infiltration to the lines, especially during high rainfall events (see related Data Sheet 17-01). Potential contaminants in the groundwater could enter the lines that, after leading to the on-site sewage treatment plant, discharge into the Great Miami River.

Tentative Finding(s)

The Best Management Practices Plan for the FMPC is not being implemented in a timely manner.

Probable Root Cause(s)

There was a lack of early development of a tracking/implementation system to address the action items identified in the February 1988 Best Management Practices Plan.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 03 - Env. - CWA - 10

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-22-89Building or Activity Sitewide

Reference Data Consent Decree, State of Ohio v. United States Department of Energy, et al., December 2, 1988; Final OEPA's Director's Findings and Orders, June 26, 1987; Major Environmental Issues at FMPC, ORO Fact Sheet diskette A:FMPC-ISS.wp, 7/7/89; Letter from J.A. Reafsnyder, DOE to T. Winston, OEPA enclosing the Technical Progress Report for May and June 1989, dated July 28, 1989; FMPC Environmental Monitoring Annual Report for 1988, June 1989; Letter from J.A. Reafsnyder, DOE to M. Burt, OEPA re: Response to OEPA Comments, June 6, 1988.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

There is noncompliance with wastewater/runoff items of the Consent Decree.

Discussion

The FMPC is subject to the requirements in the Consent Decree between the State of Ohio and DOE, dated December 2, 1988. The FMPC has violated some of the wastewater/runoff requirements stipulated in Section IV of the Consent Decree, which also incorporates the June 26, 1987, Director's Findings and Orders issued by the OEPA. The items of the Consent Decree that have been violated include the following:

- -IV.4.2 requires that "No water from ...(the) storm water retention basin underdrains shall be discharged or placed into Paddy's Run, unless prior written approval is obtained from Ohio EPA." The intent of this requirement was to prevent water and solids, which may potentially contain uranium or other contaminants, from discharging to Paddy's Run and potentially migrating off the site. This intent is inferred from the Director's Findings and Orders (Finding 7; and Orders 3, 5 and 7), Item IV.4.8 of the Consent Decree, and comments provided to the assessment team by EPA.

While the basins were being expanded in December 1988, an FMPC contractor released approximately 2500 gallons of stormwater from them without approval from WMCO, violating the basin's construction test procedure. The practice was halted upon discovery by site Utilities Section personnel. The OEPA was not notified prior to the release of this water to Paddy's Run as required by the Consent Decree, although the OEPA was notified after the release had occurred. This procedure did not follow the intent of the Consent Decree (i.e., to minimize discharges of potentially contaminated water to Paddy's Run).

- Item IV.4.3 requires that a study be performed of the coal storage area and runoff collection basin area to characterize the underlying soil to ensure protection of the groundwater (e.g., providing a liner under these areas if warranted). According to the Consent Decree, "In the event that Ohio EPA determines a liner is not required, DOE shall submit a PTI application describing the existing coal pile storage area and coal pile runoff collection and treatment system within ninety (90) days of Ohio EPA's written response to the report."

Subsequent to the required study, DOE documentation indicates that, on March 8, 1989, OEPA determined that a liner is not required provided that provisions are made for groundwater monitoring and basin water-level management. DOE submitted a proposal to OEPA on April 7, 1989, that addressed the groundwater monitoring requirement but did not address the basin water-level management requirement. DOE did not submit the PTI application within 90 days as required by the Consent Decree. DOE has indicated that they will not submit a PTI application for this project until written approval of their April proposal is received from OEPA. This failure to act is causing unnecessary delays in the preparation and subsequent approval of the PTI application and in meeting the intent of the Consent Decree for the protection of the groundwater.

- Item IV.4.4 indicates that DOE must "...make every effort to manage its wastewater in such a way as to comply with the biochemical oxygen demand, suspended solids, and fecal coliform limitations of its present NPDES permit" until the OEPA issues a new NPDES permit for the FMPC. The FMPC has violated its permit limits a number of times since the Consent Decree was issued, mainly for TSS. In the latest report (July 1989), WMCO reports that the FMPC achieved complete compliance with its NPDES permit limits (see related Data Sheets 03-04 through 03-07, 17-01 and 17-03).
- Item IV.4.8 requires that the contingency plan, which was prepared as directed by Orders 5 and 7 of the Director's Findings and Orders, be revised. The Consent Decree requires that deficiencies in the FMPC contingency plan for investigating the environmental impact of any leakage, overflow, or bypass from the stormwater retention system be corrected within 60 days of receiving the notice of the deficiencies, and that the plan be revised and implemented. The original contingency plan was submitted late (was due by April 30, 1987, pursuant to the Director's Findings and Orders, and was not submitted until September 30, 1987, although comments by the FMPC indicate that the plan was submitted to OEPA on May 10, 1987). The notice of deficiencies was submitted to the FMPC by OEPA on May 2, 1988. On June 6, 1988, the FMPC responded to the notice and indicated that the deficiencies will be addressed in the final remedial investigation report, scheduled for issue in January 1990. However, the FMPC failed to provide a revised contingency plan to OEPA as mandated by the Consent Decree.

Additional follow-up activities generated by the original submittal of the contingency plan also were requested in the notice of deficiencies. These activities, listed in the Director's Findings and Orders, related to the sampling of stormwater runoff from those areas bypassing the stormwater retention basins. These activities were reported to be included with the Best Management Practices Plan. The schedule for at least one item (controlling runoff from the fly-ash piles) is not being met (see Data Sheet 03-09).

- Item IV.4.10 requires the preparation and implementation of an SPCC Plan. A plan was prepared and submitted to OEPA, but it is not being adequately implemented (see related Data Sheet 03-08).
- Item IV.4.11 of the Consent Decree and Orders 9 through 13 of the Director's Findings and Orders address the preparation, implementation, and maintenance of a Best Management Practices Plan. A plan was prepared and approved, but it is not being implemented in an adequate or timely manner (see related Data Sheet 03-09).
- Item IV.4.12 of the Consent Decree and Orders 14 and 15 of the Director's Findings and Orders required that a study be performed of the FMPC effluent discharge pipe to the Great Miami River, with subsequent follow-up activities. Although two of the issues associated with this item have been resolved, two others remain outstanding. The two outstanding issues include 1) locating any leaks or holes in the pipe and stopping any leakage as soon as possible (Order 14.A) and 2) determining whether the gravel fill around the pipe is/has served as a conduit for sewage or wastes to the Great Miami River buried valley aquifer (Order 14.C).

A flow test is planned to determine the presence of any leaks or holes in the discharge pipe between manholes 175 and 180, which is the portion of the pipeline subject to gravity flow. To determine whether the gravel fill is/has served as a conduit to the aquifer, a series of 10 soil borings will be taken from manhole 180 to the discharge point at the Great Miami River, which is the pressurized portion of the pipeline. Both projects are expected to take over 2 months to complete once the field work is initiated. Although the schedule for implementation of these items has reportedly been renegotiated with OEPA, the scope of work has not yet been prepared for the borings. The resolution of these issues has reportedly been delayed due to the unavailability of equipment and a lack of funding. Both are scheduled for initiation in FY 1990.

- Item IV.4.13 states that "By the twentieth (20th) day of every second month, DOE shall submit a bi-monthly technical progress report to Ohio EPA describing the progress made to comply with this Section IV of the Consent Decree during the previous two months." Order 16 of the Director's Findings and Orders also required a similar submittal, beginning May 20, 1987. The requirements for both reports are satisfied jointly with the submittal of a single report. The submittal of the Technical Progress Report for May and June 1989 did not occur until July 28, 1989, which was 8 days late.

Tentative Finding(s)

The FMPC has violated the wastewater/runoff requirements specified in the Consent Decree between the State of Ohio and DOE reached on December 2, 1988.

Probable Root Cause(s)

There are poor planning and communication among DOE, WMCO, and OEPA.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 15 - Env. - GW (SDWA/EM) - 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-22-89Building or Activity N/A

Reference Data Harmon, 1989, Proposal for a Groundwater Monitoring Program at the Feed Materials Production Center, prepared by the Site Restoration Department, Remedial Investigation/Feasibility Studies Section; Gels, et al., 1989, Feed Materials Production Center Environmental Monitoring Annual Report for 1988.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Site activities have resulted in the contamination of groundwater (both on- and off-site) at levels above drinking water standards.

Discussion

Groundwater has become contaminated as a result of a variety of activities that have occurred at the FMPC. Two principal "plumes" of groundwater contamination have been identified. These plumes contain inorganic, organic, and radioactive contamination where some levels exceed drinking water guides and standards (DOE Order 5400.XX and 40 CFR Parts 141 and 143). Although these wells are not being used for drinking water, other wells in the surrounding area are. The two principal groundwater contaminant plumes have been identified as existing in the waste pit area and in an area south of the site.

In the waste pit and production areas, uranium, gross alpha, chloride, sulfate, gross beta, nitrate, and dichloroethane have been identified as constituents of major concern. Uranium, for example, has been identified as ranging in concentration from < 1 to 10,000 ug/L in groundwater. The DOE-proposed standard for uranium in DOE site drinking water is 22 pCi/L based on a dose of 4 mrem/yr (DOE Order 5400.XX). Nitrates have been reported at levels more than an order of magnitude above the drinking water standard of 10 mg/L (40 CFR Part 141). The RI/FS data base indicates that water from well 1073 had a nitrate concentration of 197 mg/L.

The area south of the site, known as the south plume area, also has groundwater contamination that exceeds applicable standards. Uranium concentrations in groundwater have been reported to range up to 210 pCi/L.

Tentative Finding(s)

Groundwater contamination exists on and off the site.

Probable Root Cause(s)

Past waste disposal practices are the probable root causes.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 17 - Env. - CWA - 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity NPDES location 001A (Sewage Treatment Plant)Reference Data FMPC Environmental Monitoring Annual Report for 1988, June 1989, p. 71 and 72; monthly NPDES monitoring reports, January 1988 - May 1989; FMPC Draft NPDES Permit, 1980.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
	X			
—	—	—	—	—

There is noncompliance for NPDES 001A permit requirements [Permit No. OH 0009580; biochemical oxygen demand (BOD), total suspended solids (TSS), and fecal coliform limit exceedances].

Discussion

The FMPC satisfied NPDES concentration limits for both BOD and TSS at the sewage treatment plant (STP) 86% of the time during 1988. Compliance rates for BOD and TSS mass limits were 45% and 31%, respectively. In addition, fecal coliform NPDES noncompliances have been reported during 1988. For the first 5 months of 1989, violations have only been noted for TSS due to rainfall inflow/infiltration.

The BOD and TSS concentration limits were established in the NPDES permit issued in 1980. In the 1980 Draft NPDES Permit, the existing effluent quality from the STP was given as the basis for establishing the BOD and TSS limits. Prior to 1980, the STP was treating wastewater from a plant population of approximately 550. The STP was designed to treat wastewater from a much larger plant population. Consequently, the STP was significantly underloaded and effluent quality was much better than what would be expected.

During 1988, the STP received additional hydraulic and BOD loads, which reduced its treatment efficiency. Additional loads resulted from a plant population of approximately 1100 and from the biodenitrification (BDN) system. As a result, the plant also was susceptible to additional hydraulic stresses resulting from inflow/infiltration (I/I) entering the sanitary sewer system because of heavy rainfall.

The concentrations of BOD and TSS present in the plant effluent are directly affected by overall treatment efficiency. In addition, when the TSS concentration is higher than normal, the ultraviolet (UV) radiation disinfection process is less likely to perform adequately to meet permit conditions since the high absorption of the rays by water and suspended solids dissipates the UV light. The exposure of bacteria to UV radiation results in the lethal action necessary to reduce the number of fecal coliform bacteria to meet permit conditions.

Tentative Finding(s)

The STP (outfall 001A) is unable to consistently meet NPDES permit limitations for BOD, TSS, and fecal coliform.

Probable Root Cause(s)

The process of planning for sewage treatment needs was inadequate because of the inability to accurately estimate the future plant population and the organic loading resulting from the BDN system.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 17 - Env. - CWA - 02
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Sewage Treatment Plant (STP)Reference Data Observations from July 26, 1989, inspection.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Inadequate attention has been given to the proper operation and maintenance of the STP.

Discussion

As required under the NPDES permit regulations (40 CFR 122) Subpart C, Permit Conditions, Sec. 122.41(e), Proper Operation and Maintenance, "The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with conditions of this permit."

The operation and/or maintenance of unit process equipment was found to be deficient during an inspection of the STP on July 26, 1989. Problem areas included preliminary treatment (comminutors), clarifiers, and trickling filters. In addition, general housekeeping within the STP could be improved.

It was observed that the comminutor was inoperable, and influent was directed to the bar screen. The comminutor grinds incoming rags and solid materials. The bar screen removes rags and large solid materials from the influent to the primary clarifier. The comminutor and bar screen are preliminary treatment units that protect plant equipment against reduced operating efficiency or physical damage.

The plant supervisor reported that the comminutor had been inoperable for 3 to 4 months. A new comminutor had been ordered approximately 1 year prior to the inspection and had been received recently. A work order was issued for the installation of the comminutor.

At the trickling filters, it was observed that influent piping was leaking at the center port of each trickling filter. The distributor arms had several plugged nozzles. These conditions are likely to create an uneven distribution of wastewater over the trickling filter media, thereby decreasing

treatment efficiency. The plant supervisor indicated that a work order had been submitted for replacing seals on the influent piping center port and that the operators are instructed to unplug nozzles.

The STP supervisor reported that there is no preventive maintenance schedule or plan for the plant nor is there a system to track the maintenance history for the plant. Maintenance is performed when a need is recognized by the supervisor or operators during routine checks. In some cases, equipment will be operated until it fails. The only way to determine what maintenance activities were performed is by reviewing work orders that were completed.

General housekeeping within the plant was inadequate. Primary clarifier overflow weirs had a scum buildup on them, and sludge removal mechanisms in secondary clarifiers had a buildup of sludge material. These conditions may interfere with their proper operation if left unattended. Other areas in the plant were not well maintained. Weeds and grass throughout the plant were 2 to 3 ft tall. The lavatory facilities in the digester building were unkept, and empty drums and debris were haphazardly deposited near the sludge-drying beds. The general condition of the STP and area indicated the STP does not receive adequate attention from operators and maintenance personnel.

Tentative Finding(s)

The operation and maintenance of the STP are inadequate.

Probable Root Cause(s)

There is a lack of planning for a preventive maintenance schedule and inadequate manpower to handle the maintenance of equipment and routine housekeeping chores at the STP.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 17 - Env. - CWA - 03

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity NPDES location 002 (SWRBs)

Reference Data Monthly NPDES monitoring reports, January-May 1989; FMPC Draft NPDES Permit, July 17, 1989; FMPC Draft NPDES Permit, 1980; Final OEPA's Director's Findings and Orders, June 26, 1987; OEPA letters from Martyn G. Burt to James A. Reafsnnyder, re: NPDES 11000004 OH0009580, dated May 9, 1989 and June 12, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

There is noncompliance for NPDES 002 permit requirements (Permit No. OH0009580; TSS limit exceedances).

Discussion

The FMPC NPDES average daily concentration limits (30 mg/L) for TSS discharges from outfall 002 [stormwater retention basins (SWRBs)] were exceeded twice during 1989 (March 31 and April 4). The Ohio Environmental Protection Agency (OEPA) has indicated no further response is required regarding these violations. The SWRBs were put into service on December 31, 1988. Current NPDES permit limits were established in 1980. In the 1980 Draft NPDES Permit, the existing effluent quality for stormwater discharged to Paddy's Run was given as the basis for establishing the average daily TSS limit. Effluent quality prior to 1980 reflected stormwater runoff conditions that have been significantly modified as a result of the construction of the SWRBs.

Prior to the construction of the SWRBs, stormwater runoff discharged to Paddy's Run. Discharges occurred after most rainfall events. Consequently, the volume and severity of the rainfall event would be the primary influence on the TSS concentration present.

Currently, the SWRBs are designed to minimize the frequency and volume of rainfall runoff discharged to Paddy's Run. The SWRBs were constructed to meet requirements issued in the OEPA's June 26, 1987, Director's Findings and Orders; namely, that the FMPC 1) cease discharges to Paddy's Run, 2) develop contingency plans to minimize impacts to Paddy's Run caused by overflow of the SWRBs, and 3) install a stormwater retention system capable of collecting and holding stormwater from a 10-year, 24-hour storm event.

As part of the design and operation of the SWRBs, the following occur: 1) stormwater discharges to Paddy's Run are minimized by redirecting stormwater to manhole 175, which discharges to the Great Miami River; 2) TSS concentrations in stormwater discharged from the SWRBs to manhole 175 are expected to be reduced to 30 to 40 mg/L after allowing a quiescent settling period of 24 hours; 3) stormwater is estimated to overflow the SWRBs and discharge into a drainage ditch, a tributary to Paddy's Run, once every 1 or 2 years; and 4) TSS effluent quality for stormwater discharged to Paddy's Run is expected to be less than 100 mg/L. The Draft NPDES Permit issued in 1989 establishes a 100-mg/L TSS concentration limit for discharges from outfall 002. Because of the design of the SWRBs, the FMPC is expected to meet future NPDES discharge limitations for TSS.

Tentative Finding(s)

The FMPC has exceeded its current NPDES discharge limitations for the average daily TSS concentration at the SWRBs (outfall 002).

Probable Root Cause(s)

Existing NPDES permit limitations for TSS were established for conditions prior to the construction of the SWRBs.

**Toxic Substances Control Act (TSCA) and
Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)**

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env. - TSCA/FIFRA - 07
 Aud. ID Number Team (Env. Subject (Rad Prot Fire Seq. Data Sheet No.
 S&H M&O) Prot RCRA, CAA etc.)

Date 8-19-89

Building or Activity TSCA/FIFRA

Reference Data Personal observation on 8/1/89.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Temporary storage of polychlorinated biphenyl (PCB) container in the basement of Building 15 is past 30 days

Discussion

Under 40 CFR 761.65, it is required that PCB containers with liquids less than 500 ppm, may be stored temporarily for 30 days before movement to a permanent storage facility.

There is a container of PCB-contaminated capacitors located on the west side of the Building 15 basement. The inspection sheet, associated with the container indicates it has been there since May 15, 1989, which exceeds the 30-day temporary storage limit. The area is designated a satellite accumulation area, which is not a TSCA-recognized designation. In addition, the present location of this area would prohibit it from qualifying as a permanent storage area without significant physical adaptations.

Tentative Finding(s)

PCB containers are improperly stored.

Probable Root Cause(s)

The cause is inadequate management oversight of PCB storage and tracking.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env. - TSCA/FIFRA - 08
 Aud. ID Number Team (Env. Subject (Rad Prot Fire Seq. Data Sheet No.
 S&H M&O) Prot RCRA, CAA etc.)

Date 8-19-89

Building or Activity TSCA/FIFRA

Reference Data Interviews with transportation management and Waste Operations personnel during the week of July 30, 1989, PCB Annual Report for 1989.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

It was stated that no polychlorinated biphenyl (PCB) marking/placarding was done during on-site transport of PCB containers.

Discussion

Under 40 CFR 761.40, transport vehicles loaded with PCB containers that contain more than 45 kg of liquid PCBs in concentrations of 50 to 500 ppm shall be marked as described in 40 CFR 761-45(a). During removal of PCB-contaminated large capacitors this year, it was a typical practice to place six capacitors in a drum for transport to the decontamination area and then to the appropriate storage facility. Transportation typically loads six to eight barrels on a 6-ton dolly for movement around the site. Since the PCB Annual Report for 1988 states the average liquid PCB capacity for these capacitors to be 2 gallons each, it is apparent that there have been occasions when the 45-kg limit was exceeded.

Tentative Finding(s)

It was found that there was improper marking of vehicles for on-site transport of PCB items containers.

Probable Root Cause(s)

The requirement to placard on-site transportation vehicles was not known, and there was inadequate training and management oversight.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env. - TSCA/FIFRA - 09
 Aud. ID Number Team (Env. S&H M&O) Subject (Rad Prot Fire Prot RCRA, CAA etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity TSCA/FIFRA AssessmentReference Data Personal observation and interviews with Waste Operations personnel during the period 7/28/89 to 8/7/89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

Storage of polychlorinated biphenyl (PCB) greater than 1 year was observed.

Discussion

The on-site generated PCB waste streams fall into three categories: 1) uncontaminated PCB waste, 2) radiation-contaminated PCB waste, and 3) solvent- and radioactive-contaminated PCB waste. The program for waste removal and disposition has been shaped by the ability of the TSCA incinerator at Oak Ridge (K-25) to take care of all the PCB waste streams. The decision to send all of the waste streams, including uncontaminated PCB wastes, to Oak Ridge was influenced by three factors: 1) DOE imparted an air of hesitancy in using commercial operators because of "cradle-to-grave" liability concerns; 2) Oak Ridge ensured FMPC that it would take all the TSCA waste; and 3) after the public notoriety in 1986, outside vendors were reluctant to receive waste from the site.

It was realized this past year that alternative plans needed to be made with regard to the uncontaminated PCB waste stream. This stream is composed of PCB-contaminated capacitors, all of which were to be replaced by July 31, 1989. This replacement program was completed ahead of schedule, with surface decontamination completed in August 1989. An active effort is planned to remove and dispose of these PCB items by the end of FY 1990, employing a commercial vendor. Waste Operations personnel estimate that this will account for approximately half the present on-site PCB inventory.

Regarding the two radioactive-contaminated, radiation-containing waste streams, Waste Operations management has no choice but to wait for the TSCA incinerator at Oak Ridge for disposal. There are no other facilities that can incinerate both PCB and radioactive mixed waste, and the Nevada Test Site is not permitted to dispose of this waste in landfills.

Despite past history, there are 25 marked PCB containers that are located in Buildings 5 and 6 of the KC-2 Warehouse that have been in storage greater than 1 year. This is noncompliant with TSCA promulgated regulation 40 CFR 761.65(a), which states that a PCB container shall be disposed of within 1 year from placement in storage.

Tentative Finding(s)

It was found that there was improper storage of PCB-contaminated items.

Probable Root Cause(s)

The lack of a disposal facility is the primary cause of this finding. Also, waste management/waste minimization are low environmental priorities.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env. - TSCA/FIFRA - 10
 Aud. ID Number Team (Env. Subject (Rad Prot Fire Seq. Data Sheet No.
 S&H M&O) Prot RCRA, CAA etc.)

Date 8-17-89Building or Activity TSCA/FIFRA AssessmentReference Data Personal observation and review of KC-2 warehouse inspection records during the period 7/28/89 and 8/2/89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The old RCRA warehouse is inadequate for polychlorinated biphenyl (PCB) storage.

1	2	3	4	5
—	X	—	—	—

A drum in Building 15 was not inspected on time.

1	2	3	4	5
—	X	—	—	—

Drum 2092 and a drum in Building 15 were not dated.

Discussion

The old RCRA warehouse front and rear walls are made of cyclone chain-link fencing that are only partially covered by plastic tarps that are not fully secured. Inspection records show that the tarps were placed on the fencing in April 1989 to prevent rain entry into the warehouse proper. The records also document that both Bay 5 and 7 had repairs for roof leaks, which had resulted in water freezing on drum tops. At the time the leaks occurred, Bay 7 was being used for storage of PCB items. Under 40 CFR 761.65(b)(1)(i), storage facilities must have adequate roof and walls to prevent rainwater from reaching stored PCB items. Personnel at the FMPC have repaired the roof, but should improve the tarps to ensure that rainwater does not enter the building. The floors in Bays 5 and 6 of the old RCRA warehouse, where PCB items are presently stored, are not constructed of smooth and impervious materials to prevent or minimize PCB penetration. This is

required by 40 CFR 761.65(b)(1)(iv). There is a patching program in progress, employing epoxy-based materials; however, the patching is not smooth and has not been done on the floor under the metal bridge that has been bolted in place for the forklift. Personnel at the FMPC also intend to place a sealant over the entire floor and dike. If this sealant provides for a smooth surface covering the floor, this corrective action may be adequate.

Inventory drum 2092 is an overpack drum in old RRC warehouse Bay 5, but the information relating to date of accumulation and inventory codings is missing, which is noncompliant with 40 CFR 761.65(c)(8).

The drum in the basement of Building 15 does not have an accumulation date or inventory codings. In addition, 40 CFR 761.65(c)(5) states that drums of PCB items must be inspected every 30 days. The inspection sheet associated with this drum indicates no inspection was made between May 15 and July 14, 1989.

Tentative Finding(s)

PCB storage facilities are inadequate.

Inspection of temporary PCB storage area is inadequate.

Marking of PCB containers is incomplete.

Probable Root Cause(s)

There is inadequate oversight of regulatory inspections for PCB waste.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env. - TSCA/FIFRA - 11
 Aud. ID Number Team (Env. Subject (Rad Prot Fire Seq. Data Sheet No.
 S&H M&O) Prot RCRA, CAA etc.)

Date 8-17-89Building or Activity TSCA/FIFRA AssessmentReference Data Inspection of the PCB manifests on August 2, 1989.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

There is no proof of polychlorinated biphenyl (PCB) disposal for two shipments made on January 13, 1986.

Discussion

Although there is no compliance issue associated with maintaining certificates of disposal for PCB items, the "cradle-to-grave" liability concern raises the issue of Best Management Practices. After close inspection of the manifest paperwork for two shipments of PCB items sent on January 13, 1986, no certificates of disposal could be found, and there was no indication of the specific disposal facility to which the drums were delivered.

Tentative Finding(s)

Documentation was incomplete on the proper PCB disposal.

Probable Root Cause(s)

A low priority was given by management to environmental issues that are not compliance driven.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env. - TSCA/FIFRA - 12
 Aud. ID Number Team (Env. Subject (Rad Prot Fire Seq. Data Sheet No.
 S&H M&O) Prot RCRA, CAA etc.)

Date 8-17-89Building or Activity TSCA/FIFRA

Reference Data Personal observation and interviews with Environmental Compliance, Materials Control and Accountability and Waste Operations personnel during the week of July 30, 1989, PCB Annual Report for 1988.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Tracking system for toxic materials is incomplete.

1	2	3	4	5
—	X	—	—	—

There is confusion on identification of polychlorinated biphenyl (PCB) items.

Discussion

There is no evidence of an inventory transport and tracking system in place for nonnuclear materials before June 1989. According to personnel interviews, the log that tracked items located in Waste Operations listed only the number of drums going into storage, with no indication of source or content. The Environmental Compliance (EC) Group had an inventory of PCB items; however, this was apparently not a complete listing. A comparison of drum inventory numbers of PCB labeled items indicated that there were 17 drums labeled PCB items in KC-2 that did not appear on the PCB Annual Report for 1988. Furthermore, these 17 drums were listed in the Materials Control and Accountability (MCA) waste inventory list as U.S. Department of Transportation (DOT) labeled for PCBs, but the drum content section of the list did not show PCB as a constituent. (Inventory numbers unaccounted for are 24-28, 30-33, 358, 388, 657, 689, 726-7, 735, and 738.) If these drums do contain PCB items, there is a potential reporting noncompliance with 40 CFR 761.180(a). If these drums do not contain PCB items, then the MCA tracking and inventory system and Waste Operations labeling program are not under management control.

With regard to FIFRA issues, EC Group personnel were not aware of on-site pesticide and herbicide storage. Maintenance had apparently not furnished, and EC Group did not request, a

copy of the present inventory. As a result, the EC Group has produced no reportable inventory list for applicable regulatory agencies to review. The EC Group also was unaware of off-site contracting for facility pesticide and herbicide application. There appears to be no trigger mechanism in Safety and Health (the reviewers of purchase requests) or Purchasing to alert the EC Group of the ordering of off-site services that may involve regulatory compliance issues. Management has not made the decision as to whom should initiate sending guidance from the EC Group to Safety.

Tentative Finding(s)

The TSCA/FIFRA inventories lack control.

Proper reporting is inaccurate for external and internal review.

Probable Root Cause(s)

Poor communication and coordination between operational groups exist on the site.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env. - TSCA/FIFRA - 13

Aud. ID Number Team (Env. Subject (Rad Prot Fire Seq. Data Sheet No.
S&H M&O) Prot RCRA, CAA etc.)

Date 8-17-89Building or Activity TSCA/FIFRA AssessmentReference Data Personal observations and interviews with Receiving, Transportation, and Warehouse personnel during July 27-28, 1989.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

No spill containment equipment and training are provided for operations associated with handling of toxic substances.

Discussion

Spill containment equipment is not provided for use by on-site transportation vehicles, the receiving building (#82), or the stores warehouses building (#12). No formal training or standard operating procedure (SOPs) for spill containment are available to personnel in these areas to help them cope with these situations. As a Best Management Practice it would seem prudent to supply equipment and training to these personnel to minimize the extent of spills before the arrival of appropriate response and remediation teams.

Tentative Finding(s)

Initial containment procedures and training on spill events are inadequate or not provided.

Probable Root Cause(s)

Overdependence on the Emergency Response Team without management consideration of all possible contingencies is the primary cause of this finding.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env. - TSCA/FIFRA - 14
 Aud. ID Number Team (Env. Subject (Rad Prot Fire Seq. Data Sheet No.
 S&H M&O) Prot RCRA, CAA etc.)

Date 8-17-89

Building or Activity TSCA/FIFRA Assessment

Reference Data Personal observations on July 28 and 31, 1989.

Observation(s) **Category**
 1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Spill containment problems exist in two of the storage areas.

Discussion

Two flammable storage areas, one on the east side of Building 12 and the other on the east side of Building 46, used for storage of liquid pesticide and herbicides are not adequately constructed to contain spills from reaching the environment. Both of these buildings have corrugated walls that are not designed to form a continuous seal with the floor pad. Should a moderate spill occur in one of these areas, leaks to ground adjacent to the outside walls of these buildings are highly probable.

Tentative Finding(s)

A potential exists for toxic and/or hazardous substances to reach the environment.

Probable Root Cause(s)

A low priority is given by management to environmental issues that are not compliance driven.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env. - TSCA/FIFRA - 15
 Aud. ID Number Team (Env. Subject (Rad Prot Fire Seq. Data Sheet No.
 S&H M&O) Prot RCRA, CAA etc.)

Date 8-17-89

Building or Activity TSCA/FIFRA Assessment

Reference Data Personal observation and interview with maintenance personnel on July 31, 1989.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Deficiencies exist in the pesticide storage areas.

Discussion

On inspection of the dry pesticide storage area in Bay 8 of the KC-2 warehouse, a number of concerns were identified with respect to pesticide storage guidance in 40 CFR 165.10. As a Best Management Practice concern, the following issues are raised:

- Containing windblown pesticide dusts/particles: the north and south ends of the warehouse are constructed solely with cyclone fencing that does not prevent blowing of pesticide dust particles.
- Posting of signs: there are no identification signs placed on the bay to advise of contents and to warn of their hazardous nature (especially in case of fire).
- Open and damaged containers: there were two open and damaged bags and one open box of simazine pesticide that should be repackaged in sound containers that can be sealed.
- Container inspections and maintenance: there has not been any set inspection schedule for pesticide in KC-2 or the herbicide liquids in Building 46.

Tentative Finding(s)

There is improper storage of FIFRA-related substances.

Probable Root Cause(s)

There is a lack of communication between on-site operations, and also a lack of management oversight.

Environmental Monitoring

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 02 - Env. - QA - 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity Environmental MonitoringReference Data Observations made during air sample collection at the environmental monitoring air monitoring stations (AMSs) 1 through 14, excluding station 9 on 7/25/89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The placement of thermoluminescent dosimeters (TLDs) at AMSs 1 through 13, excluding station 9, is questionable.

Discussion

TLDs at AMSs 3, 6, 7, and 8 were placed in a manner that potentially shields them from the parameter they are intended to monitor. These TLDs are placed behind the metal posts of the chain-link fences around the AMSs in the line of sight to the FMPC. TLDs at the AMSs 11, 12, and 13 were located over gravel-covered areas. This placement could potentially yield non-representative data for the parameter they are intended to monitor. Additionally, all TLDs observed appeared to be higher than the recommended height of 1 m above the surface.

Tentative Finding(s)

Some TLDs at the AMSs are located in a manner that might bias the data of the parameters they are intended to monitor.

Probable Root Cause(s)

No written procedure/criteria exists that documents the proper placement and site conditions for the initial siting/placement or periodic review of locations of environmental monitoring TLDs.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 02 - Env. - Radiation - 02
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity Environmental MonitoringReference Data Interviews with Environmental Compliance personnel on various dates.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

No written siting procedures/criteria exist for initial location/placement or periodic review of environmental monitoring stations/locations.

Discussion

The lack of written siting procedures that specify or reference the criteria and required documented supporting information for initial location/placement or periodic review of environment monitoring stations/locations can result in an environmental monitoring program that does not accurately and reliably monitor all potential impacts to the environment. This inaccuracy can include continuing to monitor for parameters or at locations that are no longer justified because of changed conditions. An adequate and reliable monitoring program needs to be established, maintained, and modified using information on facility operations, activities, and other facility information including effluent and environmental monitoring data. Observations by the ES&H team and previous surveys/audits on specific environmental monitoring siting/placement deficiencies indicate that the site responds to specific identified inadequacies, but the implementation of written procedures and documented supporting information has not been performed.

Tentative Finding(s)

The lack of written siting procedures that specify or reference the criteria for initial location/placement or periodic review of environmental monitoring stations/locations and required documented supporting information can result in an environmental monitoring program that has not been adequately modified with changing facility operations, activities, and other site facility information to accurately and reliably monitor all the potential impacts to environment.

Probable Root Cause(s)

Probable root causes include fragmentation of responsibilities for various aspects of environmental/effluent monitoring, poor coordination between responsible groups, and inadequate numbers of personnel/resources assigned to effectively and adequately implement all aspects of the environmental monitoring program.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 02 - Env. - Radiation - 03
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity Thorium StorageReference Data Observations during inspection of thorium drums on pad west of Building 65 on 7/27/89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Drums of nuclear material and waste have labels and color codes with potentially confusing information.

Discussion

Drums that shield areas used to store drums containing thorium materials were seen on the pad west of Building 65 and around Building 65. It was noted that color-coded drums for the containment of thorium (black drums with a blue stripe) were also labeled with DOT labels that indicated they contained magnesium fluoride (MgF_2). Further investigation indicated that the drums were originally color-coded properly (black drum with a green stripe), but the weather faded the original green stripe to blue. Additionally, the 212 drums containing thorium on the pad west of Building 65 had no labeling of contents.

Drums of mixed waste in the old RCRA warehouse bays that had contradictory labels included 1) drum numbers 635, 662, 1126, and 1127, which had been given inventory codes for enriched uranium (code prefix: R095) and color coded as depleted uranium (green stripe) and, 2) drum numbers 893 and 894, which had been given inventory codes for depleted uranium (code prefix: R050) and color coded as enriched uranium (red stripe). In all cases, the inventory number was determined to be the correct identifier.

The double and contradictory labeling of a drum could lead to questions of its actual contents. This uncertainty could lead to unnecessary sampling and analysis to determine drum contents and/or inappropriate handling, personnel protection, storage, disposal or treatment during normal and accident conditions.

Reference I.D. 02-03

Tentative Finding(s)

Color coding on drums is not adequately checked and maintained.

Probable Root Cause(s)

No procedures exist for checking and maintaining proper color coding of drums.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 02 Env. Radiation 04

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity Environmental MonitoringReference Data Observations and discussions with a sample collection technician during air sample collection at environmental monitoring, air monitoring stations (AMSs) on 7/25/89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

No procedure exists for collection/exchange of thermoluminescent dosimeters (TLDs) or radon monitoring devices.

Discussion

The lack of a collection/exchange procedure for environmental monitoring TLDs or radon monitoring devices could lead to improper handling (e.g., inadequate sealing of the membranes on radon cups) of the devices either before or after the sampling period and, therefore, yield non-representative results/data for the parameters they were intended to monitor.

Tentative Finding(s)

There is no procedure for the collection/exchange of environmental monitoring TLDs or radon monitoring devices.

Probable Root Cause(s)

Probable root causes include fragmentation of responsibilities for various aspects of environmental/effluent monitoring, poor coordination between responsible groups, and inadequate number of personnel/resources assigned to effectively and adequately implement all aspects of the environmental monitoring program.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 02 - Env. - Radiation - 05

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity Thorium Storage

Reference Data Observations during inspection of thorium drums on pad west of Building 65 on 7/27/89. Sampling and analysis requested by J. T. Grumski and D. D. Burns, data from the pad area on 7/27/89. Myrick, T. E., B. A. Berven, and F. F. Haywood, 1983. "Health Physics," Health Physics Society, Vol. 45, No. 3, New York, September.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

There is lead-212 (a daughter product of thorium-232) contamination on the fenced pad and area outside of the fenced pad to the east.

Discussion

Thorium drums stored outside were in poor condition, and it appeared that containment may have been breached on some of the drums. Sampling and analysis were requested to aid in the determination of the drums' integrity. The sampling and analysis were performed at the specific request of the Compliance Assessment Team and is not performed by the FMPC on a routine basis.

Four dirt/soil samples were collected from the fenced pad west of Building 65, which contains 212 drums of thorium-bearing material. These samples were requested because of the drums' poor condition after 17 years of storage at this location. Some of the drums appeared to have breached containment, and the following analytical results indicate that the drums may be leaking. Lead-212, a daughter product of thorium-232, concentrations ranged from 427 to 1937 pCi/g. Background concentrations, if the lead-212 were in equilibrium with the thorium-232, are generally less than 5 pCi/g in soil.

Additionally, smear surveys indicated gross alpha and beta contamination in the area. A smear of one drum indicated external contamination approximately 6 to 100 times that of the other drums smeared. These data indicate that some drums may actually have had a breach of containment.

Because this pad is not bermed on the south or east sides, the contents are available for transport to other areas. The data show that this may have already happened on the east side of the pad.

The FMPC intends to repackage its thorium waste and provide on-site interim storage until final disposition plans are complete.

Tentative Finding(s)

The pad west of Building 65 is inadequate for storage of thorium.

Probable Root Cause(s)

There has been past poor planning for the long-term storage of thorium wastes.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 02 - Env. - Radiation - 06
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity Effluent MonitoringReference Data Interviews with Environmental Compliance personnel on various dates. FMPC Environmental Monitoring Annual Report for 1988, FMPC-2173 Special UC-107.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

No written procedures/criteria exist for the evaluation of all effluents released to the environment.

Discussion

The lack of written procedures that specify or reference the criteria and required documented supporting information for the evaluation of all the effluents released to the environment can result in an effluent monitoring program that does not accurately and reliably monitor all the potentially significant effluent releases to the environment. This is supported by the large percentage of total releases that were not monitored in 1987 and 1988 (see Data Sheet 04-ENV-CAA-05). The evaluation and documented supporting information are essential to ensure that the basis for monitoring or not monitoring an effluent and the type of monitoring performed on an effluent are appropriate and inclusive enough to provide an accurate and reliable qualification and quantification of effluent constituents. Including information on constituent's physical and chemical form is necessary to accurately calculate the effects of these releases on members of the public and the environment.

Tentative Finding(s)

The lack of written procedures that specify or reference criteria and require documented supporting information for the evaluation of all effluents released to the environment could and potentially has resulted in an effluent monitoring program that does not accurately and reliably monitor all the potentially significant effluent releases to the environment.

Probable Root Cause(s)

Probable root causes include fragmentation of responsibilities for various aspects of environmental/effluent monitoring, poor coordination between responsible groups, and inadequate numbers of personnel/resources assigned to effectively and adequately implement all aspects of the environmental monitoring program.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 02 - Env. - Radiation - 07
 Aud. ID Number Team (Env. Subject (Rad Prot Fire Seq. Data Sheet No.
 S&H M&O) Prot RCRA, CAA etc.)

Date 8-17-89Building or Activity Annual Environmental Monitoring ReportReference Data FMPC Environmental Monitoring Annual Report for 1988, FMPC - 2173 Special UC-707. Interviews with Environmental Compliance personnel.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Inappropriate monitoring devices and inadequate statistical data evaluation techniques are utilized to determine concentrations and significance of radon releases from FMPC in the environment.

Discussion

Estimated radon-222 releases are not included in the estimated radiation dose calculations. DOE orders require the estimation and reporting of the overall impact of facility operations on the environment. While the FMPC does have a radon monitoring program, the current sensitivity and accuracy of the measurement devices are not sufficient to measure the low levels that members of the public are exposed to as a result of releases from the FMPC. While the levels are low, they still result in a potential dose to members of the public. The radon monitoring program results, which indicated that the concentrations measured at the FMPC fence line were not statistically distinguishable from background radon concentrations, are a result of the measurement devices sensitivity/accuracy and statistical data evaluation practices and not the levels that may actually be present.

While the FMPC is not required to include radon-222 in the dose calculations to show compliance with NESHAPS, DOE orders and the proposed NESHAPS do and will require the inclusion of radon-222 in these calculations.

Tentative Finding(s)

The estimated radiation doses received by the public for 1988 do not reflect the overall impact of FMPC operations because of the exclusion of radon-222 releases from the estimated radiation dose calculations.

Probable Root Cause(s)

Insufficient examination of the monitoring data on a regular basis to determine if appropriate/adequate monitoring devices are used and failure to utilize developed statistical techniques for meaningful interpretation.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 13 - Env. - Monitoring - 01

Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-18-89Building or Activity Manhole 175Reference Data FMPC Environmental Monitoring Annual Report for 1988, June 1989, pg 67 and Table 25.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The effluent to the Great Miami River (sum of the ratios for all isotopes) exceeds the Derived Concentration Guides (DCGs) of Draft DOE Order 5480.XX of March 31, 1987, which is to be used as guidance by all DOE facilities.

Discussion

The previous Radioactive Concentration Guides (RCGs) of DOE Order 5480.1A, Chapter XI, were much higher for uranium. The 1987 and 1988 effluent concentrations were below the RCGs (old). The draft order is guidance rather than requirement, so the noncompliance is classified as Best Management Practice (BMP) rather than DOE noncompliance. A project to correct the situation is planned for 1991.

Tentative Finding(s)

When DOE Order 5480.XX is finalized, FMPC may be out of compliance.

Probable Root Cause(s)

Methods for control of uranium under high surface runoff are inadequate.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	13	-	Env.	-	Monitoring	-	02
	Aud. ID Number		Team (Env., S&H, M&O)		Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)		Seq. Data Sheet No.

Date 8-18-89Building or Activity Annual ReportReference Data FMPC Environmental Monitoring Annual Report for 1988, June 1989, total report.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The annual report does not follow the suggested format in DOE Order 5400.1 or the previous DOE Order 5484.1. Almost all the elements are included, with the exceptions of a monitoring summary, nonradioactive effluent quantities, list of environmental permits, and a list of site quality assurance results.

Discussion

The suggested DOE format is hard to work with and needs change. The FMPC format seems to be based on the performing organization rather than media, discipline, or radioactive vs. non-radioactive contaminants. Improvements to the report to make it more understandable to the nontechnical reader are commendable.

Tentative Finding(s)

The FMPC annual report format should be improved.

Probable Root Cause(s)

Root causes include poor suggested format, shortage of assigned staff, and an inadequate amount of time to completely list quality assurance results.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 13 - Env. - Monitoring - 03

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-18-89**Building or Activity Reports**

Reference Data Letter Galper to Reafsnyder, WMCO:R(EC):89-0200, June 28, 1989; Letter Reafsnyder to Tseng, DOE-1326-89, July 20, 1989; Letter Weinreich to Reafsnyder, WMCO R:89-063, May 17, 1989; Letter Reafsnyder to Kee, DOE-1187-89, July 6, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The FMPC Environmental Monitoring Annual Report for 1988 and the Effluent Radiation Report required by DOE Order 5400.1 were late. The Air Emissions Annual Report for 40 CFR 61.94 was also late.

Discussion

The FMPC Environmental Monitoring Annual Report for 1988 was due on June 1, 1989. A final draft copy of the report was sent to the DOE Site Office approximately June 15.

The annual report for 1988 was available in a "publishable form" on June 28, 1989, and was sent to DOE Headquarters (DOE-HQ) at that time. The report was not distributed per instructions of DOE-HQ. As of August 1, the report had not been released by DOE-HQ for distribution. The delay in completing the report was partially because of the large number of changes made in the report and partially because of a revision in the estimated emissions from FMPC sources and the need to then calculate off-site doses from 12 emission points with the EPA AIRDOS computer code. The Air Emissions Annual Report for 40 CFR 61.94 was also slightly delayed. FMPC and the DOE Site Office were evidently unaware of the DOE-HQ memorandum of March 3, 1989, changing the due date from June 1 to May 1. The effluent report was submitted to EG&G Idaho, Inc. (EG&G) on July 20 (due April 1). The decision to delay the reports so that each was consistent with emissions reported for previous years in the Addendum to FMPC-2028 was a good decision. However, no evidence was found of a request to DOE-HQ for a time extension. Consistency in published effluent data is very important to FMPC for public relations at this time.

Tentative Finding(s)

Three major environmental reports were late.

Probable Root Cause(s)

Root causes include loss of key staff, waiting on study results to make the annual report more understandable to the public, and the desire to incorporate more complex AIRDOS calculations consistent with National Emission Standards for Hazardous Air Pollutants (NESHAP) submittals and revised emission estimates.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 13 - Env. - Monitoring - 04
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-18-89Building or Activity Annual ReportReference Data FMPC Environmental Monitoring Report for 1988, June 1989, total report.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

While the annual report is generally acceptable, substantial improvement could be made in the data analyses and presentation.

Discussion

There is no evidence in the report that the statistical tests for significance, shown on page 24 of the "Environmental Monitoring Program at the FMPC," FMPC/SUB-009, are actually used to compare or evaluate data. Instead, vague wording is used such as "basically the same" (page 45), "decreased significantly" (page 51), "no significant differences" (page 73), "significant discrepancy" (page 81), and "no serious contamination" (page 104). The statistical test should be done, identified in the report, and then used with the term "statistically significant."

Most of the individual data points presented in the report do not include a laboratory uncertainty, and they should. The listing of "less than" numbers is discouraged. There is no statement in the report of the meaning of the "less than" numbers for radionuclides, and the meaning varies. In some places, it appears that the division is made at the 1"s level (Table 12), while others state "counting uncertainties at the 95% confidence level" (Table 8). While most low nonradioactive analyses are still reported as "less than," most good radiological laboratories do report uncertainties associated with each result. These uncertainties should include a propagation of all errors rather than just representing counting statistics.

Some of the terminology used for standards and guidelines needs to be more precise. For instance, on page 17 "the critical pathway" should be "all pathways." On pages 37 and 55, the derived concentration guides (DCGs) are called standards and limits. The "standard" for uranium in drinking water is referenced in several ways on pages 51, 52, 55, and A-24. The origin of the value used

is finally attributed to a DOE letter (page A-24). Maximum contaminant levels (MCLs) for drinking water are not always identified as primary or secondary standards (page 55). Nitrate concentrations compared to an MCL of 10 mg/L should be referred to as nitrate-N or nitrate (as nitrogen).

The comparisons of radon concentrations (pages 28 and 29) could be improved by grouping the stations near the K-65 silos, the other stations on the site perimeter, and the background locations. Such a grouping may show a statistically significant difference between the K-65 silo radon concentrations and the average background concentration.

The trend by WMCO to establish more "background" monitoring stations is commendable. At least two background monitoring stations are maintained for most parameters monitored (one for milk). An air sampling station is being established at Miamitown and one is planned for Cincinnati. Information from other sources is also used for background. Information from the State of Ohio or from EPA Radiation Data Reports might also be used.

In the table on page A-25, the concentrations measured are in mg/L, while the footnote lists MCLs in ppm. Although the two measurements are almost equivalent, both should be in mg/L.

The size of the tables on pages A-20 and A-21 could be easily reduced to the size of the table on page A-23.

The map on page 74 should show sediment sampling at 200-m intervals below the Storm-Sewer Outfall Ditch on Paddy's Run. The standard operating procedure (SOP) for sediment sampling on the Great Miami River only indicates five locations instead of nine.

More references could be provided for quoted materials. For example, citations could be provided for the gulping emissions on page 106 and for the sitewide review of air emission sources on page 106 (preparation of this report and the annual report overlapped).

The inclusion in the Executive Summary (page xx) of the effective dose equivalent of 32 mrem from drinking water from an off-site well that is not used for drinking water is inappropriate. The maximally exposed individual could eat vegetables grown in the area and fish from the Great Miami River, but could not use the well as a source of drinking water. Comparison to the DCGs in the body of the report with the appropriate qualifier is acceptable.

The reporting of groundwater monitoring data for on-site wells is late. Only a few on-site sample results are shown in the report for 1988. The RCRA results reported are from late 1987. It is appropriate to report these results as soon as available, but the lag time seems long. The sampling under the RI/FS has not been reported. A letter requesting summary data was sent to Advanced Sciences, Inc. (ASI) on April 28, 1989, by the DOE Site Office. The information was not received in time to be included in the report.

In general, the report needs more emphasis on the nonradiological areas. As stated above, unsuccessful attempts were made to do this for the RI/FS data. Discussions on regulatory compliance

with RCRA, CERCLA, the Federal Facilities Compliance Agreement, and the state of Ohio permits need to be added for completeness.

Tentative Finding(s)

The FMPC Annual Environmental Monitoring Report for 1988 should be improved.

Probable Root Cause(s)

Inadequate number of staff to prepare the Annual Environmental Monitoring Report within the required time frame is a probable root cause.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 13 - Env. - Monitoring - 05
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-18-89Building or Activity N/AReference Data FMPC Environmental Monitoring Annual Report for 1988, June 1989, p 107.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The reference being used for radiation protection standards for the public and derived concentration guides (DCGs) for air and water is draft DOE Order 5400.XX of March 18, 1988.

Discussion

The proper reference for the radiation protection standards for the public is a memorandum from W.A. Vaughan to DOE field offices, Attachment 2, August 5, 1985. The reference for the DCGs is a memorandum from Mary L. Walker to DOE field offices dated March 31, 1987, Draft DOE Order 5480.XX, Attachment 1. These were confirmed by the memorandum from John C. Tseng to DOE field offices on November 4, 1987.

Tentative Finding(s)

There is confusion about proper references for radiation protection standards for the public.

Probable Root Cause(s)

A probable root cause is the delay in finalizing the DOE order.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 13 - Env. - Monitoring - 06
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-09-89

Building or Activity Effluent Report

Reference Data 1988 Effluent and Discharge Report, DOE Form 5821.1, Letter Reafsnnyder to Watanabe, DOE 1326-89, July 20, 1989.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The effluent report for 1988 only shows uranium in airborne effluents.

Discussion

The 1988 effluent report, submitted to EG&G Idaho, Inc. (EG&G) on July 20, 1989, shows only uranium in airborne effluents. Individual radionuclides are listed for airborne effluents in the FMPC Environmental Monitoring Annual Report for 1988, Table 2, and in the National Emission Standards for Hazardous Air Pollutants submittal. Liquid effluents to discharge point 001 listed individual radionuclides. In addition, the liquid effluent for point 001 in the 1988 effluent report does not show units (gallons) on the volume discharged. Minor discrepancies between this report and the FMPC Annual Environmental Monitoring Report were noted for radium-226, total uranium, and thorium-238 (should be thorium-228). Point 002 volume does not agree with the monitoring report.

Tentative Finding(s)

The effluent report for 1988 did not show all radionuclides in the 1988 effluents.

Probable Root Cause(s)

Management oversight is inadequate.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	13	-	Env.	-	Monitoring	-	07
	Aud. ID Number		Team (Env., S&H, M&O)		Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)		Seq. Data Sheet No.

Date 8-09-89Building or Activity ReportReference Data Environmental Monitoring Program at the Feed Materials Production Center, FMPC/SUB-009, March 1988.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The "Environmental Monitoring Program at the Feed Materials Production Center" report documents the program as it existed in 1987. This report is out of date and will need to be revised to meet the requirements of DOE Order 5400.1.

Discussion

The report is out of date, especially in regard to groundwater monitoring. The rationale and design criteria for the monitoring program also will need to be included. References to the procedures for laboratory analyses should also be included, preferably with the minimum detectable concentration for each analysis specified. The environmental monitoring plan is required by DOE Order 5400.1, is to be addressed in an implementation plan, and is to be developed no later than November 9, 1991.

Tentative Finding(s)

The environmental monitoring plan needs to be developed.

Probable Root Cause(s)

There have been changes in program requirements.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 15 Env. GW(EM) 02

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity N/A

Reference Data Harmon, 1989, Proposal for a Groundwater Monitoring Program at the Feed Materials Production Center, prepared by Site Restoration Department Remedial Investigation/Feasibility Studies Section; Bendula, 1989, OEPA, personal communication; Consent Decree, 12-2-88, No. C-1-86-0217, U.S. Dist. Ct., So. Dist. Ohio; Letter J. A. Reafsnnyder to T. Winston (OEPA) dated 4-7-89

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

There is a lack of formal groundwater monitoring programs for potential contaminant sources.

Discussion

The Ohio EPA (OEPA) has indicated that the sanitary landfill is required to have groundwater monitoring under the state's solid waste regulation (OAC 3745-27-06(E)(4)). OEPA believes that the existence of two shallow downgradient wells associated with the remedial investigation/feasibility study (RI/FS) program are adequate "at this time" to fulfill the requirements of the regulation in light of the RI/FS program. A formal program for this facility does not exist, however. Additionally, OEPA believes that there may be other facilities on the site (specifically, the coal pile and the coal pile runoff lagoon) that need specific monitoring programs. Follow-up studies of the Consent Decree concerning the coal storage facility indicated that no liner is required in lieu of performing groundwater monitoring close to the basin. FMPC has responded (April 1989) with a two-well proposal for groundwater and basin level monitoring, and is awaiting a formal reply from OEPA. Other potential problems might include the fly ash pile and scrap pile areas.

Tentative Finding(s)

The potential for not meeting regulatory guidelines exists because the FMPC is not actively establishing formal groundwater monitoring programs for possible contaminant sources.

Reference I.D. 15-02

Probable Root Cause(s)

A combination of inadequate resources and a perceived lower priority status for such programs may exist.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 15 - Env. - GW(EM) - 03
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity N/AReference Data WMCO SOP: OSH-P-52-003; OSH-P-52-013; OSH-P-52-018; Bendula, 1989. OEPA, personnel communication.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Off-site groundwater monitoring standard operating procedures (SOPs) are inappropriate with respect to obtaining a "representative" groundwater sample. Several deviations from prescribed procedure were observed.

Discussion

SOPs have been established by WMCO for performance of groundwater monitoring as part of the Environmental Monitoring Program at FMPC (DOE Order 5400.1). Observations on July 26, 1989, of the sampling procedure, compared with the applicable SOP, indicated that many of the requirements of the SOP were not followed. A summary of these deficiencies is listed below.

- No field or trip blanks were prepared.
- A pH meter, required by the SOP, was not available for use in the field. Therefore, no measurements could be taken.
- Chain-of-custody forms were not completed at the end of each sample as required by the SOP.
- Chain of custody was not maintained in the field; sample bottles were left unattended by sampling personnel.
- A sample bottle was incorrectly labeled.
- A glass beaker was used for field measurements, instead of a specified plastic container.
- A sample bottle was filled inappropriately (i.e., it was only half filled).

The SOP is not appropriate with regard to the purging time specified for each well. The SOP specifies that each well should be purged for 1 minute. The stated objective of SOP OSH-P-52-003 is to obtain a "... representative groundwater sample..." One minute does not represent an adequate purging time for a domestic well. The stated goal of the SOP is not consistent with the procedure specified. Additionally, the OEPA guidance for domestic well sampling specifies that a minimum of a 10-minute purge or temperature stabilization should occur prior to sampling.

Tentative Finding(s)

The groundwater monitoring program may not be properly organized and supervised. However, this fact is recognized and is being addressed by WMCO as part of the proposed modifications to the groundwater monitoring program.

Probable Root Cause(s)

There appears to be insufficient supervision and a lack of refresher training in the area of groundwater monitoring.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 15 - Env. - GW(EM) - 04

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity N/A

Reference Data WMCO SOP ESH-P-52-004; Harmon, 1989, WMCO personal communication; Weisman, 1989, WMCO, personal communication; Dall, 1989, Onsite wells - 1989 Data in Analysis Databases.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Monthly sampling of on-site wells has not been completed in accordance with the above-specified SOP.

Discussion

An on-site monitoring program is specified as part of SOP ESH-P-52-004. While much of this program has been incorporated into the RI/FS and RCRA programs, samples are intermittently obtained under its auspices and the SOP remains "on the books." The water treatment plant (WTP) personnel who administer this program have not been given any direction with regard to the status of this program, and as such, are continuing to proceed with the assumption that the program is still viable. As long as the SOP remains intact and no direction is given to the WTP personnel, this program will remain as a noncompliance with the existing SOP. Of concern is the infrequent sampling of the three onsite production wells associated with the program. These wells are specified under the SOP (Section 6.2.1) for monthly sampling and analyses for total uranium, pH, alpha, beta, chloride, nitrate, and sulfate. The last sampling recorded under this program was in February 1989. It should be noted that the RCRA sampling procedure also exists as part of this SOP. The RCRA sampling, however, does not follow this SOP. The current RCRA sampling uses the RI/FS sampling procedures for sampling of wells.

SOP ESH-P-52-004, therefore, is not consistent with the current sampling procedures. This problem has been recognized by WMCO and is being addressed in the proposed modifications to the groundwater monitoring program.

Reference I.D. 15-04

Tentative Finding(s)

The status of the on-site portion of the groundwater monitoring program is in a state of flux and virtually nonexistent.

Probable Root Cause(s)

There is a lack of supervision and authority exhibited in the groundwater monitoring program, and inadequate program direction and communication exist.

Quality Assurance (QA)

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env - QA - 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity QA AssessmentReference Data Site Document AnL-QAP, Site Document FMPC-2139, Interviews with on-site laboratory personnel during the period 7/21/89 and 7/26/89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

The Water Treatment Plant (WTP) laboratory and the OS&H Chemistry Laboratory are not presently operating under any written quality assurance plan (QAP).

1	2	3	4	5
—	—	—	X	—

There is no QA audit function presently operating for the three on-site testing laboratories.

1	2	3	4	5
—	—	—	X	—

There is no independent individual assigned to oversee QA training and compliance issues at the on-site laboratories.

Discussion

Despite the presence of a good and long-standing quality control (QC) program, QA within the laboratories is virtually nonexistent.

Under the guidance of DOE Order 5700.6B, FMPC has generated its QA Manual (FMPC-2139), and this document clearly states in Section 2.2.2 that "control over activities which contribute to the achievement or verification of quality" be written and used in conducting activities. National Pollutant Discharge Elimination System (NPDES) regulation 40 CFR 122.41(e) states that adequate laboratory controls and QA procedures must be provided. The expansion of this statement, found in the NPDES Inspection Manual (Chapter 8), requires the inclusion of a written QA manual. It is apparent that the lack of QA manuals in the WTP and OS&H laboratories is a potential DOE and regulatory issue. The WTP and OS&H laboratories do not have written or informal procedures to perform internal audits or QA training activities, and consequently, neither of these activities have been performed. The draft OS&H Laboratory QAP and the Analytical Laboratories QAP do have provisions for the Site Analytical QA (SAQA) Supervisor to perform formal QA training and internal audits; however, these functions are not presently being conducted. Apparently, there have been two or three minor surveillance activities done by a member of the Quality and Safety Group, but these were not followed by any performance feedback to the laboratories. The QA training consists only of familiarizing new personnel of SAQA existence and function, and no continuing education is in place, as spelled out in AnL-QAP 4.6.4/4.6.5 and the draft OS&H QAP.

From an organizational standpoint, there is no independent person assigned to oversee QA training and compliance concerns. The SAQA Supervisor has no official status with the OS&H and WTP laboratories, even though this position presently supplies and monitors quality control samples and results. This position reports solely to the manager of the analytical laboratories with no sanctioned reporting responsibility to site Quality and Safety personnel.

The reports generated by SAQA and distributed to the three laboratories deal solely with statistical data derived from the QC program sample results. Since no audit function is in place, no corrective procedures can be assessed systemwide for potential management action.

Tentative Finding(s)

There is no functioning comprehensive and independent QA program for the on-site laboratories.

Probable Root Cause(s)

Management has inadequate resources to meet standard industry QA practices.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env. - QA - 02
 And. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89

Building or Activity QA Assessment

Reference Data Observation of laboratory practices and interview with personnel during the period 7/21/89 and 8/1/89.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Data are not systematically reviewed and checked.

1	2	3	4	5
—	—	—	X	—

Laboratory practices and procedures are inadequately documented.

Discussion

The Analytical Laboratories, consisting of Chemical Analysis and Instrument Analysis Groups, have a stated policy on data review in their Quality Assurance Plan (QAP) and seem to have an informal ongoing procedure for review. The OS&H Chemistry Laboratory has stated their intended policy in their draft QAP, but as yet has not initiated even an informal data review process, as stated by their personnel. There is no data review at the Water Treatment Plant (WTP) laboratory. None of these laboratories operate under a written standard operating procedure (SOP) that establishes a data review checking and sign-off process. This can lead to unnecessary computational and data entry errors.

With regard to laboratory procedures and general practices, it can be said that these laboratories do calibrate instruments, use appropriate quality of standard and reagent materials, perform responsible equipment maintenance, and employ acceptable analytical procedures in generating data. However, there is a systemwide deficiency in written procedures, as well as data verifying practices and documentation. This is evidenced by the following specific observations:

- There are no SOPs for daily operations, calibration procedures, maintenance, or troubleshooting of instrumentation and equipment. The manufacturer's manual is the sole source for this information without apparent regard to special analytical circumstances or requirements. Special information is passed on verbally.
- There are no SOPs for glassware cleaning or the checking of the proper grade of laboratory pure water. This could lead to unnecessary interference or background problems in generating accurate data.
- There are no SOPs for standard and reagent preparation in specific laboratories and none of the standards/reagent logs observed can trace materials to specific vendors and lot numbers.
- All laboratories, with one exception, depend on manufacturer-installed temperature monitoring devices with no verifying temperature control mechanisms in place. Temperature logs are not consistently kept and/or checked.
- The types of logbooks kept (e.g., temperature logs, calibration logs, weight book, etc.) vary between and within laboratories, and it cannot be proven they are routinely checked by supervisors.
- Not all laboratories maintain books for the documentation of raw data. In those that do, there is evidence of corrections made in these data books that are not properly crossed out and initialed, and they are not always bound to ensure against loss of information.
- The calibration charts and/or logs are not traceable to a specific standard reagent and are usually unsigned by the operator.

Many analytical methods used by the laboratories are not formally approved for use, as evidenced by the following:

- Approximately 75% of the methods used by the OS&HC Laboratory are in draft form but presently being used. As an example, procedure OSH-P-34-012 has been in use for 8 years; however, it is still in draft form with no control number, no date, and no signature.
- None of the methods used by the WTP laboratory are written or approved. They are using photocopies of original source books for analysis guidance.
- The analytical laboratories have approved written methods, but a significant number of those methods are under review for "decommissioning" or revision. This has not been an ongoing activity.

Tentative Finding(s)

There are insufficient written procedures and documentation to verify and trace the generation of analytical data.

Probable Root Cause(s)

Management fails to recognize or understand the need for defensible (i.e., verifiable and traceable) data.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env. - QA - 03
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity QA

Reference Data Analytical Laboratories Quality Assurance Plan, observations of activities, interviews with on-site personnel during the period of 7/21/89 and 8/1/89, site document FMPC-2139.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

No written standard operating procedures (SOPs) exist for sample handling activities.

1	2	3	4	5
—	—	—	X	—

No one is designated as a sample custodian to oversee sample tracking and control.

1	2	3	4	5
—	—	—	X	—

Chain-of-custody procedures are not consistently used and requirements therefor are not met.

Discussion

Proper sample handling procedures are essential to maintain adequate sample tracking and control. To ensure that these procedures are properly executed when writing SOPs, it is necessary to follow chain-of-custody procedures and assign a sample custodian.

Site Document FMPC-2139, Section 2.2.2, states the requirement that, to ensure quality, proper documentation be written and used.

There are no written SOPs that instruct and direct staff in the receiving, shipping, or distribution of samples throughout the laboratory system; the training for these activities is verbal.

It is a recommended, and often required, practice to assign the responsibility and the oversight of sample handling procedures to a designated "sample custodian." The lack of a sample custodian at this site results in a system where there is no central tracking or storage of project-related samples. The distribution and location of samples are based solely on the reliability of generally accepted practices and word-of-mouth instruction. The analytical laboratories do have a sample receiving group; however, they only have log-in and distribution responsibilities.

Chain-of-custody procedures are essential to the tracking and controlling of samples within and between sample destinations. NPDES, RCRA, and CERCLA require that chain of custody procedures be followed and documented. The analytical laboratories QAP Sections 8.2, 8.3, and 8.5 formally recognize a distinction between samples that require a chain of custody and those that do not. Those samples requiring compliance (i.e., NPDES, RCRA, and CERCLA) do have proper documentation procedures. However, observations show chain-of-custody paperwork with incomplete sign-off, no audits for compliance and no written SOP. Chain of custody also implies security of samples under proper storage conditions. It was observed that open access to sample refrigerators was available in most laboratory facilities during working hours.

Tentative Finding(s)

The sample handling procedures are not sufficient to ensure adequate sample tracking and control.

Probable Root Cause(s)

Management fails to recognize or understand the need for defensible (i.e., verifiable and traceable) data.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env. - QA - 04
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity QA AssessmentReference Data Review of files and interviews with laboratory management during the period 7/21/89 to 8/1/89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Training records are incomplete in the OS&H Chemistry Laboratory.

1	2	3	4	5
—	—	—	X	—

There are no training records for the Water Treatment Plant laboratory technician.

1	2	3	4	5
—	—	—	X	—

Training records for the analytical laboratories vary and are not complete.

1	2	3	4	5
—	—	—	X	—

There is no standard operating procedure (SOP) that deals with training record maintenance.

Discussion

A good program of proficiency testing exists through samples supplied and monitored by the Site Analytical Quality Assurance Group; however, the results of this testing are not required as part of a technician's permanent training record. There are training record files with letters acknowledging permission to attend on-site and off-site training courses, but these are rarely accompanied by certificates/letters of verification to prove that courses were successfully completed. The lack of an SOP that standardizes proper documentation of training and ensures

the systematic review of records for completeness and timeliness has led to a situation where the laboratories cannot always certify that technicians are qualified to perform the assigned tasks.

Tentative Finding(s)

Insufficient documentation exists for training of laboratory staff to certify qualification.

Probable Root Cause(s)

Lack of attention has been given to documentation of laboratory personnel training records.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env. - QA - 05
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity QA AssessmentReference Data Personal observations on 7/21/89 and 8/1/89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

The analytical laboratories use shift logs.

Discussion

In the analytical laboratories, shift logs are used to pass on written information regarding daily activities, analytical problems, and assignments to technicians on following shifts. This practice minimizes communication errors, documents occurrences in the laboratory, and permits the lead technicians a chance to review activities during their absence. This is a laudable practice and is beyond requirements.

Tentative Finding(s)

N/A

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 06 - Env. - QA - 06
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-17-89Building or Activity QA Assessment

Reference Data Personal review of the notebook of photocopied test results received from IT Corporation laboratories with a cover letter from J. T. Harvey dated 8/15/89.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

IT Corporation laboratories have not maintained a constant "Acceptable" performance rating on EPA's Contract Laboratory Program (CLP) quarterly blind performance evaluation samples.

Discussion

As part of the RI/FS activities, IT Corporation laboratories have been subcontracted to analyze soil and water samples employing EPA CLP methods and protocols. In an effort to assess the quality (i.e., validity) of the analytical data in the absence of a full EPA-CLP data validation process, the results of the EPA-CLP quarterly performance evaluation studies were requested and reviewed. These studies involve sending blind samples to EPA-CLP participating laboratories to assess the acceptability of their performance in correctly analyzing the concentration of unknown constituents.

The attached table summarizes the performance of the five EPA-CLP participating IT Corporation laboratories during the period of the FMPC RI/FS activity. There are three items of note that should be considered when assessing the performance of IT Corporation laboratories:

- Four out of five laboratories have had at least one unacceptable performance evaluation.
- Four out of ten available results for inorganic evaluations were unacceptable.
- Oak Ridge's laboratory performance warrants serious concern regarding quality of data generated.

Although the performance of the IT laboratories on the EPA-CLP performance evaluation studies do not directly dispute the validity of the data generated in the RI/FS, it does bring up questions as to data quality that these laboratories generate in accordance with meeting CLP criteria. It also

should be noted that although the performance evaluations samples are termed quarterly blinds, the laboratory is fully aware of what these samples are and usually takes appropriate care in analyzing them.

In conclusion, in the absence of a data validation process that would ensure quality based on these performance evaluation results, it appears that the data generated on the RI/FS may be questionable.

Tentative Finding(s)

The analytical data generated during the RI/FS activities may be of questionable quality.

Probable Root Cause(s)

ASI, DOE, and WMCO management have failed to understand that monitoring laboratory performance could have an impact on RI/FS data validity.

Summary of Performance Evaluation Sample Results by IT Corporation Laboratories (1987 - Present)

IT Corp. Laboratories	Cerritos	Cincinnati	Pittsburgh		Knoxville		Oak Ridge	
Sample Type Sample ID (1)	Organic	Organic	Organic	Inorganic	Organic	Inorganic	Organic	Inorganic
QB-3-87	A	A			Contract Awarded	NC	A	NC
QB-4-87	A	A			A	NC	A	NC
QB-1-88	U	NC	U		A	A	U	Contract Awarded
QB-2-88	A	A	A		A	A	NC	A
QB-3-88	A	A	A		A	U	NC	A
QB-4-88	A	A	A		A	RNS	NC	U
QB-1-89	A	A	A		A	A	NC	A
QB-2-89	A	A	A	Contract Awarded	A	RNS	NC	U
QB-3-89	RNS	RNS	RNS	RNS	RNS	RNS	NC	U

(1) To Read the Sample ID Notification Follow: QB-3-88 = Quarterly Blind for the 3rd Quarter of 1988(FY)

Legend: A = Acceptable performance as rated by EPA
 U = Unacceptable performance as rated by EPA
 NC = No contract with EPA, therefore no result available
 RNS = Results not sent by EPA (confirmed by letter)

C1.324

Reference I.D. 06-06

Appendix C2

Safety and Health Subteam Report

C2.1 Introduction

The Safety and Health Subteam assessed the degree to which the Westinghouse Materials Company of Ohio (WMCO) Feed Materials Production Center (FMPC) meets applicable requirements in several major functional areas: facility design criteria, safety analysis, nuclear facility safety, emergency preparedness, radiological protection, personnel protection, fire protection, packaging and transportation, quality assurance (QA), medical services, firearms safety, electrical systems, maintenance, and training. The assessments within each functional area were conducted in accordance with preestablished protocol and lines of inquiry (Section C2.6).

This report presents a summary assessment of safety and health functions at the FMPC (Section C2.2). This summary assessment is supported by more detailed evaluations (Section C2.3) in each functional area and is, in turn, supported by detailed data sheets (Section C2.7) that contain the basic observations (both positive and negative) of the subteam members.

The safety and health programs at the FMPC have been evaluated many times over the past several years via U.S. Department of Energy (DOE) order requirements for such assessments, investigations resulting from incidents at the plant, and special assessments, such as the Technical Safety Appraisals (TSAs) conducted by DOE-Headquarters (HQ). This assessment builds on those conducted earlier and confirms many of the findings from the earlier evaluations. The FMPC was not producing uranium products during this assessment, and it was not possible to observe firsthand the conditions existing during production. This places considerable limitations on the ability of the subteam to address some specific areas, such as control of spread of uranium compounds within the processing areas during operations and the degree of adherence of plant operators to written procedures. The subteam, therefore, focused on systems and management controls to determine that the appropriate requirements are met.

C2.2 Safety and Health Subteam Assessment

There are major areas within the FMPC facilities and operations wherein contemporary DOE order requirements are not met. The FMPC facilities were constructed in the 1950s to standards existing at that time and have undergone very little backfitting to meet upgraded and more stringent DOE requirements as they evolved.

At the time of this assessment, the nuclear facilities (existing or under construction) at the FMPC do not meet the requirements of DOE Order 6430.1A, General Design Criteria (or earlier versions of the same order) (Finding S-01). This order, among other things, establishes requirements for non-reactor nuclear facilities to ensure the confinement of radionuclides and other hazardous materials under normal and abnormal plant conditions. The order addresses facility integrity, as well as requirements for facility systems, components, and equipment to provide airflow patterns and confinement to minimize the spread of contamination and hazards to the occupational worker and the public. The FMPC facilities that process nuclear materials are of windowed construction, with limited engineered features (physical or environmental barriers) to establish confinement zones. This facility design and type of construction do not provide assurance during either routine or upset conditions that radionuclides will be confined within the facilities (Finding S-04).

In addition to the absence of effective plant features, only one of the FMPC nuclear facilities (the Pilot Plant) is supported by an approved Safety Analysis Report (SAR) with identified Operational Safety Requirements (OSRs) (Finding S-02). These specific documents for this facility are acknowledged by WMCO to be inadequate, and this assessment supports that conclusion. The SAR/OSR package is a requirement of DOE Order 5481.1B, Safety Analysis and Review System,

and would define the safe operating envelope for a given facility, including the requirements and values that must be adhered to by the plant operators. The absence of approved Final Safety Analysis Reports (FSARs), with accompanying OSR packages, means that formal and independently reviewed analytical bases for the safe operation of the plants at the FMPC do not exist.

DOE Order 5480.5, Safety of (Non-Reactor) Nuclear Facilities, establishes additional requirements related to safety and operations of nuclear facilities, including facility startup authority, independent safety review of operations and changes thereto, operational controls, and facility operator capabilities. This assessment concludes that WMCO does not meet major requirements of this order since the facilities have continued to operate with major deficiencies in areas such as those noted above and others to be discussed below (Finding S-03).

As a result of past operations and until quite recently (1988), the entire FMPC process area (approximately 136 acres) was considered to be contaminated with uranium and was treated as such. The balance of the 1050-acre site was treated as a clean area. In an effort to reduce the size of the contaminated area, WMCO introduced a three-zone concept, wherein Zone 1 (considered clean) is outside the process area, and the process area is made up of Zone 2 and Zone 3 areas. Zone 2 areas (transition areas) are presumed to be contaminated (activity is below a specified level). Zone 3 areas are known to be contaminated above certain levels and to have the potential airborne contamination. Zone 3 areas house the FMPC major uranium processing equipment and with the exception of the Pilot Plant Grit Blaster are separated from Zone 2 areas only by rope. There are no other physical barriers or engineered features between Zone 3 and Zone 2 areas.

There are step-off pads between the two areas to minimize the spread of contamination by operators, but the absence of physical barriers precludes any real separation of the two zones and, therefore, any meaningful distinction between zone hazards. The WMCO approach is recognized as an interim measure, but it does not provide adequate assurance of control of contamination and other potentially hazardous materials. The radiological posting of the FMPC is based on DOE Order 5480.1A, Radiation Protection for Occupational Workers and supplemented by the WMCO zone concept. This posting concept is not consistent or compatible with the requirements of DOE Order 5480.11 (Finding S-05).

The Safety and Health Subteam concludes, based on existing analysis and examination, that the structural integrity of the K-65 silos is questionable (Finding S-06).

Two separate analyses of the structural integrity of the concrete slabs that form the silo domes show that the domes have lost any capability to sustain additional loads, and it has been postulated that the center 20-ft-diameter section could collapse at any time. The mechanism that would limit the collapsed area to the center 20-ft-diameter area of the dome (i.e., the area now covered by the 30-ft-diameter temporary plywood cap) has not been identified.

The analyses also revealed the presence of cracks and a general deterioration of the wall materials. As a result, it was recommended by the contractor who did the analyses that any removal of silo contents should be accompanied by simultaneous reduction of the surrounding berm to preclude possible collapse of the silo walls. The contractor also estimated (February 1986) that the walls and base slab of the silos should continue to be structurally stable for 5 to 10 years. At this time, WMCO has not conducted or had others conduct additional analyses that support or refute the earlier analyses.

The two K-65 silos contain materials that yield large quantities of radon gas. This gas is confined, to a degree, by the silo structure, but unfiltered releases occur continuously. An activated-charcoal filter system has been installed recently, but this system is operated intermittently only to support FMPC worker access to the silo domes.

In addition to the major areas noted above, there are several other areas where DOE order requirements are not fully met. The FMPC emergency preparedness program is improving, although there are several deficiencies. A recent exercise drew favorable comments from several participating agencies, including the adjacent townships, county and state representatives, and an independent evaluator.

The major FMPC industrial hygiene hazard is considered to be asbestos (Finding S-07). Transite, a material containing asbestos, was widely used in construction of walls, partitions, and roofs. Also, asbestos-containing materials were used as insulation for plant piping. To date, WMCO has not completely characterized the asbestos at FMPC, and there are noted instances wherein exposed materials suspected of containing asbestos are not properly labeled and covered.

The FMPC firearms safety program does not meet the requirements of DOE Order 5480.16, Firearms Safety, in two areas (Finding S-08). The first is the absence of an SAR for the facilities and operations of each live-fire range. The second is the absence of an analysis to determine what weapons can be used safely at the FMPC.

Although there are areas wherein DOE Order 5480.7, Fire Protection, are not met, it is concluded that the FMPC does have a satisfactory fire protection program (Finding S-09). This rating is downgraded from an otherwise strong program because of the absence of an effective self-appraisal program

within WMCO, lack of attention to good housekeeping practices that involve combustible materials, and an inadequate program for ensuring fire barrier integrity.

There are in excess of 80,000 drums on the FMPC site. Some of the drums are filled with various materials, others were formerly filled, and still others are empty and waiting to be used. Observations made during site tours revealed filled drums that are badly bulged on both top and bottom, filled drums that are corroded so badly that the contents are visible, and new empty drums that are extensively rusted from exposure to the elements in an uncovered storage area (Findings S-10 and S-11).

The FMPC QA program is well structured within the highest tiered documents, and there is evidence of effectiveness in specific areas. The utilization of QA as a management tool to effect improvement in sitewide areas, such as radiation protection, asbestos control, and basic safety documentation to support nuclear facility operation, is not evident and, therefore, the overall effectiveness of the QA program is questioned (Finding S-12).

The FMPC maintenance program has many positive features, such as good training, a modern maintenance management and inventory control system (MMICS), and effective procedures. At the bottom line, the maintenance backlog is growing primarily as a result of inadequate staffing (Finding S-13).

The training programs being implemented appear to satisfy the requirements of the

governing documents; however, some elements of a unified site program are still lacking. There is no system on a site level to ensure that an individual has received the minimum training required for his position, making it difficult for top management to ensure that DOE requirements are met. The draft FMPC-102 procedure defines a training records management system, but such a system is not yet in use. Centralized and adequate facilities to conduct training may assist the implementation of additional sitewide training recently required (Finding S-14).

Areas of positive WMCO performance also are noted. The FMPC medical services program is considered to be meeting the requirements of DOE Order 5480.8, Contractor Occupational Medical Program. The quality and attitude of the medical staff are commendable. There is a need to develop a system to provide faster retrieval of medical records.

The assessment of FMPC electrical equipment concludes that the equipment is old, but that it is being properly maintained and will operate safely.

The procedures used by WMCO for the K-65 silo sampling program are excellent in incorporating equipment lineup into the larger task of preparing for sampling. And the training program implemented for the sampling does an excellent job of preparing the operators to ensure that the sampling is done effectively and with as low as reasonably achievable (ALARA) exposures.

C2.3 Safety and Health Subteam Evaluations

This assessment was conducted by evaluating 14 separate safety and health functional areas. The following subsections provide assessment criteria, evaluation narrative, and conclusions in each functional area.

C2.3.1 Facility Design Criteria

C2.3.1.1 Description and Assessment Criteria

DOE Order 6430.1A (and earlier versions of the same order) requires that DOE non-reactor nuclear facilities be designed such that: confinement of radionuclides to within the facility is ensured; airborne releases from the facility are filtered; natural phenomena hazards (i.e., tornados, earthquakes, etc.) be considered; a documented safety analysis of the facility be performed; systems, components, and equipment be provided if necessary to prevent or mitigate accidents; recognized construction codes and standards be used if appropriate; and one or more confinement zones be established within the facility with airflow patterns into the zones of higher contamination, such that the spread of contamination and the hazard to the occupational worker are minimized.

C2.3.1.2 Evaluation

The subteam believes the nuclear facilities at the FMPC of greatest safety significance are as follows:

- chemical and nuclear hazards
 - Pilot Plant
 - Plant 2/3
 - Plant 4
- nuclear hazards
 - Plant 5
 - Plant 6
 - Plant 9
 - K-65 silos
 - Waste storage pads

- potential for nuclear hazards
 - Plant 1
 - Plant 8
 - Plant 8 addition
 - Building 64.

At the FMPC, none of the above nuclear facilities met the assessment criteria. To a large extent, this situation is a result of changes to nuclear facility design criteria from 1950 to today coupled with the absence of an FMPC "backfitting" program to update the facilities to contemporary requirements. However, it should be noted that construction presently in progress at the FMPC (specifically, the Plant 8 addition and Building 64) continues to use the design techniques traditional to the FMPC that do not meet DOE Order 6430.1A requirements.

Application of current design criteria primarily refers to the control of airborne radionuclides and/or chemical releases. As constructed, the FMPC nuclear facilities have windows and are not air conditioned. In hot weather, the facilities are operated with windows and doors open, and the air freely ventilates through unfiltered outlets in the roof area. Even though the processing off-gas streams are filtered, any fugitive emission from a process during normal operations has a direct, unfiltered pathway to the site environment. Emissions from processing equipment failures and accidents are similarly unconfined and are released unfiltered to the environment. In addition, the interior airflow pattern is subject to unpredictable change any time the wind blows, or a portable circulating fan is started near the work area, or when the large, non-airlocked rollup doors of the facility are opened. Unless a respirator is continuously used, the possibility of an internal dose through inhalation and/or ingestion always exists during operating periods in these facilities. These facilities, therefore, do not provide the necessary protection from the nuclear and/or chemical hazards inside them.

This assessment also identifies issues within specific FMPC facilities. The nuclear and chemical hazards coupled with dispersable material form (powders), available energy for dispersion, and lack of confinement and filtering of all accidental releases cause the Pilot Plant and Plant 4 to pose an operational hazard significantly greater than that posed by the metals plants.

Plant 2/3 poses a significant operational hazard because of its advanced deterioration, lack of both confinement and filtered pathways, and its contribution of transuranic materials into the waste streams processed by Plant 8.

There is a concern with the fugitive emissions in Plant 5, and a recognition that its current state of cleanliness is not representative of its condition when operating.

The FMPC waste storage pads include drums that have failed because of corrosion. These failed drums and their contents require repackaging and rehandling because the materials inside the drums are available for unpredictable dispersion by wind and rain. A technical assessment is needed to verify that continued repackaging into uncoated, carbon steel drums [in lieu of stainless steel or inert organic (plastic) inner drums] is a prudent activity.

The two K-65 silos, containing materials that yield large quantities of radon gas, are of concern since two analyses of the structural integrity of the concrete slabs that form the silo domes show that they have lost the capability to sustain additional loads. It was postulated that the center 20-ft-diameter section of the domes could collapse at any time.

The mechanism that would limit the collapsed area to the center 20-ft-diameter area of the dome (i.e., the area now covered by the temporary plywood cap) has not been identified. The earlier analyses of the K-65 silos also revealed the presence of cracks and

a general deterioration of the wall materials. It was recommended by the contractor that performed the analyses that any removal of silo contents should be accompanied by simultaneous reduction of the surrounding berm to preclude possible collapse of the silo walls. The contractor also estimated (February 1986) that the walls and base slab of the silos should continue to be structurally sound for 5 to 10 years. At this time, WMCO has not conducted nor had others conduct additional analyses that support or refute the earlier analyses.

Protection of the off-site population from the effects of natural hazards (i.e., tornados, high winds, and earthquakes) on FMPC nuclear facilities is another area of significant departure from DOE requirements. The natural force loadings used for the original facility designs are not known with certainty, but they are presumed by WMCO to be the Uniform Building Code (UBC) values in effect at the time of design. Clearly, the facilities, by virtue of their windowed construction, do not provide confinement or processing equipment protection during a tornado. An on-going study by WMCO also indicates that seismic loads significantly in excess of the original UBC loads but consistent with DOE Order 6430.1A design criteria for nuclear facilities will cause failures that have the potential for an off-site release.

Of particular concern is the fact that, unless contemporary design criteria are adopted by WMCO, the new construction and/or major modifications of nuclear facilities in progress at the FMPC will result in more facilities of the nonconfining, nontornado-resistant design. Some ambiguity exists with respect to the actual natural phenomena design loads being used for these facilities.

C2.3.1.3 Conclusion

The nonconformance of existing FMPC nuclear facilities to DOE Order 6430.1A indicates that there may be less than adequate protection from nuclear and chemical hazards

associated with the Pilot Plant, Plant 2/3, Plant 4, and, possibly, Plant 5. In addition, continuing to not apply DOE Order 6430.1A requirements on major facility modifications or new construction will perpetuate the contamination problems impacting the FMPC.

C2.3.2 Safety Analysis

C2.3.2.1 Description and Assessment Criteria

The FMPC SARs were examined to determine their currency, usage, and degree of conformance to the requirements of DOE Order 5841.1B. The order (and, by reference, other DOE orders pertinent to nuclear facilities) requires that applicable U.S. Nuclear Regulatory Commission (NRC) Regulatory Guides for SARs be followed to ensure completeness, that OSRs be used as necessary to define for the operators the safe operating envelope of the facility, and that a Preliminary Safety Analysis Report (PSAR) be prepared and approved prior to the start of construction.

C2.3.2.2 Evaluation

The SAR documents analytical work performed to establish the safe operating envelope of a nuclear facility. Among other things, the SAR postulates the worst-case accidents that could impact a facility at its design inventory loading and evaluates the consequences of those accidents on the off-site general public, the on-site worker, and the operator in the facility. If the consequences result in unacceptable risks, the SAR may identify the need for additional safety systems, equipment, and components to prevent or mitigate the accident. The SAR also may place constraints on operating parameters at some value less than the design basis in lieu of or in addition to safety system requirements if that is necessary to ensure that the risk of operation is acceptable. When analysis has determined safe operating conditions (i.e., an envelope of acceptable risk), the conditions are collected and converted into requirements and values that must be

used by the facility operators. These requirements and values are OSRs for DOE nonreactor nuclear facilities and are equivalent to the NRC-approved technical specifications for commercial reactor operations.

The absence of an approved FSAR and its accompanying OSR package means that an independently reviewed analytical basis that establishes the safe operating envelope of the facility, that is supported by contractor management, and that is agreed to by DOE does not exist. None of the FMPC nuclear facilities are supported by a current, approved SAR/OSR package. A single nuclear facility, the Pilot Plant, does have a DOE-approved SAR/OSR package; however, it clearly requires revision. WMCO does have several safety studies prepared in draft form.

The ramifications of the SAR deficiency may extend beyond facility safety. The FMPC Environmental Impact Statement (EIS) (in draft form) references accidents postulated in draft or obsolete safety studies. It was noted that the EIS is proceeding to meet a 1989 completion date, but the SARs to support it have either 1993 or unassigned completion dates.

The Pilot Plant SAR/OSR package prepared by WMCO was assessed, and it was determined that neither the SAR nor the OSRs included significant material that is specified in the pertinent NRC Regulatory Guides.

A major addition to an existing nuclear facility (the rotary kiln addition to Plant 8) is nearing construction completion. It is not supported by a PSAR, even though one is required by DOE Orders 6430.1A and 5480.5. Because the feed stream to the kiln has been changed to include an existing Plant 8 feed stream, which periodically includes elevated levels of transuranic contamination, the addition may not be fully adequate for its currently planned purposes.

The basis for the FMPC practice of constructing or significantly modifying nuclear facilities without the benefit of a PSAR was examined. It was determined that DOE-ORO Order 5481.1B, Safety Analysis and Review System, May 23, 1984, does not require WMCO to prepare a PSAR for a General Plant Project regardless of its safety significance. Under the DOE-Oak Ridge Operation Office (ORO) order, only Construction Line Items or Major System Acquisitions are required to consider the need for a PSAR.

C2.3.2.3 Conclusion

Operation of a nuclear facility without an analysis supporting safe operation and without an OSR package to ensure that the operators stay within the facility safe operating envelope clearly indicates that the requirements in DOE Orders 5481.1B and 5480.5 are not being met.

The current practice at FMPC that allows construction of (or additions to) nuclear facilities without the support of a PSAR may not be safe or cost effective and is not in accordance with DOE Orders 6430.1A and 5480.5.

C2.3.3 Nuclear Facility Safety

C2.3.3.1 Description and Assessment Criteria

The FMPC was assessed against the requirements of DOE Order 5480.5. The assessment included line management startup authority, independent safety review of operations and changes (including the use of readiness reviews), operational controls, and facility operator capabilities. Criticality safety was not assessed due to the limited amounts and enrichment of fissile materials on the site, as well as favorable, prior DOE TSA reviews of the topic.

The broad scope of this assessment extended it beyond those areas covered by DOE

TSAs (i.e., the FMPC TSAs "accepted as a given that the facility and its equipment have been appropriately designed, constructed, and tested, and that the current SARs adequately evaluate the risks presented by the operations"). The expanded scope of this assessment was driven by the realization that an adequately implemented nuclear facility safety program results in plants, personnel, and supporting paperwork that collectively achieve the purposes set forth in the order.

C2.3.3.2 Evaluation

This assessment is complicated by the fact that the WMCO nuclear facility safety program is burdened with facilities that are more than 35 years old and that do not incorporate the most basic requirement of nuclear facilities (i.e., ensuring confinement of radio-nuclides). In addition, the absence of current, approved SARs means that no accepted analytical basis exists to support the WMCO and ORO position that the FMPC nuclear facilities can be operated without undue risk. It is the intent of DOE Order 5480.5 that the contractor have a strong, internal nuclear facility safety program that can independently review safety-related decisions made by the contractor's line managers. Because WMCO has previously operated its nuclear facilities without an analytical basis supporting safe operations and has not placed an operational hold on any of its nuclear facilities to analyze risks, this assessment concludes that the WMCO nuclear facility safety program is not functioning as intended by DOE Order 5480.5.

The order also requires that a line management official, selected according to the hazards presented by the facility, authorize startup of the facility (or restart, if the facility was shut down because of a safety problem). It was determined that WMCO is not classifying and ORO is not requiring a hazard classification consistent with the order requirements. The assessment also concludes that the hazard classification

system (as set forth in DOE Order 5481.1B) is being improperly applied to FMPC facilities. Thus, the FMPC is not meeting the requirements of DOE Order 5480.5.

Additional program weaknesses are evident by examining the FMPC nuclear facilities. The uranium refinery facility (Plant 2/3) is a significant example. This facility is capable of purifying uranium by dissolving the incoming feed into an acid solution and then extracting the uranium (using a solvent similar to kerosene) into one output stream while partitioning all of the dissolved impurities into the waste (or raffinate) stream. The solvent extraction, organic chemicals, and processes are similar to the contemporary DOE plutonium-uranium-extraction (PUREX) process used at both Hanford and Savannah River. Consistent with the other FMPC plants, the uranium refinery is of nonconfining construction and is not supported by an approved SAR and OSR package.

Approximately 35 years of chemical processing have left Plant 2/3 in a state of advanced and pervasive physical deterioration. Acid and fumes have caused significant damage to interior concrete shielding and to the building floor. Support for tankage is marginal because of corrosion. Process piping is unsupported in some areas because the pipe hangers are corroded away. As a minimum, an effective, independent safety review function within the nuclear facility safety program would have an analysis in place addressing the risks associated with operation of the facility.

Nuclear facility operator capabilities appear to be a significant strength in the WMCO nuclear facility safety program. The ongoing K-65 sampling work was used as a basis for this assessment because it is a current activity and is not impacted by the production stoppage. It is concluded that the personnel in this instance are very well trained and qualified to perform the work. Every action taken by WMCO to ensure that

the personnel can perform the task safely is consistent with or exceeds the order requirements, including dry runs to ensure the operators fully understood their training. Technically competent supervision and engineering backup are provided, and a readiness review ensures that operating personnel have the necessary equipment, procedures, and support personnel available at the job site. In this particular case, the nuclear facility safety program caused a DOE-approved safety assessment to be issued, with supporting OSRs.

Operational controls also are a strength within the present WMCO program. A current set of operational procedures for the K-65 sampling work was reviewed (but could not be validated because of the breathing-air constraints of the work site). Taken as a whole, the procedures meet the intent of the order requirements. An area of excellence is noted, in that the procedures effectively integrate a detailed system lineup checklist into the larger procedural task for each day of silo sampling.

C2.3.3.3 Conclusion

The deficiencies of WMCO with respect to the requirements for startup approval and for effective independent safety review (as well as the willingness to operate without a clear analytical basis) call into question the commitment of management to achieve an effective nuclear facility safety program. Even though some parts of the program (personnel, procedures, readiness reviews) are now working, the program intent is not being achieved.

C2.3.4 Emergency Preparedness

C2.3.4.1 Description and Assessment Criteria

The WMCO FMPC emergency preparedness program was assessed against the requirements of the DOE 5500-series of orders. These orders address emergency preparedness requirements for organization and administration, plans and procedures, response training

and qualifications, resources to support emergency operations, assessment and notification procedures, and personnel protection.

C2.3.4.2 Evaluation

The June 1989 TSA identified several concerns for improvement of the existing emergency preparedness program. WMCO has, or is in the process of developing, appropriate actions and schedules to resolve each of the concerns. Although some progress has been made toward the establishment of a comprehensive emergency preparedness program at FMPC, improvements are still needed to meet the requirements of the DOE 5500-series orders. The areas of concern include centralized management control and resources, updating plans and procedures, improvements and integration for emergency preparedness training, inventory and control systems for emergency equipment, accountability of personnel, upgrading of the site emergency message system, marking of evacuation routes, and mechanisms for assessing the behavior and consequences of uranium or thorium releases.

A new Emergency Operations Center was established after the 1986 TSA. It is a modern, well-equipped facility to support emergency responses at FMPC.

The Joint Response 1989 exercise conducted on June 24, 1989 (after the TSA) successfully demonstrated a systems approach to emergency preparedness. Areas for enhancement of the program were identified. The areas for improvements involve multiple agencies and will take a team approach for solutions from all agencies. This appears to be achievable.

WMCO has equipped an off-site Joint Public Information Center (JPIC) for handling media, public information, and concerns. The WMCO JPIC is an excellent facility for providing accurate, timely information to the public and the media.

WMCO emergency preparedness management has provided significant and excellent logistical support to ORO in the area of emergency preparedness.

C2.3.4.3 Conclusion

Positive progress has been made toward the establishment of a comprehensive emergency preparedness program; however, the current FMPC program does not meet several of the requirements of the DOE 5500-series orders. Areas of concern are recognized by management and appropriate actions are being taken or developed to achieve resolution. The Joint Response 1989 exercise of June 24, 1989, was a full-scale, multiple agency, independently evaluated exercise that successfully demonstrated FMPC capabilities to handle an emergency with off-site implications.

C2.3.5 Radiological Protection

C2.3.5.1 Assessment Criteria

The FMPC radiological protection program was assessed against the criteria described in DOE Order 5480.11 and some of the radiological protection criteria in the TSA Reference Manual, May 1989. Some of the specific areas were organization, radiological protection, procedures and postings, internal and external dosimetry, internal radiation exposure control, fixed and portable instrumentation, air monitoring, radiological monitoring and contamination control, ALARA, and records.

The FMPC radiological protection program is established by FMPC-2084, Radiation Control Manual. The manual defines the radiation control policies, responsibilities, and protective measures used by WMCO in the operation of the FMPC. A five-volume set of standard operating procedures (SOPs) provides the specific procedures and directions for dealing with radiation protection and quality at the FMPC. WMCO has radiological protection responsibility for the site, including other contractors.

C2.3.5.2 Evaluation

The new Quality and Safety organization has the prime responsibility for implementing the overall radiological protection program.

During this assessment, the plant was not operating; therefore, a firsthand view of radiological operations under plant operating conditions was not available. Documentation reviews, plant walk throughs, and interviews with WMCO management, line supervision, and technicians provided insight into the operation of the radiation safety program.

In general, the FMPC radiological protection program does not meet the requirements of DOE Order 5480.11. Several aspects of the program are outstanding; in particular, the quality of the staff and the quality of the procedures. Inadequacies are found in the posting requirements, training, and contamination control.

The management experience within Quality and Safety, at the operations level, is mixed between being highly qualified on a technical level to almost no radiation safety expertise. In most cases, management is knowledgeable of the applicable requirements for and has a positive attitude toward producing effective programs. Managers have been allocating their resources (both people and money) to the areas that have received recent high visibility in the media and TSAs.

The FMPC site is in transition from a condition wherein there was a noncontaminated area outside the process area and the entire process area (approximately 136 acres) was considered contaminated. At the present time, WMCO is using a three-zone concept, wherein Zone 1 is outside the process area, and the process area is made up of Zone 2 and Zone 3 areas. Zone 1 is defined as a clean area, Zone 2 areas (transition areas) are presumed to be contaminated (activity is below a specified level), and Zone 3 areas are defined as those areas where one would encounter an external radiation field,

contamination above specified levels, and/or airborne radiation hazards. Zone 3 areas house the major processing equipment at the FMPC and are separated from Zone 2 areas by rope. There is no other physical barriers or engineered features separating Zone 3 and Zone 2 areas. Without such barriers or features, there is no real separation of the two zones and, therefore, no meaningful distinction between zone hazards.

The radiological posting at the FMPC is based on DOE Order 5480.1A, Chapter 11 and supplemented by the WMCO zone concept. This posting concept is not consistent or compatible with the requirements of DOE Order 5480.11. The five types of radiation warning signs required by the order are to be posted inside a controlled area. WMCO does not use the required controlled area designations at the FMPC. (It is noted that WMCO has the goal to be in full compliance with the requirements of DOE Order 5480.11 by December 31, 1989).

Both WMCO and The Rust Engineering Company (Rust) have on-site ALARA programs. The WMCO program is well developed, documented, and implemented. The program has resulted in overall lower rem totals in past years and reduced exposures for particular operations; however, shielding is not used in all areas where it could be used. WMCO has an active ALARA committee. The Rust program is documented in policy, but the implementation is much less effective than WMCO's.

Both WMCO and Rust have implemented the same fertile female exposure policy. The policy is to provide a pregnancy test to any female, who does not have a medical exemption, that has a potential for receiving 400 mrem/yr. If a woman informs the contractor that she is pregnant or is found to be pregnant, via the test, she is immediately reassigned to work in a nonradiation area until after she delivers. To date, several (approximately six) women have been moved under the program.

The radiation training programs for both radiation workers and radiation protection technicians offered by the contractors at the FMPC meet the requirements of DOE Order 5480.11, except in the area of the applied training requirement. WMCO is developing a program to meet all DOE Order 5480.11 training requirements. Rust offers a 4-hour radiation worker training program that covers essentially all of the basic requirements. WMCO offers a strong radiation worker training course. Radiation protection technician training is currently being upgraded.

WMCO's radiation worker training records are maintained by Human Resources and are auditable. The Rust training records are maintained in-house. Since Rust does not provide radiation work training to all employees, the potential exists for some of these workers to enter or work in radiation areas without the WMCO radiation safety staff knowing that the workers have not been trained. Rust is addressing this problem by suggesting that a symbol or other visual indicator be placed on the security credential of their trained employees. This will aid the radiation safety technicians in the plant.

The maintenance of fixed and portable radiation detection instrumentation used at the FMPC is well documented and competently performed. The instrument repair shop meets with the requirements described in American National Standards Institute (ANSI) N-323, Radiation Protection Instrumentation Test and Calibration. The only area where an instrument was observed in disrepair was in the laundry facility. The clothing monitor has not been working since June 1989. This instrument has a long history of failures.

All hand and foot monitors are checked daily with a 2500-dpm natural uranium source and are alarmed to verify their sensitivity. This sensitivity check is logged and the records maintained. Portable instruments,

used by radiation protection technicians, are not always response checked prior to use.

The FMPC internal and external dosimetry programs are well managed. The technical staff is knowledgeable. The programs are effectively implemented and meet DOE and other applicable requirements, with a few minor exceptions in record keeping. The training of this staff is complete and documented.

The internal dosimetry program is made up of two components, the in vivo program and the bioassay program. The in vivo program is designed around a new state-of-the-art whole body counting facility. Selected workers are counted on a quarterly basis or as required and the data are analyzed for uranium-235 as well as for thorium-234 and lead-212, representing the uranium and thorium decay chains, respectively. WMCO new hires and terminated employees are also counted. The data are collected, analyzed, and stored by a computer analysis system. Following the completion and implementation of the FLO-GEMINI data base management system, these data will be stored in the data base. The data obtained will be easily retrievable and integrated with other health data information from other systems.

Bioassay of workers and visitors via urine analysis is conducted at a rate of approximately 100/d. Each worker in the process area leaves a urine sample on a frequency determined by their exposure potential. The samples are processed by fluorometry methods for gross uranium. Samples requiring isotopic analysis are sent to outside laboratories for analysis. All sample analysis data are assessed, reviewed, and retained.

The external dosimetry program operated by WMCO for the FMPC is excellent. The professional and management involvement has developed a dosimetry system that is certified under the DOE's DOELAP accreditation

program. The program uses the Panasonic 802 dosimeter and automatic readers. Approximately 3000 badges are processed per month.

The records for the dosimetry programs are maintained in facility offices responsible for collecting the data. The records system meets the majority of the requirements of ANSI N13.6, Occupational Radiation Exposure Records System. The deficiencies are in areas of centralization and retrievability.

Radiological protection procedures described in the WMCO safety assurance procedures (formally Occupational Safety and Health/Environmental Safety and Health procedures) number approximately 112. The procedures in some areas do not describe current practices. An example is ESH-P-30-025, the SOP on radiological posting and entering posted areas. It is dated March 24, 1987, and does not describe the zone area posting concept used at the FMPC. The posting requirement in the SOP does not comply with the new requirement of DOE Order 5480.11.

Radiation work permits are used at the site for activities that are not covered by procedures. These permits cover the actual radiological working conditions.

Warning signs, either radiation area/high radiation area or WMCO zone sign controls, are used to notify workers of potential hazards, although again they do not comply with DOE Order 5480.11.

A current inventory of radioactive source materials is maintained that specifies amounts and characteristics for all nonexempt quantities. These sources are leak tested in accordance with ANSI N43.6, Classification of Sealed Radioactive Sources.

The medical X-ray facility is adequately shielded and interlocked. A radiation survey of the facility is performed by radiation safety technicians on an annual basis. The

X-ray equipment is maintained by the manufacturer on a semiannual basis. ALARA is aggressively pursued by shielding each patient and not X-raying pregnant females.

The FMPC external radiation exposure controls in place, at the time of this assessment, include using radiation work permits, determining boundaries of radiation areas, posting of entry requirements, and using shielding in the production areas to reduce exposures (although shielding is not used in all areas where it could be). Protective clothing and safety glasses are worn inside all Zone 2 and Zone 3 areas. On special project briefings, specialized training and dry runs are used to inform the workers to ensure understanding of the project. ALARA evaluations also are performed on special projects.

Internal radiation exposure controls at the FMPC are in need of improvement. The greatest concerns are the ventilation systems and the controls in the operating plants. Plant ventilation systems are not generally designed to control the distribution of any airborne contaminants. The forced-air systems are operated routinely with the doors and windows open. A second concern is the potential for airborne radioactive material exposure in the laundry facility, with no real-time air-monitoring equipment available for use.

Calibrated continuous air monitors (CAMs), with alarms, are used to monitor the air environment for alpha and beta airborne activity. The general operation of these units is checked on a daily basis, when the filters are changed. The sensitivity is checked every 6 months during calibration.

Passive (i.e., nonalarming) air samplers operate in all plant work areas sampling the breathing zone. Personal breathing zone sampling data are used to correlate with the area air sampler data. The data are analyzed, reviewed, provided to operations supervisors, trended, and stored. Swipe surveys are conducted in all production and break rooms on

a weekly basis to assess the contamination levels. Areas, determined from process knowledge or air measurements, where airborne contamination may be encountered are posted to warn of the potential hazard along with the entry protection requirements.

The air monitoring program is well documented and implemented. A good selection of sampling instruments is available to monitor the airborne environment at the FMPC. The quantity of instruments, however, is inadequate to maintain sufficient coverage if the plant were operating at full capacity. Appropriate filter and collection media are used. Instruments are on a scheduled and implemented maintenance and calibration frequency. The sensitivity of the instruments is appropriate to establish optimum worker protection.

Counting equipment for air filters is properly calibrated and maintained and corrections are made to account for natural radioactivity. Documented counting procedures are adequate. The radiological monitoring program's major area of concern is in the posting requirement to indicate the exposure rates and contamination levels on or in conjunction with warning signs. These data are available from surveys being routinely conducted and documented by radiation protection technicians. Other than this concern, the monitoring program meets requirements of the DOE orders.

C2.3.5.3 Conclusion

The FMPC radiological protection program does not meet the requirements of DOE Order 5480.11. The most significant deficiencies include posting, material release criteria, and internal exposure control. Other concerns are training and radioactive source control. The radiological protection programs in several areas are excellent, including internal and external dosimetry, instrument calibration, and maintenance. Compliance with procedures needs to be enforced in some areas.

C2.3.6 Personnel Protection

C2.3.6.1 Description and Assessment Criteria

Personnel protection has been interpreted to include those items that may have an effect on the safety of personnel working at and/or visiting the plant and, to some extent, the general public. Major areas that have been reviewed include 1) the industrial hygiene functions, particularly the sampling of potential airborne contaminants; 2) construction safety for impact on plant operation and assurance that construction is following mandatory DOE safety requirements; 3) safety policies that provide some measure as to overall management attitude toward safety; 4) system for implementing the directives; and 5) general observations, particularly those in the plant.

The industrial hygiene activities were reviewed in general following Order 5480.10, Contractor Industrial Hygiene Program, June 26, 1985, and ORO Supplement, February 25, 1986. The major thrust was to review the past and present program for sampling airborne contaminants.

C2.3.6.2 Evaluation

Records show, beginning in 1977 with complete recall since 1979, that 93 potential airborne nonradioactive contaminants, including a variety of heavy metals, have been sampled either by room sampling or breathing zone methods. Very few samples exceed the threshold limit values for substances sampled. Many of these samples are sent off the site for analysis. Industrial Hygiene and Safety does have the capability for on-site asbestos analysis. In addition to the airborne sampling program, a weekly urine sample is collected from plant personnel and visitors and is analyzed for uranium deposition and, on occasion, fluorides if personnel may have been exposed to magnesium fluorides. It is concluded that sampling for airborne contaminants is well structured and complete.

The ventilation systems in Plants 5, 6, and 9 were reviewed from the particulates control perspective and the potential effects on personnel. Modifications have been completed on many of the systems, with new additions of high-efficiency particulate air (HEPA) in-line filter systems and filter baghouses that have not been in service. The original air intake locations for ventilation systems for Plants 5, 6, and 9 are blocked or otherwise secured so that outside air is not being drawn into the intake system. The transition sections from the air intakes to the plant ventilation systems also are removed. Air intake is available via the openings at the transition intake and the doors providing access to the filters. These doors, in many cases, are tied open. The filters are an Underwriters' Laboratory (UL) Class 2 household type, 2 in. thick, and varied in size. Most had been changed, but many needed changing, and the heating coils also needed cleaning. No documentation is available as to when the air intakes were changed, the reasons for such changes, and who would have reviewed and approved such changes. Based on the condition of the filters, heating coils, and general appearance of the intake air chambers, it is concluded that the insides of the overhead duct work are probably heavily coated with dust, possibly asbestos and heavy metals. No information is provided as to when the ducts were inspected and/or cleaned, or if such had been done since installation. Based on the information available, it is questionable whether these systems are providing clean, fresh, filtered air to the plants.

Another area of significant safety concern is the amount of asbestos at the FMPC. The facility was constructed in the early 1950s using acceptable materials and techniques available at that time. Transite, which is an excellent material for construction of walls, roofs, partitions, etc., and basically composed of asbestos, was used as the major covering for the plants. Likewise, piping systems requiring insulation were covered with asbestos-containing materials. WMCO has formal controls and appropriately trained

personnel to handle the demolition when it is done. However, no data are provided that indicated WMCO has attempted to characterize the asbestos at the FMPC. Labeling and covering (temporarily) of asbestos materials with plastic wrap have occurred in some areas. Near the steam lines to the plant ventilation heating coils, the plastic was charred through, exposing the friable materials. In many cases, the insulation was in a state where materials could be drawn easily into the plant ventilation systems. No data were provided on actions taken to investigate the migration trail of asbestos from the transite walls. Measurements at other facilities indicate transite leaches from the walls, falls to the ground, and becomes migratory. Based on the limited survey of the use and location of asbestos-containing materials at the FMPC, it appears that asbestos is a potential hazard.

Construction activities at the FMPC were evaluated against the requirements of DOE Order 5480.9, Construction Safety and Health Program. No ORO supplement was located for this order. Construction activities are performed by Rust, a subcontractor for WMCO. WMCO is responsible for supplying Rust the DOE safety requirements and providing regulatory services. No system currently exists at WMCO for formally transmitting or ensuring that Rust receives the necessary directives. WMCO has provided leadership and good coordination activities to ensure construction is completed safely. Rust management strongly supports an aggressive safety program and has established innovative measures to enhance safety awareness, communication, and attitudes. A new approach also is being considered to strengthen the construction safety program. Rust safety personnel are well trained, knowledgeable of DOE regulations, and competent in providing safety services to the FMPC. No major safety concerns were noted during a walk through of some of the construction activities. ORO has provided frequent and competent appraisals of the construction safety program. In summary, WMCO meets the construction safety requirements in all areas observed.

Top management concerns for and interest in providing a safe work environment can be measured partially by the strengths of the policies that are promulgated by the company. The current WMCO safety policy, as signed by the manager and published throughout the plant, is expressive of this concern. Other formal statements expressing the manager's position also were noted in the various safety manuals. Organizational line managers were questioned on their knowledge and understanding of the manager's position on safety. They verified the intense interest of WMCO management in ensuring a safe work environment at the FMPC. However, concern has been expressed repeatedly in ORO safety appraisals and by the plant union representatives that corrective action on findings, suggestions, and recommendations of safety concerns is slow. Items have been repeated on the last two appraisals in industrial hygiene, firearms safety, and industrial safety. This lack of commitment/prompt corrective actions is not consistent with the apparent high-level interest displayed by WMCO senior management.

There is a need to review the alarm and horn signals at the FMPC. There are at least three different alarms for potential plant events. It is almost impossible for visitors and, probably, new employees to grasp the significance of the different alarm devices.

There is no system for tracking DOE directives from ORO to WMCO (i.e., 13 copies of DOE-HQ or ORO supplements are received at the FMPC technical library and forwarded to interested departments). No formal document is attached to the directives to indicate that they have been received and how they should be implemented. In addition, no documentation was located or there was no indication that appraisals had been done of WMCO to determine if the current directives from ORO had been received and how they had been implemented. WMCO has

developed an internal system (i.e., "DOE/ORO Directives Matrix") that tracks the directives and is verified annually. The system is complete and noteworthy. A concern exists, however, in that WMCO has several subcontractors (i.e., Rust and Reactive Materials, Inc.) who have contracts that require that DOE safety requirements be provided to them by the contracting officer. It does not appear that WMCO has a system to ensure that this is done.

Several other observations were noted, some noteworthy and several needing management attention. They are described in the following paragraphs.

The design review system for new construction and modifications to existing facilities, as developed and administered by Quality and Safety, provides early safety input to these activities and appears to be disciplined and well structured. There are significant deficiencies, however, in implementation of this system since recent construction projects and significant facility modifications continue that do not meet contemporary DOE requirements. The Risk and Vulnerability Assessment performed on each new or modified facility is considered a noteworthy practice.

WMCO does not have an overall disciplined approach for plant training. Training appears to be splintered as to need, control, administration, and who is to perform the instruction.

At several locations in the plant (i.e., Plant 2/3 and the drum repackaging facility), there are drums with severely bulged lids and bottoms. No information is provided as to the cause of the bulging.

The main walkway from the main truck gate to the laboratory building is shared by vans, trucks, and personnel, and it also serves as a vehicle parking area. It presents an unnecessary risk to personnel.

The Union Safety Committee Chairman stated that it is difficult to make contact with Quality and Safety personnel to discuss plant safety conditions.

C2.3.6.3 Conclusion

Sampling for airborne contaminants is complete and meets DOE requirements; however, the condition and state of some of the ventilation systems appear suspect as to their ability to provide clean, filtered air to the workplace. The status of the characterization and removal of asbestos appears to be lacking the appropriate priority. The respiratory training program is noteworthy.

No clear document trail exists for DOE directives. Items such as lack of standardization of site alarms, leaking or bulging drums in or near workplaces, and construction traffic in walkways require more management visibility and attention.

C2.3.7 Fire Protection

C2.3.7.1 Description and Assessment Criteria

The FMPC fire protection program was assessed against the requirements of DOE Order 5480.7. This order addresses fire protection requirements for life protection, public protection, impairment of operations, property protection, and conformance with improved risk criteria. Specifically assessed were life safety, limits on hazardous materials and special hazards protection, emergency response team and resources, fire protection appraisal program, fire alarm and suppression system reliability, fire barrier integrity, water supplies, and design review and standards.

C2.3.7.2 Evaluation

The FMPC fire protection program is strong in a number of areas. An excellent fire protection design review and approval process exists for new project designs and for modifications to existing facilities. Good water supply and inspection and maintenance programs ensure the reliability of the

installed systems. Good physical protection, in the form of automatic fire extinguishing systems, is provided in areas where the possibility of a major fire may affect life, property, or continuity of operations. Noncombustible-type construction has been used for most of the major facilities and helps to provide limits to the spread of fire.

The April 1989 ORO Fire Protection Appraisal and the June 1989 TSA have identified several recommendations and concerns for enhancement of the existing program. WMCO has, or is in the process of developing, appropriate actions and schedules to resolve each of the concerns or recommendations.

This assessment identified several areas needing management attention to improve implementation of DOE Order 5480.7. WMCO has not conducted, as required, any formal fire protection self-appraisals of FMPC facilities. Also, several safety studies for various plants are in draft form, which will require input from the WMCO Fire Protection Engineering Appraisals prior to review and approval. No WMCO program or procedure is in effect at this time that ensures fire barrier integrity in facilities on the site. In addition to life safety code deficiencies noted in the June 1989 TSA, additional deficiencies were noted during this assessment in other buildings at the FMPC. An acceptable plan to correct the TSA life safety code deficiencies has been developed by WMCO, but a larger program for eliminating these deficiencies is needed. Continuing facility owner management attention is needed.

Many plant areas at the FMPC have low combustible loading. However, the storage or placement of combustible material, in particular wood pallets and containers, in selected areas at the FMPC is being done without adequate consideration of the potential effects from a fire in the material or whether adequate building protection is provided for the combustible loading involved.

In general, fire alarm and suppression system reliability is ensured through good inspection, alarm, and maintenance practices. However, there is a need for enhancement in the evaluation of "routine failures," completion of draft inspection and restoration procedures, and management support for corrective actions.

Fire protection water distribution systems are reliable and are covered by an adequate system of controls. Exceptions are inadequate flow testing of fire hydrants, the need for upgraded water system drawings, and minor improvements for outside post indicator valves.

The Emergency Response Team (ERT) is using a certified training program developed by the State of Ohio. However, improvements are needed in preparing an SOP that outlines training requirements and a matrix for tracking who needs training or a refresher. There are problems with some ERT members not completing classes. Pre-fire plans need to be updated and are in process. The ERT response part of the FMPC Joint Response 1989 exercise on June 24, 1989, was very good.

C2.3.7.3 Conclusion

In addition to meeting most of the goals for a fire protection program, as stated in DOE Order 5480.7, the FMPC meets the general criteria for an improved-risk facility and National Fire Protection Association (NFPA) standards as defined in that order. The fire protection program has resulted in a low fire-loss record, compared to the DOE average, and well below the general industry average. Resolution of the 1989 TSA concerns, the 1989 ORO Fire Protection Appraisal recommendations, and other assessment identified enhancements should further strengthen an already good program and reduce the potential for any threat to life, property, or continuity of operations as the result of fire.

C2.3.8 Packaging and Transportation

C2.3.8.1 Description and Assessment Criteria

The assessment criteria for packaging and transportation is 49 CFR, Transportation, which applies to all off-site transportation of hazardous materials. DOE Order 5480.3, Safety Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous Substances, and Hazardous Wastes, soon to be issued in final form, introduces the requirements of 49 CFR to on-site transportation. Best Management Practices were considered.

C2.3.8.2 Evaluations

On-site observations indicate that many empty metal drums, boxes, and filled containers are stored outside. Close inspection reveals evidence of serious and ongoing corrosion. The corrosion may have weakened the integrity of the containers, making them unacceptable for use.

Containers were observed in Plant 2/3, in the salvage yard, and in the drum packaging facility with severely bulged tops and bottoms. No explanation was made when personnel were questioned. The causes of the bulging should be ascertained, and appropriate corrective actions should be taken.

U.S. Department of Transportation (DOT) marks, labels, and placards are not used for on-site transfers of radioactive materials. Many filled containers are marked only with the FMPC numerical code. Empty containers, not cleaned and purged, have had marks and labels obliterated. Some packagings have DOT marks and labels applied to the topside; however, many types of containers are stacked two, three, or four layers deep.

Hazard identification by way of standard DOT markings, placards, and labels is needed

to comply with the upcoming issuance of DOE Order 5480.3.

Drums were observed that were badly corroded, apparently as the result of reaction with the drum contents. Analysis identified the internal contaminant as hydrogen fluoride. Hydrogen fluoride is incompatible with metal drums without inner containments. Interviews indicate that few procedures or actions are taken to ensure that there are no chemical contaminants in site-generated and site-stored low-level waste.

Two 1-1/2-in. steel bands are used to secure lids on certain wooden boxes weighing up to 5000 lb gross weight. No testing has been done to ensure that a drop from the height of a truck bed will not cause the bands to loosen or break, violating the container's integrity.

There are no requirements for securing hazardous materials to the bed of a vehicle during on-site transport. The short distance of travel and slow driving speeds are expected to provide an acceptable level of safety.

Interviews consistently indicated that there are no nonradioactive hazardous materials moving on the site. Observations reveal the presence of corrosives, flammables, compressed gases, and oxidizers. Management, apparently, does not recognize these hazardous materials or their associated risks.

Production operations generate and approve their own packaging procedures. Independent review and approval of procedures should be accomplished.

Low-level waste packaging procedures make no mention of tapping the lock-ring during tightening; a requirement of the testing and certification procedure for the DOE 17H drums used for off-site shipment. Test/certification procedures must be strictly implemented to meet the standards of 49 CFR.

The Transportation Regulatory Compliance Manager's organization appears to be inadequately staffed or not empowered to oversee regulatory compliance of all areas associated with hazardous materials packaging and transportation. Rather than "managing" regulatory compliance, the manager appears to have been relegated to the role of an expert available for comment on invitation only.

The WMCO transportation manual (FMPC-2089) contains emergency accident/spill procedures that should be reviewed for radiological safety. The entire manual needs to be reviewed and updated.

A Transportation Safety Committee referenced in several manuals/procedures has never been established.

Container procurement is well managed. Specifications are reviewed by QA before order placement, vendors are qualified or disqualified as appropriate, and QA inspection is performed on receipt.

On-site DOT training is cursory and insufficient to support the levels of expertise required to handle the materials present at FMPC. Off-site training is available to key personnel within budgetary limits. Recurrent training should be mandatory every year.

The receiving facility appears to be an excellent addition to the FMPC. Personnel receive training and effective procedures and management are in place.

C2.3.8.3 Conclusion

It appears that little effort is being devoted to container protection from the elements or to determination of the causes for container failure. Containers, although purchased to DOT specification, may not meet the requirements of 49 CFR or good, safe, management practices when used if they have not been stored properly.

Off-site shipments of hazardous materials meet DOT requirements; however, DOT identification methods are not used on the site, making it difficult to identify container contents without an FMPC "scorecard" of all the numerical codes.

Packaging for on-site storage does not always meet the requirements of 49 CFR or of good business and safety practices.

The policy for closing wooden boxes of low-level waste needs to be reviewed, and testing needs to be accomplished. A requirement for tie-down of loads should be implemented immediately. 49 CFR and good, safe, management practices are not being followed.

FMPC packaging procedures need to be made more specific and detailed, in some cases, to meet the requirements of 49 CFR. Procedures should be approved by independent reviewers, as a good management practice. The lack of clear recognition of the presence of nonradioactive hazardous materials moving on the site may violate DOE orders and if shipped off the site, would violate 49 CFR.

Management does not adequately support the critical regulatory compliance activity and by diluting this manager's authority, the chance for violation of 49 CFR is significantly increased. Management support appears to be lacking in the area of transportation procedural documentation. Documentation and clear procedures are required by various DOE orders and by good management practices. The container procurement process is well managed and exemplary. Management support is lacking for general hazardous material handlers' training. Key personnel also need greater support for recurrent training. FMPC is to be commended for their efforts in the area of receiving.

C2.3.9 Quality Assurance

C2.3.9.1 Description and Assessment Criteria

The requirements for a comprehensive QA program in accordance with ANSI/ASME NQA-1, Quality Assurance Program Requirements for Nuclear Facilities, are contained in DOE Orders 5700.6, Quality Assurance - ORO Site Implementation Plan, and 5700.6B, Quality Assurance. WMCO implements these requirements through FMPC-2139, QA Plan.

C2.3.9.2 Evaluation

A comprehensive QA Plan has been written by WMCO. The QA Plan addresses all the elements required by DOE Orders 5700.6 and 5700.6B and contains sufficient detail to effectively implement all currently recognized good practices. The program is structured so that implementation is via a multilayered procedural system that includes both inter- and intradepartmental directives. FMPC-2054, Site Policies and Procedures Manual, is an interdepartmental document that assigns responsibilities for quality-related activities. Methods for performing these responsibilities are required to be delineated in department-level manuals that conform to the upper tier documents.

As defined in the QA Plan, the responsibility and authority for the QA program are retained by the President of WMCO. Line managers are responsible for implementing the QA program in their respective areas. The Vice President, Quality and Safety evaluates the effectiveness of the overall QA program.

As planned, the QA program is to be applied in a graded approach to all site activities, and a systematic procedure exists to determine risk and to assign appropriate quality levels for all materials, products, activities, and services.

The WMCO philosophy is that of integrated control through early involvement in each process. According to the QA Plan, quality is verified throughout the FMPC by preplanned inspections, surveillances, and audits, including the following:

- reviewing procurement documents to pre-plan for material receiving inspections
- inspecting in-process and final products
- using inspection plans, prepared by QA from specifications and approved by project engineers, to verify project quality
- performing surveillances on special processes and quality-related activities that do not receive specific inspections
- performing preplanned audits on a scheduled basis
- performing special audits as needed.

All deficiencies from inspections, surveillances, and audits are to be documented on a single form. Periodic trending analysis is to be performed, and the status of corrective actions tracked. Site management is to be apprised of the status of deficiencies.

Personnel performing quality-related activities are to be trained and certified in a manner consistent with ANSI/ASME NQA-1 requirements.

As discussed in the QA Plan, QA records are to be produced in accordance with procedural guidelines and are retained in a systematic and controlled manner.

There is evidence of QA program improvement. Procedures, practices, and organization have been adjusted to respond to both internal and external assessments of program effectiveness and to conform to current recognized good practices. Sitewide training to increase overall QA awareness has been initiated.

A total quality program is being introduced to achieve an integrated approach to

the achievement of quality in all activities by applying management, QA, production, safety, and other techniques to all the steps in the process toward a quality product. This program is fully implemented in selected areas.

A site procedure delineates the methods by which concerned employees may voice their questions and concerns about quality, safety, management, etc., in a confidential manner. Personnel are reminded of these procedures in safety meetings, and sufficient reminders are posted on the site and in periodic newsletters. Personnel also are made aware of the DOE hotline and other methods of reporting.

Although a sound QA plan and philosophy have been developed by WMCO, several areas of significant departure from DOE order requirements continue to exist at the FMPC. A strong and well-implemented QA program would be aggressively identifying these areas of deficiencies and seeking timely corrective actions. The WMCO QA program does not seem to be having this effect. In addition, many departmental procedures required to implement the QA Plan are outdated or non-existent, and the frequency of some QA activities is obviously less than that necessary to ensure that WMCO meets DOE order requirements and site-level commitments. The threshold for escalation of issues concerning incomplete SARs, training, maintenance, radiological protection, and personnel protection appears to be too high since these areas of deficiency continue to exist. The physical condition of the plant and its readiness for safe operation do not reflect all the sound practices that have been established by DOE directives and WMCO site policies and procedures.

C2.3.9.3 Conclusion

The WMCO QA Plan is an excellent top-level document and appears to be aggressively implemented in many areas. The effectiveness of the program and the level of oversight given to site commitments and to program implementation, however, are not adequate.

The threshold for escalation to the attention of top management of weaknesses in program implementation is either too high or management is not responding.

C2.3.10 Medical Services

C2.3.10.1 Description and Assessment Criteria

The FMPC occupational medical program was reviewed to assess the type and availability of services provided and to determine compliance with other medical support services as required by DOE Order 5480.8 and the ORO supplement, May 10, 1988.

C2.3.10.2 Evaluation

Current medical staff is considered very competent and meets DOE Order 5480.8 requirements, as do the activities of the staff. The following are examples of good practice. Each Thursday a member of the medical staff performs a work site review. Periodic physicals number over 1200/yr, and medical staff actively participates in FMPC emergency exercises. Formal cafeteria inspections are performed at least semiannually. In addition, there is good confidentiality of records, and a broad range of medical services is provided.

There are areas where requirements of DOE Order 5480.8 have not been met. The occupational medical section has not had a medical director for several months and the medical services policy manual is in need of a complete revision.

The existence of a work force at the FMPC for over 35 years has resulted in an extremely large volume of medical records. Clerical staff to provide prompt recall is nonexistent, and currently, the records function is struggling to keep up with day-to-day requirements. With the Secretary of Energy's current policy of making medical records available to research organizations, additional resources may be required to get the backlog of medical information into a retrieval

system. A recent example emphasized this need, when approximately 120 employees asked for copies of their medical records. It was reported that it took the medical staff over 2 weeks to copy and transmit these records.

The facility housing the medical staff is currently undergoing construction modifications. This has resulted in congestion in many areas, and storage for medical supplies, equipment, and records is overflowing. The layout for providing medical services is not optimum.

C2.3.10.3 Conclusion

The quality and attitude of the medical staff are commendable, and the staff is providing the required level of medical services. A medical director is required by DOE Order 5480.8.

C2.3.11 Firearms Safety

C2.3.11.1 Description and Assessment Criteria

A review was performed of previous appraisals conducted by ORO and of activities conducted by WMCO security forces to ensure that firearms at FMPC are used in a manner that ensures the safety and health of personnel and the public and are consistent with operational objectives at the FMPC. DOE Order 5480.16 was used as the guiding document.

C2.3.11.2 Evaluation

Two firearms appraisals were conducted by ORO, one during February 1987 and one in February 1989. The ORO recommendations have been or are in the process of being implemented. Two major areas at the FMPC still do not meet requirements of DOE Order 5480.16. Paragraph 4.b. of Chapter I of the order requires a risk analysis or an SAR to be prepared of the facilities and the operations of each live-fire range. The location and use of each live-fire range also shall be approved by the ORO Manager. No

documentation was provided during this review to show that these items have been accomplished or started.

Paragraph 2.j. of Chapter II of the order requires an analysis to determine what weapons can be used safely at the FMPC. No documentation was provided to show that this had been completed. Other requirements of the order are being met. Control of weapons and ammunition both issued and nonissued was in accordance with requirements. Shift weapons exchange was handled very well, with inventory and control disciplines. Other aspects of firearms and munitions control were acceptable.

Training records were complete, with easy computer recall. Results of the blood lead monitoring of security personnel to date have been well under the threshold. With the shutdown of the live-fire ranges (indoor and outdoor) until approved SARs can be developed, semiannual qualifications could be hampered.

C2.3.11.3 Conclusion

The lack of SARs, range approval, and weapons analysis is significant in the identification of potential risks in the use of firearms at FMPC.

C2.3.12 Electrical Systems

C2.3.12.1 Description and Assessment Criteria

The FMPC electrical system consists of the main substation, area unit substations, local motor-control centers, and emergency diesel generators that supply power for the operation of equipment and protection of personnel. This review, based on acceptable industry practice, assesses the quality of the electrical system in providing safe operation of the plant.

C2.3.12.2 Evaluation

The main substation switchgear experienced a fault in 1986, causing the

shutdown of the plant. Since then, WMCO has installed a tie-breaker to prevent complete shutdown. All relays have been recalibrated, and the substation is on a preventive maintenance cycle.

The local unit substations also are on a preventive maintenance cycle. The unit substations are cleaned, the bus tightened, the breakers rebuilt, and their trip units upgraded to solid-state devices. The old trip devices are not as effective as solid-state devices and require much more maintenance.

The diesel generators supply emergency power only for lighting and some receptacles, except for the Emergency Operations Center where the generators supply all power. The lighting will allow the safe evacuation of the plant.

The sitewide lighting system is being upgraded. High-pressure sodium or mercury vapor lights are being installed. This will allow greater protection of personnel in prevention of accidents.

An area of concern in the electrical system is that the motor-control centers are dirty and need to be cleaned. In addition, the emergency generators do not supply any power for the operation or shut down of any production process. It is not known if this will cause any type of hazard.

C2.3.12.3 Conclusion

The equipment evaluated is in acceptable condition and will operate safely. Improvements begun by WMCO to upgrade the system should allow a better degree of protection.

C2.3.13 Maintenance

C2.3.13.1 Description and Assessment Criteria

Maintenance is structured along the guidelines of DOE Order 4330.4, Real Property Maintenance Management. This review critiques the Maintenance organization in

keeping the equipment in a state of readiness for the safe operation of the FMPC plant.

C2.3.13.2 Evaluation

An excessive backlog of corrective and preventive maintenance work orders is growing. No plans exist to increase Maintenance staff to reduce this backlog. There is no control on the writing of corrective maintenance requests, and any written work request is expected to be completed. A better system for tracking and closing out corrective maintenance work orders needs to be instituted after the work order is printed. Too many work orders are believed to be completed, but are not signed off.

Preventive maintenance is being deferred. Since the plants are not operating, this deferred maintenance is not an immediate problem.

Hiring practices for maintenance employees are designed to provide experienced workers. Only journeymen with at least 5 years of experience are hired; otherwise, personnel go through a 4-year state-approved apprentice program. Training is ongoing. Outside instructors are brought in to train personnel. Training records are kept in a computer data base to help match the right man to the job. A self-paced review course is in the planning stages for maintenance personnel.

Since the implementation of the maintenance management and inventory control system (MMICS), historical data on equipment are being kept. This data base should enable manpower requirement predictions to improve.

Procedures have been written for servicing all major equipment and are printed with the preventive maintenance work order. Maintenance is doing a safety classification review of all systems to allow a better prioritization of work orders. The organization is well defined, and the Maintenance manual clearly

defines maintenance functions and responsibilities.

C2.3.13.3 Conclusion

The equipment necessary for the safe operation of the FMPC is being maintained adequately; however, maintenance of the equipment used in production is being deferred. Maintenance staff is not adequate to reduce the backlog and to keep pace with the work flow.

C2.3.14 Training

C2.3.14.1 Description and Assessment Criteria

The requirements for training at a facility such as the FMPC are defined in various DOE orders and requirements under the Occupational Safety and Health Act, the Resource Conservation and Recovery Act, the Clean Water Act, and the DOT. Each requires a systematic method for providing training and indoctrination sufficient for each individual to perform his assigned functions in a safe and competent manner.

C2.3.14.2 Evaluation

A training program is in place at the FMPC; however, it does not fully implement the requirements of the regulatory commitments. Human Resources Development is responsible for administering corporate training programs. The staff managers are responsible for employee indoctrination, for orientation, and for identifying the operations that require trained, qualified, and certified personnel. A significant effort is expended by WMCO to provide necessary training to personnel.

The site policy and procedure on training (FMPC-102) is in draft form and is not yet issued, leaving a gap in the chain of definition of responsibilities. Organizational procedures currently govern the implementation of the training program, with no formal guidance for standardization. All the training

records are kept by Training and Development, but a list of required training is not kept on a site level for each employee. Additional discussion also is provided in finding M-04 (Appendix C3).

C2.3.14.3 Conclusion

The training programs being implemented appear to satisfy many of the requirements of the governing documents; however, some important elements of a unified site program

are still lacking. There is no system on a site level to ensure that an individual has received the minimum training required for the position, making it difficult for top management to ensure that DOE requirements are met. The draft of FMPC-102 defines a training records management system, but such a system is not yet in use. Centralized and adequate facilities to conduct training may assist the recently required implementation of additional sitewide training.

C2.4 Safety and Health Subteam Findings

The Safety and Health Subteam assessment findings for the FMPC are contained in this section. The following is a listing and short identification of the finding. Also located on the individual finding is a reference to the data sheet(s) number(s) for ease of cross referencing.

- S-01* Design criteria
- S-02* SARs
- S-03* Nuclear facility safety program
- S-04* Radioactive confinement
- S-05* Radiation zone posting and monitoring
- S-06 K-65 silo integrity
- S-07* Asbestos
- S-08* Security
- S-09* Fire protection
- S-10 Packaging and transportation
- S-11* Hazardous materials identification
- S-12 QA activities
- S-13 Maintenance and electrical system
- S-14 Training

* Potential areas where agreement and/or regulatory/DOE requirements are not met.

**Environment, Safety, and Health Assessment
Findings**

References Data Sheet
Identification Codes

21-01	21-07	21-13
21-02	21-08	
21-05	21-09	

Finding(s)

Substantial deficiencies exist with respect to the FMPC nuclear facilities and the application of pertinent nuclear facility design criteria in DOE Order 6430.1A.

Discussion

The substantial deficiencies are related to the lack of ensured confinement, during both normal operations and high winds or tornados, the inability to filter all contaminated releases before they enter the environment, plant operator protection from internal depositions, and the operation of equipment at temperatures greatly in excess of recognized (ASME) code values. The existing contamination problems at FMPC will not be controlled until those plants continuing to operate are backfitted to meet these criteria.

Root Cause(s)

Management is not effectively implementing or incorporating contemporary design criteria into the operations and construction activities at the FMPC.

Environment, Safety, and Health Assessment Findings

References Data Sheet

Identification Codes

21-01 21-04 21-13

21-02 21-05 22-01

22-03 21-06 22-05

Finding(s)

With respect to SARs, the FMPC is not meeting the requirements of DOE Orders 5481.1B, 5480.5, and 6430.1A.

Discussion

The DOE Order 5481.1B requires that SARs be prepared for nuclear and other facilities and the hazard determined as part of the analysis. For all FMPC plants except one (currently considered to be nuclear facilities), current, approved SARs are not available. The hazard classification per the order has not been accomplished.

The DOE Order 5480.5 requires that the SAR be approved prior to operation of the facility. It also requires DOE to review and approve the OSRs derived from the SAR and specifies the official who may authorize startup based on the hazard classification. Since the SARs are not available, these requirements also are not satisfied.

Root Cause(s)

Management has not effectively changed the past practice, wherein SARs and OSRs have not been required for facilities at the FMPC.

**Environment, Safety, and Health Assessment
Findings**

**References Data Sheet
Identification Codes**

21-01
21-11
21-13

Finding(s)

WMCO is not meeting the requirements of DOE Order 5480.5, specifically those independent safety functions pertinent to DOE facilities.

Discussion

It is the intent of DOE Order 5480.5 that the contractor have a strong internal nuclear facility safety program that can independently review and concur in the safety-related decisions being made by the contractor's line managers. The fact that WMCO is willing to operate any or all of the FMPC nuclear facilities without an analytical basis supporting safe operations (i.e., SARs) indicates that the nuclear facility safety function required by the order is ineffective and, consequently, not meeting DOE order requirements.

Root Cause(s)

The independent safety function within WMCO and within ORO is not effective.

**Environment, Safety, and Health Assessment
Findings**

**References Data Sheet
Identification Codes**

21-04 21-09

21-08 23-11

Finding(s)

The FMPC facilities are not designed, constructed, or operated in a manner that provides ensured confinement of radioactive or other hazardous materials used in the process.

Discussion

The FMPC buildings that house the uranium processing equipment are of conventional industrial construction, with limited engineered features (confinement zones or special ventilating systems) separating the processing equipment from the workers. The equipment is located in large, open buildings containing many windows, doors, and ceiling or roof vents that provide unfiltered pathways to the environment.

Root Cause(s)

The facility is 35 year old and has not been upgraded to meet evolving DOE design criteria for uranium processing and handling facilities.

**Environment, Safety, and Health Assessment
Findings**

References Data Sheet

Identification Codes

23-01 23-03 23-10
23-02 23-04

Finding(s)

The requirements of DOE Order 5480.11 are not being met in the posting of radiation areas and in radiation release measurement.

Discussion

WMCO is implementing their own radiation posting program, designated as three Zones, 1, 2, and 3. The program is effective in reducing sitewide contamination over large areas and back toward the sources, but the program does not comply with the requirements in DOE Order 5480.11.

Observations in the laundry facility revealed counting procedures that did not ensure that clean laundry met the release criteria for being used in controlled areas. All clothing is screened using criteria higher than the criteria for controlled or uncontrolled area releases.

Root Cause(s)

WMCO management does not ensure that site practices meet the criteria of DOE Order 5480.11.

**Environment, Safety, and Health Assessment
Findings**

References Data Sheet
Identification Codes
21-14

Finding(s)

The structural integrity of the two K-65 silos is questionable.

Discussion

A study conducted in late 1985 by Camargo and Associates concluded that collapse of a portion of the domes could occur at any time due to the absence of structural integrity. WMCO immediately took action to place a 30-ft-diameter plywood cap on the two silos to mitigate the effects if, in fact, a collapse were to occur. WMCO also did visual surveillance of the silos and raised questions about the Camargo study conclusions. A recent study (1988) by Camargo confirmed the earlier study conclusions, and reconciled the observations made by WMCO. With no other analyses available, the conclusions of the two Camargo studies are accepted by the assessment team.

Root Cause(s)

The K-65 silos are old, and examination and analyses of the structures confirm the lack of integrity. The basic structural condition of the silos has not been upgraded.

**Environment, Safety, and Health Assessment
Findings**

References Data Sheet
Identification Codes
25-07

Finding(s)

Studies to identify the location and quantity of asbestos at the FMPC and to assess possible migration pathways have not been performed.

Discussion

The FMPC has used materials containing asbestos extensively in the construction (transite) and insulation of plant systems. These asbestos materials have not been characterized, and studies of potential migration pathways have not been completed for the transite materials. Temporary fixes have been made and a control system has been established for remedial actions.

Root Cause(s)

Management is not providing sufficient direction and resources to effectively address the characterization and possible migration of asbestos.

**Environment, Safety, and Health Assessment
Findings**

References Data Sheet
Identification Codes
25-15

Finding(s)

Security activities at FMPC do not meet the requirements of DOE Order 5480.16.

Discussion

The DOE order requires, among other things, an SAR on live-fire ranges, the approval by the ORO Manager to use such ranges, and an analysis of the weapons proposed to be used at FMPC to ensure they can be safely used at the facility. These requirements have not been satisfied. ORO has pointed out the lack of SARs on two appraisals, and WMCO subsequently closed the live-fire ranges until the analyses are approved. Not having a live-fire range available also may result in the security force not meeting requirements of DOE Order 5632, Oak Ridge Operations Office (ORO) Safeguards and Security Program Operating Guidelines and Philosophy, which requires firearms qualifications twice each year.

Root Cause(s)

WMCO management is not responding adequately to ORO appraisal findings and DOE Order 5480.16 requirements.

**Environment, Safety, and Health Assessment
Findings**

References Data Sheet

Identification Codes

22-01	22-04	22-07
22-02	22-05	22-08
22-03	22-06	22-09

Finding(s)

Although the overall program is good, WMCO has incomplete procedures, review systems, and control mechanisms in place relating to fire protection concerns and self-appraisal programs required by DOE Order 5480.7.

Discussion

WMCO has inadequate review, procedure, and control mechanisms in place for housekeeping practices and the storage of combustible materials. Approved SARs and procedures have not been completed relating to fire protection concerns and programs. There is no program or procedure for ensuring fire barrier integrity on the site. Improvements are needed in the Emergency Response Team training procedures and tracking, and in updating pre-fire plans. Although in general a good program, fire alarm and suppression system reliability needs enhancement in the areas of procedures, evaluation of routine failures, and management support for corrective actions.

WMCO does not have an effective, overall, fire protection self-appraisal program. For the DOE part of the requirement, ORO has a very effective program. Also, several plant areas, in addition to those identified in the June 1989 TSA of FMPC, are not in conformance with National Fire Protection Association (NFPA) 101, Life Safety Code. The water distribution system needs to have hydrants flow tested and distribution drawings upgraded. However, WMCO has an excellent fire protection design review and approval process.

Root Cause(s)

Resources and management attention are not sufficient to meet all requirements of DOE Order 5480.7.

Environment, Safety, and Health Assessment Findings

References Data Sheet

Identification Codes

27011 27-05 27-10

27-02 27-06 27-11

27-04 27-09 27-15

Finding(s)

Procedures relating to packaging and transportation need review and upgrade. DOT training is inadequate to support hazardous materials activities.

Discussion

A "Transportation Safety Committee" referenced in procedures and manuals does not exist. Operating organizations are allowed to create and approve their own packaging procedures. The emergency accident procedures do not appropriately address good radiological safety.

There are no requirements for securing hazardous materials loads to the transporter for on-site movement. The procedure for securing the lid on certain wooden boxes had not been tested to ensure the container's integrity under drop test conditions. Content contaminant identification appears to be lacking. Certain packaging procedures for closing DOT specification containers for off-site shipment are incomplete.

Only 4 hours of DOT training are required every 2 years. Commercially presented basic courses are at least 40 hours each. RCRA requires 80 hours for materials handlers and 40 hours for supervisors.

Root Cause(s)

Management's emphasis on good practices and requirements for packaging and transportation is lacking.

**Environment, Safety, and Health Assessment
Findings**

<u>References Data Sheet</u>	
<u>Identification Codes</u>	
27-03	27-13
27-07	27-16
27-12	27-17

Finding(s)

Management has not implemented a basic nonradioactive hazardous materials identification, packaging, marking, labeling, and transportation program on the site.

Discussion

Great emphasis has been placed on low-level radioactive wastes. EPA and/or OSHA markings and an internally supported (FMPC) numerical and color-coded marking system are sometimes used to identify containers. However, DOT markings, labels, and placards are only used for off-site shipments. There are no specific transportation procedures for the various classes of hazardous materials present on the site. Indeed, interviews have indicated that there are no hazardous materials moving on the site other than low-level waste. That is contradictory to the observations made on the site, and even to literature describing production processes. It also appears that testing for recognition of and packaging response to chemical contaminants of radioactive waste is extremely limited.

Waste materials, packaged and transported on the site, are controlled by Waste Operations. Production prepares and approves its own packaging procedures. Draft DOE Order 5480.3 introduces 49 CFR to on-site plant shipments, although it appears evident that 49 CFR is not used on the site.

Root Cause(s)

Management emphasis to implement good practice relative to materials packaging and on-site transport is not sufficient.

**Environment, Safety, and Health Assessment
Findings**

References Data Sheet

Identification Codes

26-01 26-03

26-02 26-04

Finding(s)

QA activities in several areas are inadequate to ensure that DOE order requirements are met.

Discussion

Various reviews and assessments have identified site areas that do not meet requirements of DOE orders. Areas that can potentially affect the safety and health of workers and the public should be identified, tracked for timely resolutions, and escalated when appropriate to assist management in ensuring that priorities and resources are being appropriately assigned. This does not seem to be occurring at FMPC.

Root Cause(s)

Management is not effectively using the QA function as a tool to effect positive changes in meeting DOE order requirements.

**Environment, Safety, and Health Assessment
Findings**

References Data Sheet
Identification Codes

24-01 24-03

24-02 24-04

Finding(s)

Maintenance has a well-structured program, which, although effective in some areas, is not fully implemented.

Discussion

The procedure set up to initiate preventive maintenance and to record results is excellent. The personnel performing the work have all the information with them. Historical data that will allow more accurate forecasting of maintenance requirements are now being kept.

There are, however, insufficient maintenance personnel to perform the work, and preventive maintenance is not being done at the proper frequency. The man-hour average of maintenance backlog has recently been lowered from over 500 man-hours per worker; however, recently, the backlog has increased and it looks as though this will continue.

Record tracking capabilities need to be improved. There is no urgency to turn the paper work in or have it signed off once the job is complete. This is not necessarily the fault of Maintenance. Final sign-off and return of the work orders are the responsibilities of the facility owner.

Electrical equipment is in good condition and is well maintained except for motor control centers that need to be cleaned. The upgrade of the trip units on the 480-V switchgear breaks is ongoing and will provide better protection and personal safety in case of faults.

Emergency power is supplied for lighting to allow safe evacuation of the plants. The lighting system also is being upgraded.

Root Cause(s)

Maintenance has insufficient personnel to perform all the work.

**Environment, Safety, and Health Assessment
Findings**

References Data Sheet

Identification Codes

25-09

26-09

Finding(s)

The training function as administered by Human Resources is not systematic sitewide.

Discussion

The training function in Human Resources does not have a plantwide function to coordinate an integrated training program. No policy or procedures were available to provide site training policy or a single focal point for plant training. Training and Development has no means to effectively assess the status of training. A draft site procedure addresses these conditions, but it has not yet been issued.

Root Cause(s)

Management has failed to provide adequate direction and resources to centralize plant training, except for the training attendance records.

C2.5 Safety and Health Subteam Biographies

The members of the Safety and Health Subteam come from a variety of disciplines and organizations, both inside and outside the DOE. Their educational biographies, with their area of subteam expertise, are included on the following pages.

Name: John M. Clark

**Association
(Company):** U.S. Department of Energy-Richland Operations Office

Experience: 26 Years

Jan-Feb 1989 Acting HQ-EH Site Safety Representative at Fernald

1984-present Member of Nuclear Facility Safety Staff at DOE-RL. Nuclear safety oversight of PUREX and Plutonium Finishing Plant, UO₃ Plant, and Tank Farms, including criticality safety, operational safety requirements, and safety analyses report reviews

1981-1984 Supervisory project engineer and contract administrator for the civil/general construction of the FMEF Nuclear Facility, Richland, Washington

1981 Test engineer for Westinghouse Hanford Company at the Fast Flux Test Facility Reactor, Richland, Washington

1959-1971 Enlisted nuclear power training and duties aboard submarines in the U.S. Navy. Engineering Officer duties on diesel/electric submarine. Polaris Weapons Officer training and duties aboard nuclear powered submarines

Education: B.S., Metallurgical Engineering, University of Washington, Seattle, Washington

Postgraduate studies, MBA program, Joint Center for Graduate Study, Richland, Washington

Assigned Area: Design Criteria and Nuclear Facility Safety

Name: Shirley A. Dalton

**Association
(Company):** Los Alamos National Laboratory

Experience: 18 Years

1989-present Hazardous Material Coordinator (LANL)

1985-1989 Traffic Manager (LANL)

1983-1985 Assistant Traffic Manager in the packaging and transportation of hazardous materials (LANL)

1974-1983 Worked in the packaging and transportation of hazardous and nonhazardous chemical at a manufacturing company in Indiana

Education: 99 hours toward B.A. in Management, University of Phoenix

Graduate of DOE Traffic Management
Certification Course (1986)

Assigned Area: Transportation and Packaging

Name: David T. Evans

**Association
(Company):** U.S. Department of Energy-Richland Operations Office

Experience: 17 Years

1986-present Occupational Safety and Emergency Preparedness Branch Chief at DOE-RL

1983-1986 Staff Fire Protection Engineer of DOE-RL

1981-1983 Project Manager for Fire Protection Engineering for the Washington Public Power Supply System, Richland, Washington

1974-1981 Assistant Branch Chief, Fire Protection Engineering for the Western Division Naval Facilities Engineering, San Bruno, California

1972-1974 District Supervisor, Fire Protection Engineering for FIA, San Francisco, California

Education: B.S., Mechanical Engineering, University of Idaho Registered Professional Fire Protection Engineer in California, Oregon, and Washington

Assigned Area: Fire Protection and Emergency Preparedness

Name: John J. Keating

**Association
(Company):** U.S. Department of Energy-Richland Operations Office

Experience: 21 Years

1987-present Assistant Manager for Safety, Environment, and Security at DOE-RL

1968-1987 Program/Project Manager for a wide variety of development, design, procurement, and operational activities at DOE-ID, DOE-HQ, Fast Flux Test Facility Project Office, and DOE-RL

Education: B.S., Engineering Physics, South Dakota State University

M.S., Nuclear Engineering, Iowa State University

Ph.D., Nuclear Engineering, Iowa State University

Assigned Area: Subteam Leader Safety and Health

Name: Craig D. Lundin

**Association
(Company):** Stone & Webster Engineering Corporation

Experience: 21 Years

1982-present Chief Engineer of the Quality Systems Division at SWEC. (Manager of the TVA Weld Evaluation Program. Performed Diablo Canyon Construction QA Assessment, De Laval Owners Group Diesel Inspection, and Georgia Power Plant Vogtle Readiness Review)

1973-1982 Site QA/QC management on four nuclear power plant sites, including lead responsibility for North Anna and River Bend

1968-1973 U.S. Department of the Navy, Portsmouth Naval Shipyard, Head of the Nuclear Inspection and Test Branch

Education: B.S., Mechanical Engineering, Lowell Technological Institute

Assigned Area: Quality Assurance, Training

Name: Sam A. Scucci

Association
(Company): Stone & Webster Engineering Corporation

Experience: 13 Years

1986-present Electrical Superintendent for the Northern States Power Company, Metro Denver Sewage Disposal District, and Great Northern Paper Company

1976-1985 Construction Engineer for the Sierra Pacific Power Company, Getty Oil Company, Texaco Oil Company, and Indianapolis Power and Light Company. Chief Construction Engineer in electrical and instrumentation construction

Education: B.S., Electrical Engineering, New Jersey Institute of Technology

Registered Professional Engineer, State of Nevada

Member of the Institute of Electrical and Electronic Engineers

Assigned Area: Electrical and Maintenance Engineering

Name: Dennis E. Skinner

Association
(Company): U.S. Department of Energy-Idaho Operations Office

Experience: 31 Years

1958-present Professional Safety Engineer and Supervisor of Safety with DOE and DOE Contractors

1950-1954 U.S. Navy

Education: B.S., Industrial Management, Utah State University, 1957
B.S., Industrial and Labor Relations, Cornell University, 1957-1958
M.S., Industrial Safety, University of Idaho, 1984
Registered Professional Safety Engineer, Certified Safety Professional,
Professional Member of American Society of Safety Engineers

Assigned Area: Personnel Protection, Medical Services and Firearms Safety

Name: Billy P. Smith

**Association
(Company):** Reynolds Electrical & Engineering Company Inc.

Experience: 23 Years

1987-present Manager of the Health Physics Department at REEC/NTS

1975-1987 Laboratory Operations Director of the Environmental Sciences Department at REEC/NTS

1971-1975 Engineering Section Chief in the Engineering Department at REEC

1970-1971 Health Physicist Dosimetry Supervisor at REEC

1968-1970 Health Physicist in Field Operations at REEC

Platoon Leader (Radiation Safety) in the U.S. Army Defense Atomic Support Agency Test Command. Led Radiological Emergency Team on a broken arrow to Greenland in January 1968

Education: B.S., M.S., Chemistry/Mathematics, Prairie View A&M College, Texas

Assigned Area: Radiological Protection

C2.6 Safety and Health Subteam Protocols and Lines of Inquiry

C2.6.1 Purpose

The purpose of the Safety and Health Subteam is to conduct an on-site, independent, oversight assessment of the safety and health programs at the FMPC to evaluate current safety and health status and to identify specific deficiencies and their "root-causes." Areas of noteworthy practice also will be identified. Firsthand review of safety and health policies and procedures, observation of on-site practices, and review of earlier assessments of FMPC operations will be used to evaluate and identify the strengths and weaknesses in the safety and health programs at the FMPC.

C2.6.2 Approach

A general assessment will be made as a result of review of previous assessments of FMPC (e.g., the recent TSA conducted by DOE-HQ); the review of pertinent documents; interviews with contractors and DOE Site Office management and staff; and firsthand observations of facilities, equipment, storage areas, and ongoing operations at the FMPC.

The eight members of the Safety and Health Subteam are experts in specific safety and health functional areas, and each individual shall perform their assessment in those specific areas. Assessments by subteam members are coordinated with other subteam members through meetings and personal interactions. A detailed cross reference/correlation will be made to the data sheets and tentative findings of all subteam members to ensure a consistent report of all key safety and health issues.

The general review will proceed initially by discussions with senior DOE and

contractor management. Subsequent interviews with the senior contractor manager for safety and health programs (oversight organization), the senior contractor managers for line activities, and ultimately, with contractor staff in both the line and oversight organizations will serve as major sources of information and data for this assessment. Union management also will be interviewed. Walk throughs of facilities and tours of the site will be vital to the validity of this assessment and are encouraged of all subteam members.

Basic observations of deficiencies or noteworthy practices will be recorded on data sheets and will become the bases for findings in the safety and health area. Findings will be evaluated to identify the underlying reason or root cause for a given condition or set of conditions. Findings will be discussed between subteams to ensure the identification of root causes that reflect widespread deficiencies that span more than one subteam.

C2.6.3 Staffing and Schedule

There are eight members of this subteam. See Appendix B for a listing of the subteams and their members. Section C2.5 contains short biographical sketches of this subteam. All members have extensive experience in their areas of expertise, and several have significant management experience. The team represents an average of over 21 years of experience, with a minimum of 13 years.

C2.6.4 Lines of Inquiry

Each subteam member developed a general outline to be followed in the conduct of the assessment of their particular functional area. These outlines (lines of inquiry) are provided in the following narratives.

Fire Protection

(Compliance with DOE Order 5480.7, November 16, 1987)

- **Life protection/hazards to life from fire**
 - Facility compliance with NFPA 101
- **Public protection**
 - Limits on hazardous materials, on automatic fire protection features
 - Emergency response organization
 - Inspection, supervision/alarm, and maintenance procedures
- **"Improved risk" property protection and minimization of fire results**
 - Fire alarm/suppression system reliability
 - Fire barrier integrity
 - Fire protection self-appraisal program
 - Water supplies
 - Special hazards protection
 - Manual fire fighting resources
 - Design review and standards compliance

(For further breakdown, refer to TSA reference manual, May 1989)

Emergency Preparedness and Response
(Compliance with DOE 5500-Series Orders)

- Organization and administration
 - Effective planning for emergency response
 - Effective implementation and control of emergency response
- Emergency plans and procedures
 - Plans and supporting analyses documents
 - Implementing procedures
 - Reviews and updates
- Emergency response training/qualification status
 - Training to develop and maintain emergency personnel knowledge and skills
 - Exercises and drills with effective critiques and corrective actions
 - Emergency personnel qualifications evaluations
 - Training records
- Emergency resources to support emergency operations
 - Facilities
 - Equipment
 - Resources
 - Communications
- Emergency assessment and notification procedures
 - Procedures
 - Classification of emergencies
 - Assessment of consequences
 - Response personnel notifications
 - Action recommendations
- Interaction with external participants
 - State agencies
 - County and local agencies
 - Mutual aid and letters of understanding

(For further breakdown, refer to TSA reference manual, May 1989)

Maintenance and Electrical System

- Organizational structure
- Compliance with DOE directives
- Procedures
 - Written
 - Reviewed
 - Approved
- Training
 - Ongoing
 - Record keeping
- Department audits
- Room for improvement
- Interfacing with other departments
- Field walk through and specific questions

Training

- Policy
 - Determine who receives training
 - Decide type/need of training
 - Formal, classroom type
 - On the job
 - Conduct of training
 - Professional trainers
 - Supervision
 - Video
 - Other
 - Frequency of training
 - Training for career enhancement
 - Measurement for success
 - Voluntary-type training
 - Mandatory training
 - DOE
 - Company
 - Other
 - Preparation of training materials
- Facilities
 - Support training needs
 - Visual aids necessary
 - Training materials for programs
 - Shop and/or productional training requirements
- Records
 - Maintenance
 - Recall system

Medical Services

- Policy
 - DOE and ORO orders implemented
 - FMPC implementation of orders
- Services
- Staff
- Facilities
- Records

Packaging and Transportation
(Compliance with DOE Orders 5480.3 and 1540.1)

- Packaging of hazardous materials
 - Procedures
 - Container inspection
 - Content inspection
 - Container storage
 - Procurement of containers
- Transportation on and off the site
 - DOT regulatory compliance
 - On-site tie-down procedures
 - On-site transfer activities
 - Off-site shipment preparation
 - Documentation
- Receiving operations for hazardous materials
 - Facilities
 - Procedures
- DOT training
 - Off-site for key personnel
 - On-site for general work force

Firearms Safety

- Policy
 - DOE and ORO orders received
 - FMPC implementation
- Firearms safety training
 - Records maintained on types
 - Qualification range
 - Drills/exercises
 - Procedures
 - Range operations
 - Control
 - Lead monitoring
 - Targets
- Operations
 - Type
 - Weapons maintenance
- Operational assurance
 - ORO appraisals
 - Internal audits
- Handling of munitions
 - Approved storage
 - Control

Nuclear Facility Safety
(Compliance with DOE Order 5480.5, September 23, 1986)

- Operations supported by SAR and OSRs
 - Hazard classification appropriate
 - Authorization for startup
 - SAR and OSRs reflect current facility configuration
 - Management knowledge and use of SAR and OSRs
 - FSAR and OSRs constrain facility operations to limiting design parameters
- Administrative and procedural controls
 - OSRs included in operating procedure
 - Procedures provide clear lines of responsibility
 - Procedures adequate for purpose
 - Utilization of readiness review process
- Training and certification of operators
 - Minimum qualifications and training specified
 - Adequacy of training verified
 - Management certification of operator readiness
- Operational QA
 - Support evident and adequate
- Application of codes, standards, etc.
 - Dose budgets developed
 - ALARA considerations evident
 - Actual doses compared to budgeted
 - Use of radiation work permits
 - Lock and tag
 - Configuration management system
- Criticality safety
 - Procedures or postings available
 - Evidence of compliance
- Emergency procedures
 - Operator actions specified
 - Required notifications specified
- Independent safety reviews
 - Review prior to significant operational change
 - Periodic reviews via internal appraisals

Non-Reactor Nuclear Facility Design Criteria
(Compliance with DOE Order 6430.1A Basic Requirements)

- Facility hazard classification, DOE Order 5481.1B
 - Ensured confinement
 - Filtered airborne releases
 - Zoned for contamination control
 - Systems to prevent or mitigate accidents
- Incorporation of natural phenomena loads
 - Site design basis earthquake
 - Site design basis tornado, including missile specifications
 - Site design basis straight wind
- Utilization of national codes and standards
 - ASME
 - UBC
- Safety analysis support during design/construction
 - PSAR timing and scope
 - FSAR reflects "as built" design

Quality Assurance

- Organization, structure, philosophy
 - Directives, procedures
 - Product quality
 - QA philosophy
 - Total quality programs
- Corrective action system
 - Identification of nonconformances
 - Volume
 - Closure process
 - Stop work
- Trending and analysis
 - Data collection
 - Reports
 - Management interaction
 - Quality accountability
- Control of special processes
 - Laboratories
 - Manufacturing
 - Processing
 - Projects
 - Welding
- Audit program
 - Schedule
 - Reporting
 - Follow-up and trending
- Employee concerns (allegations)
- Outstanding issues from previous evaluations
 - TSA
 - DOE-ORO assessments

Radiological Protection

- Organization and administration
- Procedures and posting
- External radiation exposure control program
- External dosimetry program
- Internal radiation exposure control
- Internal dosimetry
- Fixed and portable instrumentation
- Air monitoring
- Radiological monitoring contamination control
- ALARA
- Training
- Records

C2.7 Safety and Health Subteam Data Sheets

The Safety and Health Subteam data sheets for the FMPC are contained in this section. The following is a listing and short identification of each sheet.

- 21-01* SARs not available
- 21-02* PSARs not prepared (Plant 8 modification, Building 64)
- 21-03 OSRs don't meet regulatory guide requirements
- 21-04* OSRs not adequate
- 21-05* Existing SARs not adequate
- 21-06 Mini-SARs: one late, one okay
- 21-07* Approved codes and standards not used
- 21-08* Confinement not ensured in process buildings
- 21-09* Contemporary criteria not used in Plant 8 modification
- 21-10 Excellent procedures for K-65 sampling
- 21-11 Readiness review completed on K-65 sampling
- 21-12 Excellent training for K-65 sampling
- 21-13* Authorization of K-65 sampling not clear
- 21-14 Stability of K-65 silos in question
- 22-01* No documented fire protection appraisals by WMCO
- 22-02* Fire barrier integrity not ensured
- 22-03* Life safety code deficiencies noted
- 22-04* Combustible materials not stored properly
- 22-05* No SARs for FMPC plants regarding fire protection
- 22-06 Training program not adequate for Emergency Response Team
- 22-07* Good fire alarm and suppression system reliability
- 22-08* WMCO has reliable fire protection water distribution system
- 22-09 Fire protection modifications and designs well reviewed
- 22-10 TSA concerns emergency preparedness status
- 22-11 Joint Response 1989 exercise was successful
- 22-12 WMCO has off-site Joint Public Information Center
- 22-13 WMCO provides emergency preparedness support to DOE-ORO
- 23-01* Posting of controlled area not done at FMPC
- 23-02* Rate or magnitude of doses not included on radiation signs
- 23-03 Radiation zone signs not used properly
- 23-04* Radiation instruments in laundry not set properly
- 23-05* Counter in laundry out of service
- 23-06 Little DOE oversight of WMCO radiation safety program
- 23-07* CAMs not used in laundry
- 23-08* Cesium source not stored properly
- 23-09* Radiation training program not comprehensive
- 23-10 Radiation work permits not posted properly
- 23-11 Airborne uranium concern in Plant 5
- 24-01* Large maintenance backlog
- 24-02 Good system for maintenance information handling
- 24-03 Electrical system well maintained
- 24-04 Good training program for maintenance workers

- 25-01 Airborne sampling program is comprehensive
- 25-02 Construction safety program meets order requirements
- 25-03 WMCO has good directives tracking system
- 25-04* Order requirements not passed on to Rust Engineering
- 25-05 ORO doesn't track directives to WMCO
- 25-06 Safety Department involved in design reviews
- 25-07* Asbestos not characterized at FMPC
- 25-08 Medical program is very good
- 25-09 No sitewide approach to training
- 25-10 Cafeteria inspections properly conducted
- 25-11 Risk and vulnerability assessments are beneficial
- 25-12 Bulged drums noted on site
- 25-13 Alarm signals are confusing
- 25-14 Sidewalk from security building to laboratory building is hazardous
- 25-15* Ventilation system changed in Plants 5, 6, and 9
- 25-16 Air intakes not operating as designed
- 25-17 Union safety representative needs WMCO contact
- 26-01 QA effectiveness may deteriorate
- 26-02 Implementation of stop work authority not clear
- 26-03 Trending being reduced
- 26-04 QA oversight insufficient
- 26-05 Top level QA program solid
- 26-06 WMCO performs Title III inspections well
- 26-07 Early QA involvement produces good results
- 26-08 QA considered in WMCO organization
- 26-09* No sitewide procedures for training
- 26-10* Training requirements for each job not defined
- 27-01 Transportation Safety Committee not established
- 27-02 Waste container closure procedures not tested
- 27-03* Procedures for nonradioactive hazardous materials not available
- 27-04 On-site shipments not secured to transport
- 27-05 DOT training inadequate
- 27-06 Packaging procedures prepared/approved by same organization
- 27-07 Regulating compliance manager lacks authority
- 27-08 Storage container stored outside
- 27-09 Transportation manual outdated
- 27-10* Truck driver emergency procedures need improvement
- 27-11* Contents and containers not compatible
- 27-12* DOT markings not visible
- 27-13* DOT labels not used
- 27-14 New receiving facility is well run
- 27-15* SOPs not adequate for container closure
- 27-16* Compressed gas cylinders not labeled
- 27-17* Waste sampling methods not clear
- 27-18 Good QA program for packaging

* Potential areas where agreement and/or regulatory/DOE requirements are not met.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 21 - S&H - SARs - 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89

Building or Activity SARs

Reference Data SAR Evaluation for operating or operational plants.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Approved Safety Analysis Reports (SARs) are not available.

Discussion

It was determined that no approved SARs are available for Plants 1, 2/3, 4, 5, 6, 8, and 9. Drafts of safety studies are available for some, but they are not peer reviewed and approved by DOE.

Tentative Finding(s)

There is a major noncompliance with DOE order requirements.

Probable Root Cause(s)

Lack of emphasis for preparing SARs exists within WMCO and ORO.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 21 - S&H - SARs - 02

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity SARsReference Data National Lead Company of Ohio (NLO) Safety Assessments Letter dated October 5, 1983 and ORO Order 5481.18, dated 5-23-84.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

No PSAR exists for Plant 8 modifications.

1	2	3	4	5
—	—	X	—	—

No PSAR exists for Building 64 modifications.

Discussion

These are two significant modifications occurring, with one (Plant 8) being changes to an existing nuclear facility and the other (Building 64) converting a warehouse to a nuclear facility. No PSAR exists for either because, in both cases, ORO determined there was no need.

Tentative Finding(s)

There is noncompliance with DOE Orders 6430.1A and 5480.5.

Probable Root Cause(s)

ORO does not require PSARs on small projects.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 21 - S&H - SARs - 03
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89

Building or Activity SARs/OSRs

Reference Data OSRs for ammonia storage (FMPC 2100). OSRs for Tank Farms (NLCO 2011).

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The OCRs do not meet regulatory guide requirements.

Discussion

The regulatory guide concept of escalating alarm sequence is not used effectively (i.e., WMCO normally shows a single value equivalent to a safety limit rather than a sequence of limits, transitioning from operating limits to limiting control setting to safety limits.

Tentative Finding(s)

OSRs are not in compliance.

Probable Root Cause(s)

They are not required by ORO to use the OSR concepts in Regulatory Guide 3.6.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 21 - S&H - SARs - 04
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity SARs/OSRsReference Data UF₆ to UF₄ OSRs (FMPC 2052.R-1) and Pilot Plant accident investigation dated June 1986.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The OSRs for the Pilot Plant do not establish the safe operating envelope.

1	2	3	4	5
—	—	X	—	—

These OSRs do not meet the requirements of DOE Order 5480.5 which directs the use of NRC regulatory guides for SAR content and format.

Discussion

This September 1988 edition does not establish the reaction vessel minimum wall thickness or implement the wall thickness surveillance program identified in the report of the vessel failure that occurred on January 19, 1986. That failure resulted in a release! These OSRs essentially make sure a failure can be detected. They do not attempt to preclude failure.

Tentative Finding(s)

Inadequate OSRs are used for particular situations. OSRs do not include Regulatory Guide-required content [i.e., in many cases the safety limit and Limit Control Setting (LCS) are the same].

Probable Root Cause(s)

Since WMCO plant operators write their own OSRs, this indicates both inadequate independent safety review and training of plant personnel.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 21 - S&H - SARs - 05
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Nuclear SafetyReference Data SARs for UF₆ to UF₄ (NLCO 1196) Tank Farms, (NLCO 1101), Ammonia Storage (FMPC 2129).**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

No hazard class is indicated in the FMPC SARs.

1	2	3	4	5
—	—	X	—	—

SARs do not meet regulatory guide content specifications.

1	2	3	4	5
—	—	X	—	—

SARs are not current with plant configuration.

Discussion

The 1987 Pilot Plant SAR addendum indicates a revision to the original SAR is needed. The tank farms SAR is out of date with respect to existing configuration and calculations on plume dispersion are now known to be invalid. No DOE hazard class is evident. All signed by Site Office Manager or ORO directors.

Tentative Finding(s)

SARs do not meet order requirements.

Probable Root Cause(s)

There is little emphasis for SARs from ORO.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 21 - S&H - SARs - 06
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity N/AReference Data "Campaign" SAR for thorium silos download project. Also K-65 silo sampling.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The SAR for thorium silos download was prepared after contract award.

1	2	3	4	5
—	—	—	—	X

The SAR for K-65 silo sampling was much better.

Discussion

This was a mini-SAR for a specific project and was prepared after award of contract and contractor submittal. It should be prepared before the bid package to ensure that the bid package includes all safety requirements. Also, it can be used to evaluate bidder's responsiveness prior to awarding. K-65 silo sampling another "mini-SAR." This is a much better "Campaign" SAR and includes OSRs.

Tentative Finding(s)

WMCO is not preparing PSARs consistently, as required by DOE orders. The subsequent development of documents requested to be SARs does not meet the intent of the orders or adequately serves program needs.

Probable Root Cause(s)

WMCO doesn't recognize the need for or value of SARs. Site Office has insufficient staff to demand a quality product. Little ORO emphasis.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 21 - S&H - SARs - 07

Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity DesignReference Data Pilot Plant accident investigation of June 1988. Also tank farm SAR addendum.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Approved codes and standards are not used in design of reaction vessel in the Pilot Plant.

1	2	3	4	5
—	—	X	—	—

Unvalidated codes were used for tank farm calculations.

Discussion

Reaction vessels of Monel construction are designed to operate considerably in excess (1300°F) of ASME-allowable temperature (900°F) for that material. WMCO used ASME Section 8 requirements, whereas Section 1 probably applies. Vessel has failed prematurely, but WMCO is continuing to use the design; it is also used at the Paducah Plant. Unvalidated computer codes were used for tank farm plume calculations that have since been proved to be invalid. Plume effects have not been recalculated.

Tentative Finding(s)

There is noncompliance with design criteria.

Probable Root Cause(s)

Historical practices are followed within the ORO complex on design of reaction vessels.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 21 - S&H - SARs - 08
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity DesignReference Data Observation during tours of site and facilities.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Confinement in the process buildings is not ensured.

1	2	3	4	5
—	—	X	—	—

All airborne release paths are not filtered.

1	2	3	4	5
—	—	X	—	—

Internal confinement zones are not ensured.

Discussion

The FMPC nuclear facilities, by virtue of their design, do not ensure that nuclear materials are confined within the building until released after passing through a filter. Open windows, non-airlocked doors, and unfiltered vents are the problem. Due to changing airflow patterns in the buildings, the rope and sign barriers used to isolate internal airborne contamination are not fully effective.

Tentative Finding(s)

There is noncompliance with DOE Order 6430.1A, "General Design Criteria."

Probable Root Cause(s)

DOE design criteria have evolved over time and there has not been an effective backfitting program at the FMPC.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 21 - S&H - SARs - 09
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity DesignReference Data NLO safety assessment of Plant 8 addition, dated June 13, 1983.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Contemporary DOE tornado criteria are not used in the safety assessment of Plant 8 addition.

1	2	3	4	5
—	—	X	—	—

Contemporary DOE seismic criteria are not used in the safety assessment of Plant 8 addition.

Discussion

The Plant 8 addition is the most recent major design/construction activity at FMPC involving a nuclear facility. The project was not required to use the larger loads imposed in the DOE criteria, but was allowed to use Uniform Building Code (UBC) loads instead. The existence of windows indicates tornado effects on confinement shell and processing equipment have been ignored.

Tentative Finding(s)

Noncompliance with contemporary design criteria exists.

Probable Root Cause(s)

Historical design practices continue at the FMPC.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 21 - S&H - SARs - 10
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89

Building or Activity K-65

Reference Data Procedures RE-S-01-001, RE-S-01-002, and several others for K-65 silo sampling. Also Topical Manuals 2117 and 2116 for Criticality Safety and Nuclear Safety.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

Recent efforts in the K-65 sampling program represent excellent integration of procedures and checklist.

Discussion

The K-65 silo sampling procedures RE-S-01-001 and RE-S-01-002 do an excellent job of incorporating a valve lineup checklist into the larger task of preparing to sample. Job records indicate the checklist is being used consistent with procedural steps.

Tentative Finding(s)

This integration of procedures demonstrates evidence of WMCO culture change efforts.

Probable Root Cause(s)

WMCO policies and a skilled procedure author are credited for this excellence.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 21 - S&H - SARs - 11
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity K-65Reference Data Preoperational readiness review checklist dated June 6, 1989 and FMPC-2116.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

	1	2	3	4	5
	—	—	—	—	X
WMCO conducted a readiness review of the K-65 sampling effort.	1	2	3	4	5
	—	—	—	X	—

There is an inadequate record of independent safety review of the K-65 sampling effort.

Discussion

The K-65 silo sampling activity was supported by a WMCO readiness review prior to start of work, which is as required by FMPC-2116.

No good evidence of independent safety review could be found except a letter from the WMCO safety committee. The letter was too restrictive to be of value. The readiness review process deviated somewhat from WMCO procedures.

Tentative Finding(s)

There was inadequate record of independent safety review.

Probable Root Cause(s)

WMCO nuclear safety staff is not fully effective in their role to conduct independent safety assessment.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 21 - S&H - SARs - 12
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity K-65Reference Data Training records.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

WMCO used "cold runs" to verify adequacy of training and procedures for the K-65 sampling effort.

Discussion

Training records support the WMCO position of using trained, qualified operators for the sampling job.

Excellent practice was followed in using the proofing of equipment on "cold materials" as a training activity. Additional cold training was provided during sampling work on "cold" silos. A definitive lesson plan and written examination was used for classroom training. The whole process helped ensure a good job and ALARA exposures.

Tentative Finding(s)

Excellent practice was followed.

Probable Root Cause(s)

The WMCO President and staff made a strong commitment and effort to do this job right.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 21 - S&H - SARs - 13
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89

Building or Activity K-65

Reference Data ORO Order 5481.1B of 5-23-84 and personal interview.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The DOE approval system was not properly used in the startup of the K-65 sampling effort.

Discussion

The referenced ORO order specifies a system of evaluating risk that does not coincide with the DOE-HQ order on hazard classification. The DOE-HQ order is the basis for determining that a Program Senior Officer authorizes "high hazard" start-ups, a Field Office Manager "moderate," and the contractor president "low hazard" start-ups. The WMCO President apparently authorized start-up (the actual documents are ambiguous in this respect) of K-65 sampling even though the dome is weak and the public is close. In the opinion of this reviewer, the K-65 silo sampling effort would rate at least a moderate hazard classification.

Tentative Finding(s)

Noncompliance exists with DOE Order 5480.5.

Probable Root Cause(s)

Historical ORO practice has not been modified to reflect current departmental guidance.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 21 - S&H - SARs - 14
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity K-65 SilosReference Data Comargo & Associates studies and site-generated data.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
X	—	—	—	—

Structural integrity of K-65 silos is questionable.

Discussion

Two analyses of the structural integrity of the K-65 silos have been conducted and documented in reports dated February 1986 and November 1988, respectively. Both of these analyses concluded that the two silo domes have lost any capability to sustain additional loads and postulated that the center 20-ft-diameter section could collapse at any time. WMCO took prompt action in early 1986 and installed a temporary plywood cap over the center portion of each of the two silos to retard further deterioration of the domes and to mitigate the impacts of possible collapse of the center section.

The analyses and examination also revealed the presence of cracks and a general deterioration of the silo wall materials. The contractor that performed the analysis estimated in February 1986 that the walls and base slab of the silos should continue to be structurally stable for 5 to 10 years. The contractor also recommended that any removal of silo contents should be accompanied by simultaneous reduction of the surrounding berm to preclude possible collapse of the walls of the silos. At the present time, WMCO has not conducted or had others conduct additional analyses that support or refute the earlier analyses regarding structural integrity.

The two K-65 silos contain materials that yield large quantities of radon gas. This gas is confined, to a degree, by the silo structure, but unfiltered releases occur continuously. An activated-charcoal filter system has been installed recently, but this system is operated intermittently only to support FMPC worker access to the silo domes.

Tentative Finding(s)

Analyses of the structural integrity of the K-65 silos show that the center portion of the silo domes could collapse at any time and the walls and base slabs have a limited remaining lifetime.

Probable Root Cause(s)

Insufficient safety reviews have been performed on the K-65 silos.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 22 - S&H - Fire Prot - 01

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Sitewide

Reference Data FMPC 6/89 TSA Concern FP.5-1, p 9 FP-10, and Section FP.3 findings/concerns, pg FP-4; ORO Fire Protection Appraisals of FMPC of 4/11/89, 7/22/88, and 3/6/87.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

WMCO has not conducted any formal, documented fire appraisals of FMPC facilities. Also, as examples, the safety analyses for Plants 1 and 2/3 are in draft (since 1986 and 1987). These reports will require input from the WMCO Fire Protection Engineering Appraisals, and DOE review and approval.

Discussion

As confirmed by file review, procedure review, and interviews, there is no WMCO fire protection self-appraisal program in effect at this time that fully satisfies the requirements under DOE Order 5480.7. However, ORO does perform effective DOE fire protection appraisals of FMPC on a periodic basis that meets this order. The ORO performance evaluation of FMPC for the period ending March 31, 1989, also noted a deficiency in the lack of WMCO fire protection self-appraisals.

Tentative Finding(s)

A documented and effective WMCO fire protection self-appraisal program does not exist that fully covers facilities, equipment, and processes per DOE Order 5480.7. For the DOE part of the requirement, ORO has a very effective program.

Probable Root Cause(s)

Resources to continue both routine operation of the site and address new and changing programs on aggressive schedules are insufficient.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 22 - S&H - Fire Prot - 02
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity SitewideReference Data FMPC 6/89 TSA Concern FP.4-2, for B-14 and B-15 Vault protection.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

During facility inspections, several locations, including Buildings 2/3, 5, 11, and 14, were found to have unprotected fire wall penetrations, stuck-open fire doors, and/or fire doors without functional latching mechanisms.

Discussion

As confirmed by facility inspections, file review, procedure review, and interviews, there is no WMCO program or procedure in effect at this time that ensures fire barrier integrity on the site. Fire barrier integrity is required by DOE Order 5480.7, and National Fire Protection Association (NFPA) codes, including NFPA 101, Life Safety Code.

Tentative Finding(s)

There is no program or procedure for ensuring fire barrier integrity on the site.

Probable Root Cause(s)

The existing management systems do not provide the controls to ensure that requirements are continually being met.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 22 - S&H - Fire Prot - 03
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Life Safety SitewideReference Data FMPC 6-89 TSA Concern FP.1-1, (CAT II).**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

In addition to Life Safety Code (NFPA 101) deficiencies noted in the June 1989 Technical Safety Appraisal (TSA) in Buildings 2/3, 30a, 56, 64, and 51, additional deficiencies were noted in Buildings 6, 8, 9, 11, 14, 45, and 64.

Discussion

As confirmed by facility inspections, the following Life Safety Code deficiencies were noted:

- B-6 - The northwest acid area exit door was roped shut.
- B-8 - The north exit from the dry area was obstructed by storage materials.
- B-9 - The northeast exit door was obstructed.
- B-11 - The fire doors on the stairwell to the lunchroom did not provide a fire-rated enclosure, as latches were missing and one door was stuck open.
- B-14 - The fire doors from offices on the east side second floor to the fire-rated corridor were inoperative due to the use of door chocks. The main corridor separation doors contain no latch mechanism.
- B-45 - The west exit was obstructed.
- B-64 - The north end did not have an approved exit door; no exit signs were provided.

As a result of the June 1989 TSA concern, WMCO has prepared an acceptable plan for "Corrective Actions for Category II TSA Findings, Buildings 30, 56, 51, 64, and Plant 2/3." On June 2, 1989, a formal letter was sent from the Maintenance Manager to all facility owners requesting action "to identify and correct hazardous situations and situations of noncompliance with the National Fire Protection Association (NFPA) Standard 101, Life Safety Code, and to issue where required, 'Personnel safety' work requests to Maintenance for corrective action." These were to be completed promptly and are in the process.

Tentative Finding(s)

Several plant areas, in addition to those identified in the FMPC June 1989 TSA, are not in conformance with NFPA 101, Life Safety Code. Continuing facility owner management attention is needed.

Probable Root Cause(s)

The existing management systems do not provide the controls to ensure that requirements are continually being met.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 22 - S&H - Fire Prot - 04
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity SitewideReference Data FMPC 6-89 TSA Concerns FP. 4-1 and FP 4-3; ORO Fire Protection Appraisal of FMPC of 4-11-89, Recommendations 88-1, 87-2, 84-4, and 84-8.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The storage or placement of combustible material, in particular wood pallets and containers, at the FMPC is being done without adequate consideration of the potential effects from a fire in the material or whether adequate building protection is provided for the combustible loading involved.

Discussion

In addition to areas of concern identified in the FMPC June 1989 Technical Safety Appraisal and the referenced ORO Fire Protection Appraisal recommendations, the following combustible storage and loading concerns were noted during facility inspections:

- B-5 and 32-Bagged magnesium turnings were improperly stored in too-large-a-pallet groupings, with some bags in a position for potential exposure to rainwater (moisture reaction), two bags left open, and a spill of turnings left on the floor.
- B-6-Stacks of wooden shipping containers in the old rolling mill area had no sprinkler protection.
- B-13 and 64-Housekeeping problems were evident with storage of boxes, etc., around process equipment.
- B-30-Empty wooden crates were stacked in the southeastern corner, with no assurance that the sprinkler system provided is designed to protect the height and amount of combustible loading involved. Housekeeping was marginal in this area.

- B-71-Wooden boxes were stored in the southern half, with no assurance that the sprinkler system provided is designed to protect the height and amount of combustible loading involved.
- B-9-Stacks of empty wooden boxes were stored in the southeastern area, with only partial sprinkler protection. There was no assurance that the sprinkler system provided is designed to protect the height and amount of combustible loading involved.

As additionally confirmed by file review, procedure review, and interviews, there are inadequate reviews, procedures, and controls in place at the FMPC for combustible material storage. The ORO Safety, Health, and Quality Assurance Performance Evaluation Committee Report for FMPC for the period ending March 31, 1989, noted deficiencies in material storage practices and procedures still in draft. A WMCO procedure for "Good Housekeeping and Storage of Combustibles in Buildings" is still in draft. A review of procedures indicated that a "Control of Pyrophoric Metals" has not been completed. Hazardous materials controls are required by DOE Order 5480.7.

Tentative Finding(s)

FMPC has inadequate review, procedure, and control mechanisms in place for housekeeping practices and the storage of combustible materials.

Probable Root Cause(s)

The existing management systems do not provide the controls to ensure that requirements are continually being met.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 22 S&H Fire Prot 05

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89

Building or Activity 1, 2/3, 4, 5, 6, 9, 13/54

Reference Data FMPC 6-89 TSA Section FP.2 and cross references to Concern ER. 5-1 for B-13/14, and Section FP. 3 and cross references to previous Recommendations R-83 (FP.3), Concern FP.5-1, Concern OA. 1-5, and Concern OA. 6-2 for B-4, 5, 6, and 9. ORO Fire Protection Appraisal of FMPC of 4-11-89, Finding Sections B.13 and B.14, p. 9 concerning draft procedures and implementation.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Several draft safety reports for the plants and procedures relating to fire protection programs have not been completed and approved for implementation. Some of the safety report drafts are several years old.

Discussion

As referenced, both the FMPC June 1989 Technical Safety Appraisal and the recent ORO Fire Protection Appraisal expressed concern about the number of draft documents being used at the FMPC, with the problem going back several years in some cases. The Plant 1 Safety Study has been in draft form since June 1986, and the Plant 2/3 Safety Study (which includes tri-butyl phosphate-kerosene use and storage) has been in draft form since November 1987. It could not be determined if fire lessons learned (e.g., the 1985 explosion in the Plant 1 Williams-Titan Mill) and a possible uranium dust/Halon interaction had been considered. These documents need to be updated and processed through peer review. The studies will require input from the WMCO Fire Protection Engineer's Appraisals and reviews and approval by DOE prior to finalization and distribution.

Approximately eight new plant standard operating procedures relating to the fire protection programs are either in draft form or still need to be prepared and have not been approved for implementation. These include fire alarm and automatic sprinkler system emergency alarms and notification procedures, testing and restoration procedures, and procedures for control of combustible storage and pyrophoric metals.

Tentative Finding(s)

Approved safety reports and procedures have not been completed relating to fire protection concerns and programs.

Probable Root Cause(s)

Resources to continue both routine operation of the site and to address new and changing programs on aggressive schedules are insufficient.

The existing management systems do not provide the controls to ensure that requirements are continually being met.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 22 - S&H - Fire Prot - 06
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity ERT & Resources

Reference Data FMPC 6-89 TSA concern FP.5-2 and section FP.5, pg FP-9 (Concern ER.s-1);
ORO Fire Protection Appraisal of FMPC of 4/11/89 Recommendation 84-5 and Finding
section B.11, pg 8.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The Emergency Response Team (ERT) is utilizing a state of Ohio certified training program. However, improvements are needed in preparing a standard operating procedure outlining training requirements and a matrix to track who needs training or a refresher course. There are problems with ERT members not completing classes. Pre-fire plans need to be updated. ERT response to the Joint Response 1989 exercise was very good.

Discussion

The referenced Technical Safety Appraisal (TSA) and ORO Fire Protection Appraisal raised concerns regarding the need for improvements in the ERT training program and pre-fire plans being out of date. The ORO Performance Evaluation of FMPC for the period ending March 31, 1989, made a positive statement regarding the use of a state-certified course. However, there is still a lack of a standard operating procedure outlining training requirements. Also, a review of records indicated that an overall matrix to track and ensure each ERT member has up-to-date training was not completed. As indicated in the TSA, there has been a concern about ERT members missing training. There still appears to be a problem with people missing classes or leaving classes early without completing training for that day. On July 21, 1989, three members of the class of six individually left early for other work and did not complete the class.

The ORO appraisal noted that the fire emergency drill response was excellent. Although the TSA noted several areas in the overall emergency preparedness/response system needing improvement, the ERT response in the subsequent Joint Response 1989 exercise on June 24, 1989, was judged to be very good. Fire fighting apparatus, spill response vehicles, and ambulances appear to be well maintained and equipped. The older tanker is scheduled to be replaced with a new 3500-gal tanker through the ES&H Improvement Project. Mutual Aid Fire and Ambulance Agreements and Hospital "Letter of Agreement" are all in place and functional, with updates being prepared.

Pre-fire plans have been partially updated, but they are very basic. Hazards data are minimal. The ERT has to rely on other documents (SARA reports, etc.) for hazards information. There does not appear to be a fire hazards analysis based on safety studies or Fire Protection Engineer Facility Appraisals to backup the pre-fire plans.

Tentative Findings

Improvements are needed in the ERT training procedures and tracking and in updating pre-fire plans.

Probable Root Cause(s)

Integration of the centralized training system with department training activities is not functioning as expected by user organizations.

The existing management systems do not provide the controls to ensure that requirements are continually being met.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 22 - S&H - Fire Prot - 07

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Sitewide FA & ASReference Data FMPC 6-89 TSA section FP.5, pg FP-8; ORO Fire Protection Appraisal of FMPC of 4/11/89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

In general, fire alarm and suppression system reliability is ensured through good inspection, alarm, and maintenance practices. However, there is need for enhancement in the areas of evaluation of "routine failures," completion of draft inspection and restoration procedures, and management support for corrective actions.

Discussion

As confirmed by file review, facility inspections, procedure review, and interviews, fire protection equipment is being inspected, tested, and maintained on intervals recommended by the National Fire Protection Association and is adequately documented. Numerous fire alarm and automatic fire protection systems in buildings were observed, and all appeared to be well maintained with inspection tags and records in order. The new Honeywell fire alarm improvements in the buildings are in the late stages of installation and will enhance FMPC alarm and evacuation capabilities. The ES&H Improvements Project at WMCO includes upgrades at several locations to improve specific fire alarm or suppression system capability. The Building 10 (Boiler Plant) Tripper Room fire protection improvements were a particularly good example of analysis, corrective actions, and documentation by WMCO.

However, as stated in the references, no quality assurance procedures exist for documentation and evaluation of "routine failures" of alarm or sprinkler systems and should be considered. Also, in some cases, management support for corrective actions for safety and fire inspection findings was found to be lacking. The ORO Performance Evaluation of FMPC for the period ending March 31, 1989, noted that many plant fire protection procedures were in draft; this is still the case for the Industrial Health and Safety Manual chapter on emergency alarms and notification procedures and several standard operating procedures on testing and restoration of fire alarm and automatic sprinkler systems.

Tentative Findings

In general, this is a good program; however, fire alarm and suppression system reliability need enhancements in the areas of procedures, evaluation of "routine failures," and management support for corrective actions.

Probable Root Cause(s)

The existing management systems do not provide the controls to ensure that requirements are continually being met.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 22 S&H Fire Prot 08

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Water SystemReference Data FMPC 6-89 TSA concerns FP.5-3 and FP.5-5; ORO Fire Protection Appraisal of FMPC of 4/11/89, Recommendation 88-5 and Section B.9, pg 8.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Distribution systems are reliable and are covered by an adequate system of controls. Exceptions are inadequate flow testing of fire hydrants, the need for upgraded water system drawings, and minor improvements for outside control post indicator valves.

Discussion

As confirmed by file review, field inspections, procedure review, and interviews, WMCO has a reliable fire protection water distribution system, which is covered by an adequate system of controls as required by DOE Order 5480.7. The fire pump system and high tank area appear in good condition. The pump system and controls are old but appear well maintained. The system meets National Fire Protection Association (NFPA) 20 requirements, except for separate diesel tanks that are under construction. Fixed system test records indicate the fire pump and tank systems are being tested per NFPA standards. The Annual Fire Pump Test Report of July 1988 indicated excellent condition of the pumps.

However, there is no evidence of hydrant flow tests on a loop or closed-leg basis, which should be done to verify system flow pressures and capacity. Post indicator valves need replacement of position indication windows and controls to prevent unauthorized use of unsupervised valves. The FMPC site water distribution system drawings need to be updated to current conditions.

Tentative Finding(s)

The water distribution system needs to have hydrants flow tested, distribution drawings upgraded, and minor improvements made for outside control post indicator valves.

Probable Root Cause(s)

The existing management systems do not provide the controls to ensure that requirements are continually being met.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 22 - S&H - Fire Prot - 09
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Design Review and New Facility StandardsReference Data FMPC 6-89 TSA Section FP.5, pg 9, and ORO Fire Protection Appraisal of FMPC of 4/11/89, Section B.6, pg 7, and B.10, pg 8.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

Fire protection engineering review is required for all new designs and modifications. DOE and National Fire Protection Association (NFPA) standards are effectively applied. Professional staff is well qualified.

Discussion

As confirmed by file review, field inspections, procedure review, and interviews, WMCO has a very effective fire protection review and approval process for new designs and modifications. A professional fire protection engineer is a member of the Safety and Fire Protection Group and is a significant part of the review and signature process. Field changes or modifications are brought to his attention for evaluation and approval. New construction and modifications are being built per DOE Order 6430.1A and NFPA standards for fire protection.

Tentative Finding(s)

WMCO has an excellent fire protection design review and approval process.

Probable Root Cause(s)

An effective fire protection design process is applied to all new equipment and systems where design and engineering activities are being performed by WMCO organizations.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 22 - S&H - Emer. Prep. - 10
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Emergency PreparednessReference Data FMPC 6-89 TSA Concerns.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Thirteen concerns were raised by the June 1989 Technical Safety Appraisal (TSA). Resolution of these concerns is in process at FMPC.

Discussion

Progress by WMCO on the June 1989 TSA emergency readiness concerns was assessed by interviews, file review, procedure review, and/or direct field observation as appropriate. WMCO is making a serious effort to respond to the TSA finding regarding emergency preparedness. The recently conducted exercise shows that progress is being made.

Tentative Finding(s)

Positive progress is being made on most TSA emergency preparedness concerns. Continuing management attention is needed.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 22 - S&H - Emer. Prep. - 11
Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Emergency PreparednessReference Data Joint Response 1989 Exercise.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

The Joint Response 1989 exercise conducted on June 24, 1989, was a successful, full-scale, independently evaluated, emergency preparedness exercise designed to demonstrate that FMPC and off-site personnel knew how to handle an emergency with off-site implications. The Joint Response 1989 public meeting and critique that followed on July 18, 1989, supported this.

Discussion

The Joint Response 1989 Public Meeting was held at Stricker's Grove on July 18, 1989.

This public meeting was held as an open, self-critique, comments and evaluation summary, followed by questions and answers. The introductory remarks by FMPC management expressed examples of the progress made and the need for continuing attention to emergency preparedness.

Overall, the impression of the meeting was positive. The exercise had been well planned and executed per statements made by Ohio state, county (Hamilton and Butler), and township representatives. A contracted emergency preparedness expert from Virginia Tech expressed overall positive statements about the exercise and results, with areas for enhancement to be identified in the final report.

Communications were expressed by all as an area much improved but still needing selected areas of enhancement. A very open self-critique was presented by WMCO management explaining both strengths and weaknesses to the public.

Public comment varied from needing more information about the plant to concerns about getting prompt notification through sirens, radio, Emergency Broadcast System messages, etc.

In summary, a systems approach to emergency preparedness was successfully demonstrated, and improvements can be achieved through a team approach. The areas for improvement will involve multiple agencies and will take a team approach for solutions from all agencies. This appears to be achievable.

Tentative Finding(s)

The Joint Response 1989 exercise successfully demonstrated a systems approach to emergency preparedness.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 22 - S&H - Emer. Prep. - 12

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Emergency PreparednessReference Data Joint Public Information Center.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

WMCO has equipped an off-site Joint Public Information Center (JPIC) for handling media and public information and concerns.

Discussion

The JPIC was set up in Fairfield in late May after the Technical Safety Appraisal, and it was successfully used during the Joint Response 1989 exercise. A tour and discussion of its capabilities were conducted. This is a well-equipped modern facility with excellent capabilities for communications with the media, public, state and county agencies, and the FMPC Emergency Operations Center.

Tentative Finding(s)

The FMPC JPIC is an excellent facility for providing accurate, timely information to the public and the media.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 22 - S&H - Emer. Prep. - 13

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Emergency PreparednessReference Data ORO Performance Evaluation Report for the Period ending 3/31/89, pg 9.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

WMCO was requested by ORO to provide emergency preparedness logistical support in the development of several new initiatives. WMCO emergency preparedness management expertise was recognized in these areas.

Discussion

WMCO Logistical support to ORO:

- took the lead in the development of standard status boards that are used at ORO and all ORO contractor Emergency Operations Centers (EOCs)
- developed and conducted training for ORO and ORO contractor facilities plotter/communications
- developed a coordinated procedures document that establishes a standard means to post status information
- took the lead in developing and coordinating standardized information management systems (computer systems being considered at ORO and other ORO contractor facilities)
- performed an evaluation of new front projection screen technology to be used in the ORO EOC
- under tasking by ORO to develop a new ORO EOC, finalized a general plan layout, allocated monies, formed design construction team, and started initial work

- completed the installation of an automated log system for the 24-hour center and EOC use
- completed work on the development of the FMPC annex to the Ohio Emergency Plan regarding hazardous materials emergency events at FMPC.

Tentative Finding(s)

WMCO emergency preparedness management has provided significant and excellent logistical support to ORO in the area of emergency preparedness.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 23 - S&H - Rad. Prot. - 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity SitewideReference Data DOE Order 5480.11; Radiation Protection for Occupational Workers; 12-21-88, pp.21.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Posting of "Controlled Area" is not used at the facility.

Discussion

The five types of radiation warning signs required by DOE Order 5480.11 are to be used inside a controlled area. FMPC does not use the controlled area designation at the facility. The radiological posting at the facility is based on an FMPC zone concept. Zone I is defined as a "clean" area; Zone II as a "transition" area; and Zone III as an area with external radiation fields, contaminated areas, or airborne radiation hazards. This posting concept is not consistent or compatible with DOE Order 5480.11, but WMCO is proceeding to be in compliance by December 31, 1989.

Tentative Finding(s)

Existing facility posting is not in compliance with DOE Order 5480.11.

Probable Root Cause(s)

Resources are limiting the implementation before December 31, 1989.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 23 - S&H - Rad. Prot. - 02
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity SitewideReference Data DOE Order 5480.11; Radiation Protection for Occupational Workers; 12-21-88, pg 21.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Radiation signs posted on or in facilities do not include the expected rate or range of dose rates.

Discussion

DOE Order 5480.11 requires that the expected dose rate or range of dose rates shall be included on or in conjunction with each posted sign used to describe the external radiation field. This is not done at FMPC.

Tentative Finding(s)

"Radiation Area" and "High Radiation Area" sign postings are not in compliance with DOE Order 5480.11.

Probable Root Cause(s)

WMCO management does not provide the controls to ensure that new DOE order requirements are implemented.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 23 - S&H - Rad. Prot. - 03
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Plant 4Reference Data Facility Tour.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Some plant managers use radiation zone signs to control access for other than radiation protection purposes.

Discussion

On the FMPC facility tour for the team members, conducted on July 21, 1989, both WMCO guides indicated that the Zone III signs and barricade surrounding the freight elevator at the northwestern corner of Plant 4 were used to prevent people from using the elevator.

Tentative Finding(s)

There is an inappropriate use of radiation control signs.

Probable Root Cause(s)

Lack of oversight exists at WMCO on the appropriate use of radiation control signs.

NOTE: This data sheet, as written, correctly represents what several team members were told while touring Plant 4. WMCO has subsequently advised the team that the elevator is classified as a Zone III area because of the level of contamination present.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 23 - S&H - Rad. Prot. - 04
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity LaundryReference Data DOE Order 5480.11, Radiation Protection for Occupational Workers; 12-21-88, Attachment 2.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Radiation detection instruments used to monitor clean area clothing are not set to detect the levels required to release clothes to controlled areas.

Discussion

Clothing entering the laundry is segregated and washed based on whether it was used in a clean area (Zone 1) or a contaminated or potentially contaminated area (Zones II or III). The radiological screening of all washed clothing is done with instruments set to detect beta radiation levels of 15,000 dpm/100 cm². This procedure can allow "clean area" clothing that may have become cross-contaminated by whatever means to be released to clean controlled areas without setting off the detector alarms.

Tentative Finding(s)

Facility clothing can be released to controlled areas that exceed the guides specified in Attachment 2 of DOE Order 5480.11.

Probable Root Cause(s)

WMCO management does not ensure that adequate radiological procedures and controls are in place to prevent incidents.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 23 - S&H - Rad. Prot. - 05

Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity LaundryReference Data DOE Order 5480.11, Radiation Protection for Occupational Workers, 12-21-88, p.18, paragraph 4.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The table beta proportional counter in the laundry has been out of service since mid-June.

Discussion

The radiation detection system used to measure the effectiveness of decontamination of FMPC clothing from the laundry is designed to operate automatically and to monitor large areas. Since the counter has been out of service, this last time from mid-June, clothing has been monitored with hand-held friskers. This technique is not nearly as reliable at detecting contamination on the clothing as the detection system designed to screen the cleaned clothing. Clothing has to be handled twice to ensure that both sides of the garment are screened. The effectiveness of the friskers used in this method is certainly not as good as the table detector, even though the detection sensitivity of each is set at the same levels.

Tentative Finding(s)

Appropriate instrumentation is not available for adequate contamination control as prescribed by DOE Order 5480.11.

Probable Root Cause(s)

WMCO management does not ensure that adequate radiological procedures and controls are in place. Resources are limiting an expedited installation.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 23 - S&H - Rad. Prot. - 06
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity SitewideReference Data Personal Interview.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Very little routine and operational oversight is provided by DOE of the WMCO Radiation Safety Program and operations at the FMPC.

Discussion

The local DOE Site Office does not have a health physicist on staff to review the contractor programs at FMPC. Open, approved requisitions exist, but the Site Office has been unsuccessful in filling the vacancy. ORO provides limited oversight, but it is primarily for cost-plus, award fee, and crisis situations.

Tentative Finding(s)

Adequate health physics overview of contractor programs is nonexistent from the Site Office or ORO.

Probable Root Cause(s)

DOE management is not taking the steps necessary to ensure adequate oversight.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	23	S&H	Rad. Prot	07
	Aud. ID Number	Team (Env., S&H, M&O)	Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)	Seq. Data Sheet No.

Date 8-19-89

Building or Activity Decon Laundry

Reference Data DOE Order 5480.11, Radiation Protection for Occupational Workers, 12-21-88.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
		X		
_____	_____	_____	_____	_____

No continuous air monitors (CAMs) were available for use in the laundry.

Discussion

In the area of the laundry where potentially contaminated clothing is unbagged, no CAMs were available to alert workers if the airborne contamination concentrations exceeded 1/10 of the derived air concentration. Although current air sampling results indicate no significant airborne contamination, the plant is now in a nonproduction mode, and the airborne concentrations are expected to be low. The current air samples collected on a daily basis are analyzed within 4 hours and again 3 days following collection for documentation.

Tentative Finding(s)

Appropriate instrumentation is not available for adequate internal exposure control.

Probable Root Cause(s)

WMCO management does not ensure that adequate radiological procedures and controls are in place.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 23 - S&H - Rad. Prot. - 08
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Bldg. 53Reference Data DOE Order 5480.11, Radiation Protection for Occupational Workers, 12-21-88, ALARA.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

A cesium-137 source is being stored in a stairwell.

Discussion

A cesium-137 source, contained in its shielding pig, is being stored in the stairwell in the southeast corner of Building 53. The source is in a padlocked shielding pig, but the area (stairwell) is accessible to any person who enters the building at any time. Storage in the stairwell is a result of the current expansion projects going on in the building. The area around the source is not properly posted to warn pedestrians in the vicinity of the potential hazard.

Tentative Finding(s)

Radioactive sources are not properly stored and secured.

Probable Root Cause(s)

WMCO management is not providing oversight sufficient to prevent such occurrences.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 23 - S&H - Rad. Prot. - 09

Aud. ID Number
Team (Env., S&H, M&O)
Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)
Seq. Data Sheet No.

Date 8-19-89Building or Activity Radiation TrainingReference Data DOE Order 5480.11, Radiation Protection for Occupational Workers, 12-21-88, Section 9.0 (2) and 9.0 (3).**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

There is no applied training in the radiation training program.

Discussion

DOE Order 5480.11 requires that the training provided to radiation workers and radiation protection technicians include applied training as part of the overall training requirements.

Tentative Finding(s)

Radiation workers are not receiving all the necessary training required by DOE Order 5480.11.

Probable Root Cause(s)

Limited resources preclude an expedited implementation.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 23 - S&H - Rad. Prot. - 10
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity SitewideReference Data Site tour.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Radiation work permits are posted in work areas in an irregular and unconventional fashion.

Discussion

Several work permits posted in plant facilities were taped to poles near the floor. An illegible permit was on a fence outside, others on notice boards, and others taped to pieces of equipment. Some out-of-date work permits were not removed from their posting locations.

Tentative Finding(s)

There is no defined policy for the posting location of radiation work permits on the FMPC.

Probable Root Cause(s)

There is no WMCO management policy on informational posting requirements.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 23 - S&H - Rad. Prot. - 11
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity Plant 5Reference Data Site tour.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The high potential for injecting respirable-size uranium particles into the working air environment is not well documented.

Discussion

The activities of derby break-out, derby cleaning, mold cleaning, and painting performed in Plant 5 represent the highest potentials for the injection of uranium metal aerosols into the working environment. The most current data collected on particle sizes near these operations occurred in February 1983. These old data indicate that the respirable fractions of the aerosols range from 17% to 25%. Although workers immediately involved with these activities wear respirators, the containment and techniques used do not prevent the dispersal of these aerosols. These aerosols could be distributed throughout most of the plant because of the way the ventilation system is handled where workers are not required to wear respirators.

Tentative Finding(s)

Unsuspected Plant 5 workers may be ingesting respirable uranium aerosols.

Probable Root Cause(s)

Major engineering and equipment updating are needed. Available resources limit corrective actions.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 24 - S&H - Maintenance - 01

Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity SitewideReference Data Maintenance Work Status Summary Report Data 7-17-89; Interview with Maintenance Department; Log Book Pages 14-24.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

There are 1494 corrective maintenance and approximately 1800 preventive maintenance work orders that are on backlog.

Maintenance has lost track of approximately 500 corrective maintenance work orders. They have no idea of the status.

Discussion

The maintenance backlog is excessive. There are between 45,000 and 50,000 man-hours outstanding. This averages between 420 and 467 man-hours for the 107 maintenance workers. This figure is even higher since the boiler maintenance personnel do work not covered by the Maintenance Management Information and Control System.

Approximately 500 work orders have had no time charged to them for at least 30 days, some for over 500 days. For these work orders, the Maintenance Department has no idea if the work has been done or if material and/or labor charges are still coming in. The Maintenance Department will be putting the work orders in an account, which will allow no time to be charged, and will issue a list for review. If the work is not complete, the work orders will be closed.

Tentative Finding(s)

There are insufficient maintenance personnel to perform the work. Preventive maintenance work is not being done at the proper frequency. Facility owners only allow maintenance to be done at their convenience. The man-hour backlog average has lowered recently from over 500 man-hours per worker; however, for the last 2 weeks, man-hours have increased, and it looks as though this will continue.

Record tracking capabilities need to be improved. There is no urgency to turn the paper work in or have it signed off once the job is complete. This is not necessarily the fault of the Maintenance Department. Final sign-off and return of work orders are the responsibility of the facility owner.

Probable Root Cause(s)

Corrective maintenance requests are written for any reason. No one reviews these for need or timeliness. The Maintenance Department has insufficient personnel and has no plans to increase personnel.

The tracking system and the lack of urgency to get work orders signed off after work is completed are management problems.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 24 - S&H - Maintenance - 02
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity SitewideReference Data Interview with Maintenance Department.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

There is a system in place to store preventive maintenance records, track their status, and input information on the equipment.

Discussion

A listing of all equipment is stored in a database. Preventive maintenance frequency is in the database and preventive maintenance work orders are printed by computer. Work instructions are listed in the data base and printed with the work order. A subsequent preventive maintenance work order for the same piece of equipment will not be printed until the previous work order is complete.

Tentative Finding(s)

The procedure set up to initiate preventive maintenance and record results is excellent. The men performing the work have all the information with them. Historical data are now being kept that will allow more accurate forecasting of maintenance requirements.

Probable Root Cause(s)

The Preventive Maintenance Department understands the necessity of preventive maintenance and how to implement a program.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	24	-	S&H	-	Electrical	-	03
	Aud. ID Number		Team (Env., S&H, M&O)		Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)		Seq. Data Sheet No.

Date 8-19-89

Building or Activity	<u>Sitewide</u>
1. <u>Administrative</u>	
2. <u>Construction</u>	
3. <u>Manufacturing</u>	
4. <u>Power Generation</u>	
5. <u>Transportation</u>	
6. <u>Waste Management</u>	
7. <u>Water Treatment</u>	
8. <u>Other</u>	

Reference Data Site Walk Through 7-24-89 Inspection of Equipment and Interview with Maintenance Department; Log Book pages 14-24.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

The following electrical equipment was inspected:

- main substation
- local 13.2-KV/440-V substations
- motor-generator sets
- emergency generators
- diesel generators (fire protection)
- motor-control centers
- lighting system.

Discussion

All of the above electrical equipment is old. Most equipment dates back to the early 1950s. The equipment is properly maintained (at least since WMCO took over). Major preventive maintenance was just completed on the main substation, and relays were calibrated in 1987. The relays are scheduled on a 3-year cycle. A tie-breaker has been installed in the main substation to better isolate the facility in case of faults. The 13.2-KV/440-V substation is having new trip units installed for better protection. Substations are being cleaned, and the bus is being checked for tightness.

The emergency generators supply a lighting load, small essential loads (sumps, pumps, etc.), and some receptacles, except for the Emergency Operations Center where all power is supplied. Except for the Emergency Operations Center, no power is supplied for any production equipment. The emergency generators are run weekly by the Utilities Group. The diesel generators for the fire protection system are also run weekly by the Utilities Group.

Tentative Finding(s)

The maintenance on the above equipment is good. The equipment is in good condition and well kept. The upgrade of the trip units is ongoing and will provide better protection and personnel safety in case of faults.

Motor-control centers are dirty and need to be cleaned. The lighting system is being upgraded. Two motor generator sets have been rebuilt and the rest are satisfactory.

Emergency power is supplied for lighting to allow safe evacuation of the plants. None of the existing processes required special shutdown considerations; therefore, whatever state the process is in when stopped can either be continued or started over. It is not known if this causes a hazard.

Probable Root Cause(s)

WMCO's Maintenance Department has a good understanding of what needs to be done to keep equipment running safely.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 24 - S&H - Maintenance - 04

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89

Building or Activity Maintenance Office

Reference Data Interview with Maintenance Department.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

The Maintenance Department has a continuing training program.

Discussion

The Maintenance Department has either sent personnel off-site to learn a procedure or has had a vendor come on-site to teach certain maintenance procedures, such as rebuilding a breaker, asbestos removal and containment, hoist inspection, etc. Some requests for training come from wage personnel and others from staff. Self-paced review courses are planned for personnel to take on their own time. All training records are stored in a manpower database.

Tentative Finding(s)

The Maintenance Department is trying to keep the skills of its personnel up to date.

Training records are stored in a database to allow the right person to be matched for a job.

Probable Root Cause(s)

The Maintenance Department has recognized a need to train personnel for new procedures on existing and new equipment.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 S&H Pers. Prot. 01

Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89

Building or Activity General

Reference Data WMCO IH Air Sample Code Book and data filed in IH Section. Log Book pp. 20, 29, 23.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

Industrial hygiene (IH) breathing zone and general area airborne sampling are functioning well using data back to 1977 and complete facility data on immediate recall since 1979.

Discussion

Airborne sampling for approximately 93 contaminants, including heavy metals, has been performed at the FMPC. Results of sampling have not exceeded threshold limit values in nearly all cases. Data have been computerized with hard copies for backup.

Tentative Finding(s)

The program meets DOE requirements.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 - S&H - Pers. Prot. - 02
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89

Building or Activity Construction Safety

Reference Data FMPC contract with Rust Engineering various documents in possession of assessor relating to Construction Safety Policies and Programs. Log Book pp. 15, 16, 17, 25, 26, 27.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

The Construction Safety Program at FMPC, administered by Rust Engineering as the construction management contractor for WMCO, satisfies the requirements of DOE Order 5480.9, "Construction Safety."

Discussion

The contract between WMCO and Rust Engineering contains the standard safety and health clause requiring Rust Engineering to meet the DOE safety requirements. Rust Engineering has very adequately implemented this contract requirement, and safety policies and practices of Rust Engineering are current and effectively administered. A walk-through inspection of certain construction areas revealed no major safety deficiencies.

Tentative Finding(s)

A well-integrated safety program for construction activities exists, with excellent management support both from Rust Engineering and WMCO.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 - S&H - Pers. Prot. - 03
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity DocumentationReference Data Site Policy & Procedure FMPC-605 12-02-88, DOE/ORO Directives matrix 6-21-89, Rev. to DOE Directive Review form 7-24-89, Log Book pp.21, 25.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

WMCO has developed a document control system (MATRIX) for tracking DOE orders, that identifies every order in the DOE system (by number, date of issuance, received, etc.) and who in WMCO is responsible for implementing.

Discussion

Without any obvious guidance or direction from DOE, WMCO has developed a tracking system for DOE directives to ensure proper implementation and compliance. The system is current and very well tracked and maintained.

Tentative Finding(s)

The MATRIX system is complete and satisfies basic contract requirements.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 - S&H - Pers. Prot. - 04
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89

Building or Activity Documentation

Reference Data Various documents referenced on data sheets 2 & 3, discussions with WMCO & Rust Engineering staffs.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The safety and health clause in the Rust Engineering contract with WMCO requires WMCO to formally provide Rust Engineering with those DOE requirements applicable to construction safety. There is no evidence that this has been done.

Discussion

Rust Engineering has not been provided with DOE requirements for construction safety as required by the contract between WMCO and Rust Engineering.

Tentative Finding(s)

The contract between WMCO and Rust Engineering has not fully been complied with.

Probable Root Cause(s)

Oversight by WMCO contract administration and safety and by ORO safety is lacking.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	25	-	S&H	-	Pers. Prot.	-	05
	Aud. ID Number		Team (Env., S&H, M&O)		Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)		Seq. Data Sheet No.

Date 8-19-89

Building or Activity Documentation

Reference Data Transmittal system for DOE directives to WMCO at FMPC, Log Book
pp. 21, 25.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
			X	

ORO has no system to ensure that DOE directives informally sent to WMCO at FMPC receives and correctly implements them.

Discussion

No system or evidence could be found describing the method of formally transmitting DOE directives to WMCO. No evidence could be found that ORO has audited or appraised the document control system in effect at FMPC by WMCO.

Tentative Finding(s)

No system exists to ensure that WMCO has received the DOE directives, and that WMCO has been ordered to comply with DOE directives.

Probable Root Cause(s)

Management oversight is lacking.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 - S&H - Pers. Prot. - 06

Aud. ID Number
Team (Env., S&H, M&O)
Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)
Seq. Data Sheet No.

Date 8-19-89Building or Activity Design Review SystemReference Data Various documents in possession of assessor provided by WMCO Safety Department, Log Book pp. 19, 20, 27, 28, 29.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

The design review system in current operation at FMPC ensures that the Safety Department reviews pertinent building construction/ modifications, policies, and procedures developed at FMPC.

Discussion

A review of the design review process currently in effect at FMPC provides appropriate Safety Department staff with the opportunity to review and comment on new construction, modifications to existing facilities, policies, and procedures developed by WMCO staff at the FMPC.

Tentative Finding(s)

The Safety Department design review system provides opportunity for early participation in the construction program and directives system at FMPC.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 - S&H - Pers. Prot. - 07
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity AsbestosReference Data Industrial Hygiene & Safety Manual Procedure IH-03, discussions and observations, Log Book pp. 19, 20, 18, 23.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

There is no overall plan or program to characterize the extent of asbestos usage or contamination.

Discussion

The FMPC was constructed in the early 1950s, using then approved construction materials and practices. Most of the older FMPC buildings use transite-containing asbestos in this construction and asbestos insulation on piping as needed. No data could be provided as to characterization of the asbestos or the extent of asbestos fibers migrating from the transite materials or pipe insulation.

Tentative Finding(s)

There is a lack of data as to the extent and pathways of asbestos fibers migrating from their original locations.

Probable Root Cause(s)

Probable root causes include lack of management support, financial and personnel resources, and direction by DOE.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 - S&H - Pers. Prot. - 08
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity Medical ServicesReference Data Medical Services Section Policy Manual, discussion with medical staff, observations in Log Book pp. 10, 11, 14, 22.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The Medical Services Section is providing excellent health maintenance services. However, with the Secretary of Energy's plan to make medical records available to research organizations, certain actions must be taken.

Discussion

Medical records at FMPC are complete, well documented as to diagnosis and treatment, and voluminous. Many of the employees have been in employment since the plant began operation, and their files contain extensive information. A recent inquiry for copies of these medical records by about 140 union employees took one person approximately 2 weeks to provide.

Tentative Finding(s)

Requests for medical records by employees and also research organizations are going to increase. Resources are needed to place such records on recall systems to reduce the backlog of medical information and reduce the resources necessary to provide such information.

Probable Root Cause(s)

Management oversight fails to recognize the impending increase in interest and is not providing sufficient resources to handle the increase.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 - S&H - Pers. Prot. - 09
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity TrainingReference Data Discussions and observations, Log Book pp. 9, 23-25.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The overall WMCO training as administered by Human Resources lacks a disciplined approach in ensuring that plantwide training is complete, well integrated, and cost effective.

Discussion

An integrated program of training at FMPC is not planned by WMCO management.

Tentative Finding(s)

No overall planning document, policy, or procedure was available for review that would describe or discuss a coordinated FMPC program for staff or employee (plant workers) training.

Probable Root Cause(s)

Management oversight fails to recognize the need for such direction.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 - S&H - Pers. Prot. - 10
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity CafeteriaReference Data Cafeteria Inspection Reports.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

Cafeteria inspections for compliance with DOE sanitary requirements have properly been conducted and documented.

Discussion

DOE requirements for sanitary inspections of the cafeteria have established such inspections to be conducted as a minimum every 6 months. Documentation indicates the FMPC is meeting and exceeding this frequency.

Tentative Finding(s)

Cafeteria inspections are meeting the DOE requirements.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 - S&H - Pers. Prot. - 11
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity Design ReviewReference Data Design Review Tracking System (Log Book pages 19, 20, 27, 28, and 29).**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

As part of the Construction Safety Design Review system a "Risk and Vulnerability Assessment" is made prior to conceptual design.

Discussion

A review of four of the Risk and Vulnerability Assessment Reports prepared by WMCO on proposed designs for new or modified facilities indicated they were complete and detailed as to the potential risks involved in the proposed construction of the facilities.

Tentative Finding(s)

The "Risk and Vulnerability Assessment" reports proposed by WMCO are considered mini-SARs regarding construction hazards and contain helpful safety data.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 - S&H - Pers. Prot. - 12
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89

Building or Activity Bulged Drums

Reference Data Observations - Log book pages 18 and 32.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Several drums in several different plants both inside and outside of FMPC building had bulged tops, some severely.

Discussion

Bulged drums were noticed during the walk through of several plants (e.g., Plant 2/3 and drum repackaging facility) at FMPC. Escorts were unable to satisfactorily explain why the drums were deformed. It was reported that no samples have been taken of the drum contents; consequently, such expansion could be the result of a gas build-up.

Tentative Finding(s)

Bulged drums were noticed, which may or may not have been caused by a gas build-up. A verified explanation should be provided.

Probable Root Cause(s)

Management continues to tolerate such conditions.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	25	S&H	Pers. Prot.	13
	And. ID Number	Team (Env, S&H, M&O)	Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)	Seq. Data Sheet No.

Date 8-19-89

Building or Activity **Plantwide**

Reference Data Orientation, Documentation, and Observation.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
			X	

The FMPC has a sitewide voice paging system and three different siren or warning alarms.

Discussion

It is difficult for plant personnel and impossible for visitors to remember the significance of the various alarm signals. The plant voice paging system is being upgraded to provide a more expansive and reliable system. It would seem logical to eliminate all but one alarm signal and use it as an attention mechanism; then use the voice paging system to provide the reason for the alarm. This change would eliminate the confusion and need for coded alarms.

Tentative Finding(s)

Remembering the significance of the coded alarms is difficult. An existing system soon to be upgraded would ensure the possibility of a better understanding of the plant alarms.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 - S&H - Pers. Prot. - 14
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89

Building or Activity Walkways

Reference Data Observation.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The sidewalk from the laboratory building to the security building is used as a personnel walkway and a roadway.

Discussion

The walkway becomes a potential source of safety concern when personnel and vehicles mix. Vehicles should not be permitted on this walkway. If it must continue, vehicles should be restricted to less busy periods during the day.

Tentative Finding(s)

Permitting both vehicles and personnel on a heavily traveled walkway provides a potential for accidents with injuries.

Probable Root Cause(s)

Either management accepts the risk, oversight by management is lacking, or no other option exists.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 - S&H - Pers. Prot. - 15

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity FirearmsReference Data DOE Order 5480.16 - Firearms Safety (Log book pages 12 and 13).**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

DOE Order 5480.16 requires an SAR on each live fire range and analysis on weapons that can be safely used at the FMPC.

Discussion

The firearms safety order requires, among other documentation, an SAR on each live fire range in use (identified by ORO appraisal February 1989) and approval by the Field Operations Manager or DP-34. No evidence could be provided for these requirements. Also, the order requires analysis to determine what weapons can be used safely at FMPC. This has not been done.

Tentative Finding(s)

Compliance with some of the more important requirements of DOE Order 5480.16 has not been completed.

Probable Root Cause(s)

Oversight by management at FMPC and ORO is lacking.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 - S&H - Pers. Prot. - 16
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity Air IntakesReference Data Observation, Log Book page 32.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Air intakes for the ventilation systems in Plants 5, 6, and 9 are not being operated as originally designed.

Discussion

The air intakes to the outside of the plant walls have been closed, and the air intakes changed to circulate air from within the plants. This provides recirculated air with very limited fresh makeup. The ventilation ducts also were reported to have never been cleaned, and they probably contain heavy amounts of dust and, possibly, radioactive materials.

Tentative Finding(s)

No analysis has been provided on the impact of changing the air intakes from outside air to recirculating inside plant air. The roughing filter systems on the air intakes are also suspect as to function.

Probable Root Cause(s)

Management oversight is lacking.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 25 - S&H - Pers. Prot. - 17
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity CommunicationReference Data Observation and Discussion (Log Book pages 30, 31, and 32).**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

In the interest of providing a mechanism for voicing concerns over unsafe conditions in the plants, a point of contact in the Safety Department should be established for the employee union representative charged by his union with overseeing safety.

Discussion

The chairman of the Union Safety Committee has no contact when unsafe conditions are reported to him. He calls the Safety Department, but response is slow and discouraging in their recognition and correction of unsafe conditions.

Tentative Finding(s)

A point of contact should be provided to the chairman to improve communication.

Probable Root Cause(s)

Oversight by senior WMCO management is lacking.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 26 - S&H - QA - 01
Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity AllReference Data QA Plan, FMPC 218.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

There is a potential for deterioration of compliance with site commitments.

Discussion

Various reviews (Technical Safety Appraisals, ORO Functional Appraisals, etc.) have identified site areas in noncompliance or in need of improvement. This reviewer is in general agreement with previous recommendations concerning QA and those recommendations will not be repeated. Although a comprehensive root causes analysis has been performed, there is a concern that appropriate priorities and resources are not being applied to resolve these causes under present site conditions. The record of improvement in the QA and procedural compliance could be jeopardized.

Tentative Finding(s)

Commitment to resolving QA program implementation weaknesses is insufficient.

Probable Root Cause(s)

Management emphasis on effective QA implementation is not adequate.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 26 - S&H - QA - 02
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89

Building or Activity All

Reference Data QA Plan, FMPC 2139, PMPC 218, QA Dept Charter.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Stop work authority and guidelines are not sufficiently defined.

Discussion

The authority to stop work is clearly given to the QA Manager. Guidelines on implementation of this responsibility and a procedure for administrating it are insufficient to ensure the proper use of stop work authority. All QA personnel should have clear guidelines for the implementation of stop work when critical site commitments can be jeopardized, as well as the more obvious reasons such as personnel safety or irretrievable quality verifications.

Tentative Finding(s)

Definition and implementation of stop work practices at WMCO do not assure effective utilization.

Probable Root Cause(s)

Management is not effectively utilizing or emphasizing this authority.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 26 - S&H - QA - 03
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity AllReference Data WMCO - Quality Assurance Plan - 10.02.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Trending has been reduced in frequency.

Discussion

WMCO is committed to the performance of trending and data analysis of Deficiency Reports, Minor Event Reports, and Unusual Occurrence Reports. While data continue to be collected for this purpose, the reduction in staff has resulted in a frequency of analysis that does not meet the needs of management. Automated processes could be substituted for staff augmentation.

Since trending at WMCO is primarily of negative data, it does not provide a measure of performance against quality performance goals. Adjustments to the inspection reporting system should be considered in areas where trending programs can support the total quality program.

Tentative Finding(s)

Data analysis and trending may not be responsive to management needs.

Probable Root Cause(s)

Management is not demanding full utilization of this management tool.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 26 - S&H - QA - 04
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity AllReference Data QA Plan FMPC 2139, FMPC 709.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Limited resources may dampen the implementation of total quality programs.

Discussion

Sitewide QA awareness varies significantly. In the production area of the site, as well as in the laboratories and other areas, highly visible and sensitive tasks are performed that have not received the level of oversight expected. The program to inform employees of QA awareness and the techniques of total quality may suffer additionally when staffing levels are low.

Tentative Finding(s)

QA surveillances of site activities are insufficient.

Probable Root Cause(s)

Resources and emphasis are not adequate to ensure a fully effective program.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 26 - S&H - QA - 05
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89

Building or Activity All

Reference Data Site QA Plan.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

There is an aggressive QA Plan and philosophy.

Discussion

The FMPC QA Plan thoroughly addresses the elements necessary to comply with DOE orders regarding QA. In addition, the QA Plan addresses all the specific activities currently considered appropriate to the establishment and implementation of a sound QA program. The site philosophy of a graded approach to quality and early involvement by QA in the work production processes is effectively established in the QA plan.

Tentative Finding(s)

The top level documentation to define and implement an effective QA program is complete.

Probable Root Cause(s)

Management emphasis is sufficient and resources have been allocated to do the job.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 26 - S&H - QA - 06
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity AllReference Data Site QA Plan, personal interview.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

WMCO performs Title III inspections.

Discussion

WMCO appears to have an efficient and effective method of ensuring the performance of required Title III inspections on all site projects.

Tentative Finding(s)

Title III inspections performed by WMCO are complete and ensure facilities are constructed in accordance with designs.

Probable Root Cause(s)

Management has placed proper emphasis on this area.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 26 - S&H - QA - 07
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity AllReference Data Site QA Plan, personal interviews.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

Early QA involvement in procurement and projects is successful.

Discussion

The application of the site philosophy of early QA involvement has had some obvious success in projects and procurement. The QA involvement in the procurement process was new to this site with WMCO and is considered to have enhanced the process by all those interviewed, regardless of the department. QA involvement in design review and change control activities on projects is progressive and not always common in the industry. This involvement is considered an effective element in achieving total quality goals.

Tentative Finding(s)

WMCO application of QA is having a positive effect on projects and procurement activities.

Probable Root Cause(s)

Management emphasis has been adequate to achieve an effective program.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 26 - S&H - QA - 08
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity AllReference Data Site QA Plan, personal interview.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

Organization changes have been made for quality.

Discussion

The organization for quality is an effective tool in the implementation of an aggressive QA program. WMCO has made organizational changes during its tenure designed to improve the effectiveness of the program. The most recent changes are innovative and should prove to be effective and efficient in ensuring that quality goals are met.

Tentative Finding(s)

WMCO is making organizational changes that reflect sound QA principles.

Probable Root Cause(s)

Management recognizes the importance of QA and reflects that in the structure of the organization.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 26 - S&H - Training - 09
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity TrainingReference Data Site QA Plan.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The site procedure on training has not been issued.

Discussion

The Site Training Procedure, FMPC-102, exists in draft form, but it has yet to be issued. Although the training program has been implemented, a priority should be given to the issuance of this procedure to ensure overall program compliance with DOE orders.

Tentative Finding(s)

Compliance to DOE orders is difficult to ascertain when the key site level procedure is not finalized.

Probable Root Cause(s)

Management emphasis is not adequate.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 26 - S&H - QA - 10
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89

Building or Activity Training

Reference Data N/A

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

No centralized method exists for defining training needs versus training accomplishments.

Discussion

The Training and Development Department only files records of training. There is no assurance that the department has all the records or that these records are sufficient to satisfy job requirements.

Tentative Finding(s)

There is no systematic method that ensures job requirements for training are met.

Probable Root Cause(s)

Management emphasis is not adequate.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	27	-	S&H	-	Trans. Packg.	-	01
	Aud. ID Number		Team (Env., S&H, M&O)		Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)		Seq. Data Sheet No.

Date 8-19-89

Building or Activity N/A

Reference Data FMPC - 2089, 2.29/89, page 14 and 17 Topical Manual - "On-Site Transportation ... Manual".

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
			X	

No on-site transportation safety committee exists.

Discussion

Reference is made in this manual and in other standard operating procedures to a "Transportation Safety Committee." Their function, among others, is to approve containers for on-site transport and to perform surveillances. Interviews indicate the committee is inactive, and never quite got started.

Tentative Finding(s)

Oversight Committee for Transportation Safety does not exist.

Probable Root Cause(s)

Management support is insufficient to create or sustain this activity.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	27	-	S&H	-	Trans. Packg.	-	02
	Aud. ID Number		Team (Env., S&H, M&O)		Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)		Seq. Data Sheet No.

Date 8-19-89

Building or Activity	<u>Packaging of Scrapwood</u>
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Reference Data WMCO-Quality Assurance Plan - 12.11 pages 4 and 5.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
			X	

The closure procedure is insubstantial for box weight.

Discussion

Radioactive low-specific activity (LSA) is required to be packaged in a strong, tight package or a U.S. Department of Transportation 7A container. The LSA procedure indicates a closure that includes only two 1-1/2-in. steel bands around a box with an allowable gross weight of 5000 pounds. Without test results, which have not been done, the integrity of this closure method is very questionable. "Conditions Normally Incident to Transportation" generally include the potential for a 5- to 6- in. drop off the bed of a vehicle, which would either expand or break one or both bands and allow the container to open.

Tentative Finding(s)

There are untested closure procedures used to close low-level radioactive waste containers of substantial size and weight.

Probable Root Cause(s)

Test criteria are not firmly established for strong, tight packages.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 27 - S&H - Trans. Packg. - 03

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Hazardous Materials MovementsReference Data N/A**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

There is a procedural void for on-site, off-site packaging and transfer of nonradioactive materials.

Discussion

Inquiries regarding procedures for packaging, marking, and labeling of nonradioactive hazardous materials met with responses indicating that there was little or no movement of nonradioactive materials. On-site observation indicates that oxidizers, corrosives, flammable solids, and compressed gases are present on the site. These materials did not "appear" here, and the gas cylinders, at least, must go somewhere for refill periodically. Specific procedures should be implemented to address movement of "other" hazardous materials from the work place to the gate.

Tentative Finding(s)

Management recognition of nonradiological hazardous materials is lacking.

Probable Root Cause(s)

There is a lack of awareness for regulations and potential risk related to nonradioactive hazardous materials.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 27 - S&H - Trans. Packg. - 04

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity On-site TransportationReference Data N/A**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

No procedures are implemented for securing containers to vehicles during on-site shipment.

Discussion

There are no procedures in place for tie down of containers to transport vehicles. Event reports indicate that more than one instance occurred in 1989 where product material (radioactive) fell off a vehicle. Drums are secured together, and often palletized, but not tied down to the truck during on-site movements.

Tentative Finding(s)

Operations groups are unaware of risk to personnel, equipment, and property from unsecured loads.

Probable Root Cause(s)

The practice of not securing loads had been ignored due to the short on-site trips and slow vehicle speeds.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 27 - S&H - Trans. Packg. - 05
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity TrainingReference Data N/A**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The U.S. Department of Transportation (DOT) training is only cursory.

Discussion

DOT training is presented; however, the amount of training required is not defined in 49 CFR. Consequently, only 4 hours (1 class) every 2 years are required at FMPC. Most of that 4-hours course is specifically directed at radioactive waste transportation. By contrast, hazardous waste training, different from DOT training, consists of 80 hours for workers and 40 hours for supervisors.

Tentative Finding(s)

Management support is lacking for an on-site DOT training program.

Probable Root Cause(s)

The training emphasis is on radioactive waste and RCRA.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 27 - S&H - Trans. Packg. - 06
Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data FMPC-2089, 2/29/89, page 17 Topical Manual "On-site Transportation of Radioactive and Non-Radioactive Hazardous Materials."**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Packaging procedures are prepared and approved by the same organization.

Discussion

Packaging procedures for product material (radioactive material) are developed and approved by Production Operations. Approval should be from a knowledgeable, external organization, possibly after a review by several people with the appropriate technical expertise.

Tentative Finding(s)

Procedural review and approval by technically proficient external organizations or individuals within WMCO have not been fully implemented.

Probable Root Cause(s)

Resources and cost control are two possible root causes.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	27	-	S&H	-	Trans. Packg.	-	07
	Aud. ID Number		Team (Env., S&H, M&O)		Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)		Seq. Data Sheet No.

Date 8-19-89

Building or Activity	<u>Reg.</u>	<u>Compl.</u>
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Reference Data N/A**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
			X	

The Regulatory Compliance Manager is lacking in authority over hazardous materials, substances, and wastes.

Discussion

The WMCO Regulatory Compliance Manager appears to be excluded, or powerless, in some areas that are well regulated by the U.S. Department of Transportation (DOT). Packaging procedures for waste materials are out of his domain, as are marking and labeling of hazardous materials and wastes. DOE Order 5480.3 introduces DOT to the plant site, but all on-site waste materials are controlled by waste operations under EPA regulation rather than in concert with DOT. While strict compliance with DOT is not required on-site as yet, a substantive effort is expected. That effort is not apparent at this facility.

Tentative Finding(s)

Management support is lacking in hazardous materials packaging, transportation, and regulatory compliance.

Probable Root Cause(s)

Emphasis is currently on low-level radioactive waste, which is presently absorbing most of FMPC's hazardous materials budget.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 27 - S&H - Trans. Packg. - 08
Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity Container storageReference Data Personal observation.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Full and empty containers are stored outside.

Discussion

Both filled and empty metal containers are stored outside in unprotected areas. A significant number of these containers show evidence of serious and ongoing corrosion. This advanced state of corrosion causes concern regarding container integrity.

Tentative Finding(s)

Proper storage/warehousing facilities for empty and filled metal containers have not been constructed.

Probable Root Cause(s)

The budget is limited.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 27 - S&H - Trans. Packg. - 09
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89

Building or Activity Transportation Manual

Reference Data Transportation Department Manual.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The Transportation Department Manual is outdated.

Discussion

This manual, while very broad in scope, is badly in need of update. The latest update noted was in 1986. Many of the topics appeared to be beyond the scope of the current Transportation Department. Other topics are within the transportation purview but are not current. Errors were noted in the shipping paper (bill of lading) examples. If these were used as a guideline, FMPC would not be in regulatory compliance with U.S. Department of Transportation requirements.

Tentative Finding(s)

Management has not supported the documentary efforts by the Transportation Department.

Probable Root Cause(s)

The budget is limited, and management is not providing adequate emphasis to documentary requirements.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	27	S&H	Trans. Packg.	10
	<u>Aud. ID Number</u>	<u>Team (Env., S&H, M&O)</u>	<u>Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)</u>	<u>Seq. Data Sheet No.</u>

Date 8-19-89

Building or Activity Transportation Manual

Reference Data Transportation Department Manual.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
		X		

Truck driver emergency procedure needs improvement.

Discussion

Included in the Transportation Department Manual is a memo regarding "Procedures for Handling Incidents Involving Shipments of Radioactive Materials..." Some of the emergency procedures included are, at best, poor management practices and may contradict standard radiological safety precautions under DOE direction. The procedure needs to be reviewed and updated to a more responsible and timely status.

Tentative Finding(s)

The Transportation Department has not reviewed or updated their radioactive shipment emergency procedures to keep them timely.

Probable Root Cause(s)

Resources are limited.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 27 - S&H - Trans. Packg. - 11
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data N/A**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Packaging is incompatible with package contents.

Discussion

Drums were observed that were so badly corroded that inner contents were visible. Closer inspection indicated that the corrosion was a result of the container content rather than the external environment. Sampling by other team members identified the contaminant as hydrogen fluoride. Metal drums are not authorized by the U.S. Department of Transportation for hydrogen fluoride without inner containment. This violates the requirements of DOE Order 5480.3, as well as good business practices.

Tentative Finding(s)

Identification of packaging and content compatibility is not implemented.

Probable Root Cause(s)

A lack of knowledge about drum contents exists.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 27 - S&H - Trans. Packg. - 12
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89

Building or Activity Packaging low-level wastes

Reference Data Standard Operating Procedures 1-C-602 Low-Level Radioactive Waste Shipment Preparation.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The U.S. Department of Transportation (DOT) markings are not prominently affixed.

Discussion

There is no requirement in the procedures for DOT identification markings to be placed in a clearly visible position. One package (baled materials) specifically indicates marking placement on the top of the package. When containers are stacked, markings are not visible to the observer. WMCO routinely stacks containers two, three, or four layers high.

Tentative Finding(s)

Marking placement procedures have not been reviewed against FMPC storage policy.

Probable Root Cause(s)

Probable root causes include traditional maintenance and lack of planning.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	27	-	S&H	-	Trans. Packg.	-	13
	Aud. ID Number		Team (Env., S&H, M&O)		Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)		Seq. Data Sheet No.

Date 8-19-89Building or Activity Marking and labeling of containersReference Data N/A**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Hazardous material storage containers are not identified by clearly visible and recognizable markings or U.S. Department of Transportation (DOT) labels.

Discussion

Thousands of hazardous material waste containers reside on the FMPC site without readily identifiable identification. A color code or a numerical identifier is used, but neither method sufficiently identifies the container's contents to inform employees or visitors of risk factors. DOE Order 5480.3 requires implementation of DOT procedures for on-site movements to the greatest extent possible.

Tentative Finding(s)

Management has not implemented basic hazardous material identification procedures.

Probable Root Cause(s)

Probable root causes include lack of understanding of the risk, the regulations, and reliance on an internal tracking system already in place.

Environment, Safety, and Health Assessment Data Sheet

Identification Code:	27	S&H	Trans. Packg.	14
	<u>Aud. ID Number</u>	<u>Team (Env., S&H, M&O)</u>	<u>Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.)</u>	<u>Seq. Data Sheet No.</u>

Date 8-19-89

Building or Activity Receiving

Reference Data N/A

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
				X

Receiving operations are well run.

Discussion

The new receiving facility is well designed. Good housekeeping is apparent, staffing appears to be sufficient, and appropriate hazardous materials receiving procedures are in place. Personnel have received hazardous materials training, and they appear to be complying with procedures.

Tentative Finding(s)

Management is giving adequate support to the receiving operation.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 27 - S&H - Trans. Packg. - 15
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity Low-Level Waste PackagingReference Data SOP 1-C-602.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Standard operating procedures (SOP) do not include all the steps in the closure procedure for U.S. Department of Transportation specification containers.

Discussion

The SOP for shipment preparation of low-level waste does not mention the requirement for tapping the lock ring during tightening. The SOP does not specifically refer to the 17H drum; however, interviews indicate that it is the container for off-site shipments of low-level waste.

Tentative Finding(s)

The SOP for low-level radioactive waste is incomplete.

Probable Root Cause(s)

Management attention has not been adequate.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 27 - S&H - Trans. Packg. - 16
Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity N/AReference Data Personal Observation.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Compressed gas cylinders lack markings or labels of any kind.

Discussion

In the courtyard area off the front hall of the laboratory building (Corridor E), a rack containing 17 gas cylinders was observed. There are no markings or labels (U.S. Department of Transportation or otherwise) on any of the cylinders. Some cylinders did not indicate any hydrostatic test dates; others were as old as 1958.

Tentative Finding(s)

Management has not addressed the packaging or identification of nonradioactive hazardous materials.

Probable Root Cause(s)

Budgetary limitations and lack of awareness are probable root causes.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 27 - S&H - Trans. Packg. - 17
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-19-89Building or Activity SamplingReference Data N/A**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The sampling methods are unclear.

Discussion

During interviews, a question was asked regarding procedures used to determine if any chemical contaminants were present in site-generated radioactive waste materials. There was no clear indication that specific tests were run to identify chemical contamination of site-generated, site-stored, low-level waste.

Tentative Finding(s)

Procedures are lacking to identify chemicals or chemical contamination of low-level wastes.

Probable Root Cause(s)

Probable root causes include budgetary limitations and lack of risk recognition.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 27 - S&H - Trans. Packg. - 18
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-19-89Building or Activity Procurement of PackagingReference Data N/A**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

A good QA program is in place for packaging.

Discussion

WMCO has a good system for obtaining new U.S. Department of Transportation specification packagings. They make site visits to quality vendors, recording non-spec containers in the vendor's historical data, and disqualifying vendors when needed. On-site QA is performed on a sample basis as containers are received.

Tentative Finding(s)

Noteworthy compliance exists.

Probable Root Cause(s)

Good management support exists.

Appendix C3

Management and Organization Subteam Report

C3.1 Introduction

The Management and Organization Subteam assessed the effectiveness of the management systems and resource capability for implementing the environment, safety, and health (ES&H) programs at the Feed Materials Production Center (FMPC). The assessment addressed the U.S. Department of Energy's (DOE's) responsibility for managing the government-owned, contractor-operated (GOCO) facility, as well as the contractor's responsibility to implement ES&H programs at the FMPC. The assessment included evaluating the ability of the DOE Site Office and contractor management team to implement changes in guidance that can be expected with the evolution of regulatory policy and of the FMPC mission.

To achieve the subteam's purpose, a diagnostic framework was developed around the following three elements:

- objectives/criteria
- staff organization and capabilities
- management process.

Each of these elements was further broken down into specific topical areas for evaluation. Fourteen topics were identified, and the subteam report is organized on the basis of the topics. In each of the topical areas, various lines of inquiry were pursued to develop a data base. These lines of inquiry are documented in Section C3.6.

This subteam report is divided into three main sections. The first (Section C3.2) provides the subteam's overall assessment; the second (Section C3.3) provides a more

detailed discussion of each of the 14 topical areas; the last sections (Sections C3.4, C3.5, C3.6, and C3.7) provide reference material concerning the report and the subteam.

The FMPC is a large-scale, integrated processing facility for providing depleted to slightly enriched uranium metal as feed material to key facilities in the DOE Defense Production Complex. Oak Ridge Operations Office (ORO) has a 10-person (15 slots allocated) site office, reporting to the Assistant Manager for Defense Programs at ORO. FMPC is operated under a GOCO contract with the Westinghouse Materials Company of Ohio (WMCO). The contract has a Cost Plus Award Fee incentive clause for fee determination.

The plant employment consists of 1150 WMCO personnel and 300 subcontract personnel. The 1150 WMCO personnel consist of approximately 740 salaried staff and 410 wage staff. The wage staff is organized into 14 separate unions, 13 of which are under an association called the Fernald Atomic Trades and Labor Council. The operating and construction budget for fiscal year (FY) 1989 is approximately \$199 million, of which approximately 55% is for ES&H and site remediation efforts and approximately 45% is for production. The production requirement for FY 1989 is 1200 metric tons of uranium metal.

The production mission of the facility ceases in FY 1994 according to the Nuclear Weapons Complex Modernization Report (2010 Report). According to the recently

released DOE Environmental Restoration and Waste Management Five-Year Plan, environmental improvements to the production operations continue in the period 1991-1994. Consideration is being given, however, to shutting down production before FY 1994.

Several major reviews pertinent to the ES&H management areas have been conducted at FMPC since WMCO assumed operation of the plant in January 1986. These are listed below.

- Technical Safety Appraisal--March/April 1986
- Environmental Survey--June 16-27, 1986

- National Institute of Occupational Safety and Health (NIOSH) Environmental and Radiologic Evaluation--December 1-3, 1987
- Safety Performance Review--March 1988
- Technical Safety Appraisal--April/May 1989

In addition, Westinghouse Electric Corporation conducted a review of the WMCO operation in November 1988 and documented the review in January 1989. All of these reviews provided background for the subteam assessment of the ES&H management capability at FMPC.

C3.2 Management and Organization Subteam Assessment

The general assessment of the effectiveness of the management and the administration of ES&H programs is mixed. Substantial improvements have been made in the last 3 years in upgrading the programs in place at the FMPC; however, the facility does not meet the requirements of all applicable DOE orders completely, environmental laws, and regulations. The general capability of the GOCO contractor, with their restricted resources, does not provide assurances that full satisfaction can be achieved quickly in the face of voluminous regulatory requirements, evolving policy, and changing mission of the site. The capability of the DOE Site Office to provide oversight is minimal, and adequate direction of the contractors cannot be accomplished with current resources.

C3.2.1 Objectives/Criteria

The overall mission of the FMPC is confused at this point. A transition from production emphasis to environmental remediation is occurring (Finding M-03). The timing and pace of this transition are uncertain. The uncertainty of the mission has created a condition where strategic goals and objectives are difficult to establish and maintain for FMPC. There are no well-defined and agreed-to objectives for FMPC. Until these objectives are established, clearly articulated, and well planned, there is little confidence that the site resources can be efficiently and effectively used.

C3.2.2 Staff Organization and Capability

The DOE Site Office oversight capability is severely limited by the number and capability of on-site staff (Finding M-05). The current DOE Site Office staff is not adequate to meet the demands being placed on FMPC in the satisfaction of ES&H requirements. Personnel have been detailed

from ORO; however, this has not been done with enough continuity to allow a consistent oversight capability. A staffing plan and aggressive recruitment program to provide the needed skills in the DOE Site Office were not available. The subteam agreed with DOE senior line management that full-time, on-site positions should be added to provide legal, public affairs, and administrative support to the DOE Site Office. Another complication for the oversight role is the fact that senior staff at the site office is continually diverted by outside events, such as Congressional hearings, public meetings, and media interactions. Oversight from ORO seems minimal and varied in its application (Finding M-07). Audits and appraisals are infrequent for many disciplines.

In WMCO, more experienced staff is available to manage the ES&H program (Finding M-06); however, compliance issues continue to linger. There are not adequate resources with the requisite capability to implement the ES&H programs successfully. Management processes in place to identify deficiencies and close on those already identified deficiencies against ES&H requirements lack consistency. An example of this is the inconsistent application of trending and root cause analysis. The recent WMCO reorganization provided a central focus for trending in Performance Assessment but still left other self-assessment functions in different departments; e.g., award fee self-assessment (Finding M-01). In addition, no effective system is in place to prioritize the large number of corrective actions previously identified by internal and external reviews. The contractor felt the large number of reviews and appraisals had precluded their ability to prioritize and at the same time manage their activities because of the extensive workload placed on key managerial talent.

C3.2.3 Management Process

A tremendous amount of progress has been made in the quality and quantity of documents that implement the ES&H programs (Finding M-08). A noteworthy example is the overall site Quality Assurance (QA) Plan (FMPC-2139), which addresses in detail the QA program requirements for nuclear facilities (ANSI/ASME NQA-1) (Finding S-12; Appendix C2). However, numerous examples exist where the detailed procedures have not been prepared or approved. The process for managing the completion of these procedures is not effective. For example, an approved training procedure was lacking, even though WMCO has been under contract for 3-1/2 years. The documentation for the facility is good to excellent at the top level, but the documentation is not adequate at all levels of the WMCO organization. The directives program is an example of good performance in documentation (Finding M-11).

A key factor in assessment of a facility is the evaluation of training. Training represents one of the most important tools for modifying the modus operandi of a facility and its personnel, and it has not been used as effectively as it could have been at the FMPC. Training programs are being only now developed that show any real appreciation of facility ES&H needs (Finding M-04). The recently initiated Resource Conservation and Recovery Act (RCRA) training is an example of the type of training that should be in place. Responsibility for training is assigned to the individual departments, with Human Resources having a coordination role. This fragmentation hinders the development of a strong, forceful training program that contributes to the goals of the FMPC.

The relationship with the U.S. Environmental Protection (EPA) and the Ohio EPA (OPEA) is determined, to a large extent, by the completeness and timeliness of material provided by DOE. While responses are generally timely, they are often not complete in their content (Data Sheet 34-04). Permit

applications also have not been timely in the past. Improvements are necessary in the relationship with the regulators.

The ability to implement effective ES&H programs is complicated by a 30- to 40-year-old facility that was never designed to meet modern radiation, environmental, and safety requirements. Some excellent improvements have been made by WMCO and DOE during the last 3 years to modify this philosophy [e.g., development of sitewide procedures (Finding M-09), ALARA (as low as reasonably achievable), contamination control initiatives, and the computerized tracking system for maintenance activities]. However, the development of Safety Analysis Reports (SARs) for the facility is significantly behind the schedule originally proposed, and no specific schedule has been developed for the completion of these documents. Without approved SARs, the risk associated with operation of the facility cannot be adequately defined (Finding S-02; Appendix C2). Similarly, key documentation to define the environmental requirements has not been completed and has no definite schedule for completion (Finding M-10).

A variety of plans are generated by the FMPC. The requirements for these plans seem to be uncoordinated within DOE (Finding M-01). Although WMCO expends many man-hours on these plans, few seem to be used by DOE as there is little to no feedback on most plans. Also, WMCO seems to lack an overall approach to planning, establishing priorities, and assessing performance against plans. Overall strategic planning and contingency planning for the site are missing. Management appears almost completely reactive in their planning process. WMCO feels this has happened because of the intense competition for resources over the last 3 years as budgets have been significantly decreased and reductions in force have occurred. There is an aggressive effort to address the various individual findings of the internal and external review groups. This very aggressive effort seems to be fragmented

within WMCO and to have displaced any priorities for an integrated look at the total site. Resources to provide these services are constrained and directed to many activities (Finding M-06). Little systematic evaluation

and planning are occurring; this severely handicaps the WMCO management efforts to address current issues and plans for future site needs.

C3.3 Management and Organization Subteam Evaluations

In Section C3.1, the three-element diagnostic framework was discussed. After a series of discussions with DOE and WMCO senior line management at the FMPC, 14 topics were identified for subteam investigation and preparation of findings and data sheets. These topics, listed below, form the bases for the subteam's evaluation and serve as the outline for this section:

- Objectives/criteria
 - Mission
 - Directives process
- Staff organization/capabilities
 - Staffing
 - DOE Site Office personnel and organization (resources/training)
 - Contractor personnel and organization (resources/training)
- Management process
 - Management of environmental program
 - Management of safety and health program
 - Management of waste program
 - Management of QA program
 - Oversight
 - Incident reporting and trend analysis
 - Award fee process
 - Definition of plant configuration
 - Compliance status.

C3.3.1 Mission

Any facility needs to have a clearly defined mission supported by specific goals and objectives to guide its activities. In addition, a facility needs to have a well-conceived plan for accomplishing the specific goals and objectives. The establishment of the facility's mission, supporting goals and objectives, and plan for achieving them is a task of great importance and deserving of senior management attention. Indeed, senior management must "own" these items.

As discussed in Finding M-03 (Section C3.4), at FMPC the subteam found the following:

- a mission undergoing transition and currently uncertain
- strategic goals reviewed only informally with senior DOE management and without formal DOE approval
- a planning process that tried to respond to many uncoordinated requirements and, in effect, resulted in no plan.

The mission of the FMPC is generally recognized as undergoing a transition from a uranium metal production facility to one of environmental restoration of the site. FMPC production was reduced from approximately 10,000 metric tons in 1987, to 7500 metric tons in 1988, and to 1200 metric tons in 1989. The WMCO staffing level was reduced by approximately 400 people during this time. Further uncertainty regarding FMPC's future was raised by the Nuclear Weapons Complex Modernization Report (2010 Report). The report's recommendations, if implemented, would mean no production at FMPC after FY 1994. The FMPC also has been asked to evaluate options for earlier cessation of production.

In this same period, the awareness of environmental concerns is growing along with a greater understanding of the implications of compliance with environmental regulations. On June 27, 1989, the Secretary of Energy announced a 10-point plan to strengthen environmental protection and waste management activities at DOE's production, research, and testing facilities. One of the points was to reset priorities to reflect that ES&H issues are more heavily weighted than production. A month after the announcement of the Secretary's 10-point plan, however, DOE-Headquarters (HQ) had not provided guidance to ORO on its implementation of the

Secretary's plan at FMPC. Effective July 10, 1989, WMCO halted production activities, suggesting that the current demands of environmental remediation and compliance could not be accomplished along with the production requirements for the immediate future.

On June 26, 1989, DOE's Office of Defense Programs requested that alternative courses of action for production be analyzed in an effort to establish a sound course of action for cessation of production operations at FMPC. This analysis was completed in August 1989.

The future mission of FMPC, particularly over the next several years, is a complex issue. Frequent newspaper articles record the low morale of workers and the concern of the surrounding community that have resulted from this uncertainty. A comprehensive process for reaching the necessary decisions, which involves all affected parties, has not been developed and articulated to minimize uncertainty and to maximize accomplishments while the issue is being decided. A start at focusing on this mission decision is being developed as part of the site Environmental Impact Statement (EIS) process.

Once the FMPC mission is fixed, strategic goals and performance objectives need to be established to guide the detailed planning of work to be accomplished. WMCO has developed eight strategic goals for FMPC and has reflected the goals in the performance evaluation plans of WMCO managers. A significant effort was made to communicate the strategic goals to all WMCO employees. Prior to communicating the strategic goals, WMCO had informally checked the goals with the DOE Site Office and no objection was raised. The strategic goals were viewed as internal WMCO goals; therefore, the strategic goals were not approved by ORO senior management nor by DOE-HQ program managers. In the opinion of the subteam, the strategic goals for FMPC are of sufficient importance to warrant their approval, and ownership, by DOE-HQ and ORO management.

In its administration of the Cost Plus Award Fee contract with WMCO, ORO establishes an Award Fee Determination Plan that contains performance objectives and criteria for each 6-month evaluation period. At the same time, the Westinghouse Electric Corporation annually establishes nonfinancial technical objectives that are used in evaluating the performance of the WMCO President. A comparison of these nonfinancial technical objectives with ORO's Award Fee Determination Plan shows that the statements in the two documents are generally similar in nature and level of detail but, in fact, use different words to convey the objective. As a result, the subteam judged that the reinforcement, which might be obtained if the Westinghouse Electric Corporation had the same performance measures as ORO, is lost.

The planning process at FMPC is attempting to respond to a variety of uncoordinated requirements for plans that generally originate at DOE-HQ (Finding M-01). For example, requirements are established by DOE-HQ (ES&H), Controller, Defense Programs, and Management Administration. A new requirement is about to be levied as a result of the Environmental Restoration and Waste Management Five-Year Plan. This new requirement would result in three different 5-year plans, to be prepared annually, for FMPC activities.

While WMCO and the DOE Site Office are continuing to attempt to respond to the many planning requirements, there are two areas where the subteam felt that real internal planning needs should have resulted in specific plans for certain activities. For example, a plan for resuming production following the July 10, 1989, shutdown was not available as of July 25, 1989. Also, no supporting plan was available for achieving the eight strategic goals established by WMCO, although management felt the milestones for the site were consistent with the goals.

In summary, the management of FMPC activities needs to be better focused. DOE

needs to develop and articulate a comprehensive process for deciding FMPC's mission and, as soon as practicable, to decide the mission. Strategic goals for accomplishing the mission need approval by senior management in DOE-HQ and ORO. Performance objectives established by Westinghouse Electric Corporation should directly reinforce those of DOE. The planning requirements need to be coordinated and streamlined. In this way, the resources applied to FMPC activities will be better organized, focused on well-defined objectives, and operate in a clear management environment.

C3.3.2 Directives Process

To implement the DOE policies, it is very important that orders and other directives be provided on a timely basis with clear guidance for implementation.

As discussed in Finding M-11 and supporting data sheets, there is an automatic system operating at ORO for distributing DOE orders and any ORO interpretations thereof. An assigned WMCO employee reviews incoming orders, determines the appropriate person to take responsibility for the order, and generates a commitment form for the action. This employee also checks the receipt of orders by comparison with the annual list generated by DOE-HQ. This system seems to work very well.

There are some minor improvements that can be made to the process. The distribution process does not involve any review or oversight by line management in the ORO office or by the DOE Site Office. Within WMCO, there is no process for ensuring that actions to implement orders once assigned are actually completed on a timely basis. This follow-up is left to individual organizations. As a result, there is little ability to provide assurance across the organization that orders are being implemented on a timely basis. Compliance with the orders, then, is only evaluated through audit and appraisal processes.

The directives system seems to work well, with only the closure of the implementation process at the DOE Site Office and in WMCO needing some improvement.

C3.3.3 Staffing

The DOE Site Office and WMCO staffing was examined in terms of adequacy of numbers and capability to discharge the ES&H-related tasks now increasing in volume and importance. The criterion for the DOE Site Office is sufficient, qualified personnel to manage and oversee the ES&H compliance activities, waste management, and Resource Conservation and Recovery Act/Comprehensive Environmental Response, Compensation and Liability Act (RCRA/CERCLA) actions required by laws, regulations, and agreements or decrees. For the operating contractor, the criterion is sufficient, qualified personnel to carry out these ES&H activities correctly and within cost and schedule.

As discussed in Finding M-05, the allocated DOE staffing in terms of absolute positions and functional responsibility is less than that necessary to handle the on-site functions. There is a need for full- or part-time legal assistance, a full-time public affairs officer, and an administrative support position in the DOE Site Office. At this point, however, the DOE Site Office is understaffed relative to the ceiling (15 positions) by 33%, and will lose another person in a month; therefore, there is a significant overload of work, and the thoroughness with which the DOE staff can review and manage the contractor has been compromised. Additionally, the specific training and background of the DOE staff are not well matched for effective management of the contractor in the ES&H area.

Finding M-06 states that the WMCO manpower levels have dropped from over 1500 to approximately 1150 during this fiscal year to meet budget constraints. It is not clear that there is sufficient staff within the total WMCO organization to perform the essential

functions in the ES&H area. The reorganization discussed below placed most environmental activities in a single organization, FMPC Restoration. The capabilities of the staff are not adequate to cover all areas of needed technical expertise. The lack of personnel with necessary experience and training and the lack of clear goals and objectives create a concern that the required environmental activities cannot be carried out within cost and schedule.

C3.3.4 Site Office Personnel and Organization

The DOE Site Office personnel and organization were examined to determine if the individuals are qualified and functionally organized to perform the assigned duties effectively and if necessary positions are staffed. For this small DOE Site Office, the criteria are that the assigned personnel have sufficient background and experience to adequately fill their assigned positions, the positions are organized, and the organizational arrangement is adequate.

The DOE Site Office organization clearly addresses the expanding ES&H activities. The small staff is divided into two groups, one dedicated to ES&H activities and the other to production, construction, and all other activities. However, the DOE Site Office seems handicapped in its oversight role by being unable to fill positions with personnel with requisite background for new functions. As discussed in Finding M-05, there is a history of poor recruitment that seems to stem from attempts to recruit in Oak Ridge and other cities in the South that have special employment situations. Other than Cincinnati, no major recruitment efforts seem to have been made in areas closer to Fernald (e.g., Indianapolis, Lexington, Louisville, Dayton, Columbus). For some specific skill areas, such as in the radiation safety area, there were herculean recruitment efforts by ORO. The competition for ES&H-related skills is very keen in industry and government. Industry generally can pay higher salaries than allowed

by Office of Personnel and Management pay grades. There also is a sense that the reputation of Fernald is hindering recruitment. All of these factors have led to conditions where recruitment has not proceeded at a pace consistent with the needs of the office. More aggressive recruiting practices are required to ensure the DOE Site Office is staffed at a level consistent with the requirements of the ES&H program.

Although there are general engineers assigned to the DOE Site Office, there are no environmental engineers, scientists, health physicists, radiation specialists, or related skills assigned. One detailee, a supervisory environmental engineer, is assigned temporarily from ORO. The professions mentioned above are the ones being recruited.

There is a major concern by management that on-board staff might be lost. One staff member left during the assessment team visit and another announced his departure. Also, training for the DOE Site Office seems minimal, without clear personal or organizational goals. This condition seems to be the result of the intense competition for the time of the DOE personnel.

C3.3.5 Contractor Personnel and Organization

The WMCO personnel and structure were examined to determine if qualified personnel were organized to adequately carry out the DOE-assigned responsibilities in the ES&H area. Finding M-06 indicates that there are insufficient resources to carry out WMCO's environmental compliance, health, and safety responsibilities effectively and efficiently. A reorganization took place on April 19, 1989, to better align the staff to support environmental compliance and waste management. This objective was achieved, in that a single WMCO department has responsibility for this area, FMPC Restoration. The reorganization consisted of changing senior management and realigning some departments. A perceived lack of direction and objectives at the

departmental level was of concern to the subteam, and there was some lack of definition of the division of responsibilities within the department.

The contractor has had a similar experience to the DOE Site Office in filling ES&H positions (Finding M-06). Although WMCO has greater flexibility in terms of salary and advertisement, they still represent recruitment as being difficult. The factors seem parallel to those discussed for the DOE Site Office, with perhaps more emphasis on the "career limiting" experience at FMPC. Hiring for key skills has been complicated at times because of potential and real reductions in force.

The WMCO sitewide training program lacks overall guidance and direction (Finding M-04). Planning for training appears to be reactive, without clear organizational objectives, and does not seem to foresee organizational needs. The ongoing training at this point is not sufficient to meet all requirements. Developing and fulfilling training requirements are the responsibility of each organization, except for certain sitewide training. Human Resources provides only a coordinating role; therefore, training is uneven. WMCO has not been able to forecast and plan for requirements of the changing FMPC mission.

C3.3.6 Management of Environmental Program

To evaluate the capability of the environmental management process, the subteam reviewed the procedures in place to implement environmental requirements and laws. An important process is the preparation of regulatory guides to interpret the various environmental requirements for their specific applicability to the facility.

In FY 1988, a schedule was developed for preparation of the more important guides (Finding M-10). Several of the guides were prepared by the end of calendar year 1988.

Because key staff members left the FMPC, preparation of the guides has not continued. Currently, insufficient resources are available to continue their preparation. A modified schedule for completion of the guides has not been prepared. The guides already prepared by the FMPC were reviewed and found to be an excellent management tool for providing understanding and guidance to site managers and workers. Without these guides and appropriate management review and audit, it is difficult to provide assurance that management of environmental programs will be effective.

A management control system does not appear to be in place to catalogue and prioritize the numerous findings developed as a result of internal and external audits and reviews (Finding M-01). All findings are treated as high priority, even with the recognition of insufficient resources to service all findings.

Finally, in the past 3 years, a large number of deficiencies in implementing environmental requirements have been identified at the FMPC. The FMPC has prepared numerous lists of these deficiencies to track resolution. Insufficient resources have been available to address all deficiencies, even though the FMPC has identified all of the deficiencies as "priority one." Frequent meetings are held at the FMPC with DOE, WMCO, and regulatory agencies to address these deficiencies, but corrective action is slow. The approach of identifying the deficiencies as "priority one" is impractical because it is impossible to address them all concurrently. In addition, the FMPC is required to maintain a large number of air and water quality permits. Keeping up with the permitting process is extremely resource intensive. The FMPC also has an ongoing program to characterize the site while addressing the myriad of other environmental issues. This competition for scarce resources has severely constrained management's ability to deal effectively with the spectrum of issues.

C3.3.7 Management of Health and Safety Programs

The WMCO health and safety program is well defined (Finding M-09). A safety policy, mission statement, organization charts, and departmental charters are employed to define the WMCO safety and health structure. Specific procedures exist for implementation of health and safety initiatives (e.g., FMPC-2089, Radiation Control Manual). Safety is defined as a line management function. An oversight function (namely, Quality and Safety) exists within the WMCO organization. This oversight function, as well as Westinghouse Electric Corporation overview functions, seems to be working well. The ALARA program is well defined and well documented. The implementation process has good controls and assessment criteria.

Even with this excellent definition there still are areas of significant concerns (Finding S-02; Appendix C2). The Site Policies and Procedures Manual, contains the procedures for performing comprehensive safety analysis (FMPC-508, dated October 31, 1988) for all site projects and operations. The procedure applies to the design and operation of facilities. Various other site documents provide more detailed implementing procedures. The FMPC plans call for preparation of Final Safety Analysis Reports (FSARs) for all major plant operations and facilities, with a site FSAR being the final document.

Without the benefit of FSARs, it is questionable if the actual "risk envelope" under which FMPC is operating is adequately understood by WMCO and DOE management.

There also were a number of examples of deficiencies identified by the assessment team that raise similar issues regarding prioritization and planning (see Section C3.3.6).

C3.3.8 Management of Waste Program

The amount of waste materials at the FMPC requiring disposal is staggering (Data

Sheet 32-12). There are currently in excess of 80,000 drum equivalents (DEs) of low-level radioactive waste, including construction waste on the site. The wastes are stored in drums, piles, and other containers on outdoor storage pads. Some of the drums have been stored for such a long time that they have rusted through, exposing the internal materials. In addition, 3000 DEs of mixed waste are in on-site RCRA storage.

The FMPC has developed a waste management program that calls for the current waste inventory to be removed by the end of FY 1992. In FY 1989, each shipment of waste, including labor, containers, transportation, and burial was approximately \$21K. The FY 1989 plan called for 600 truck shipments of waste to be made from the FMPC. That number has since been reduced to 522 truck shipments because of funding limitations and is expected to be reduced further. The annual generation rate at the FMPC for 1989 is approximately 100 truck shipments of waste.

The FMPC has been a repository for DOE scrap metal for many years. There are currently 6000 tons of ferrous and nonferrous metal on the site, including a quantity of copper. Approximately 1400 tons of the scrap metal will require disposal as waste refuse. The FMPC also has been the DOE repository for thorium. The current inventory is 1100 metric tons stored in drums. DOE has not identified plans for final disposition of the thorium.

Several findings in the Environment Subteam Report (Appendix C1; E-06, E-07, E-08) discuss the difficulties the FMPC has in managing the waste. The ability to dispose of the waste is hindered by a lack of disposal sites.

C3.3.9 Management of Quality Assurance Program

Evaluation of the QA management can be developed by the examination of QA

documentation, subsequent implementation of procedures, and the "ownership" of quality. The sitewide QA Plan (FMPC-2139) is in place and has been judged to be very responsive to all 18 criteria of ANSI/ASME NQA-1 (Finding S-12; Appendix C2). Discussions with WMCO executives indicate line management is responsible for the assurance of quality. At the individual organization level, however, there is a mixed situation in the preparation and approval of the implementing procedures. Operations and FMPC Restoration, for example, appear to be lagging in the implementation stage; Construction and Procurement appear to be more mature in their implementation. FMPC management noted that FMPC Restoration was a new organizational element and was not fully mature nor should it be expected to be.

There is no overall list of organizational procedures required for full implementation of the QA program nor is there any sitewide formal scheduling or statusing process for the procedures.

There is a tolerance within management for the continuation of operations without appropriate QA-related procedures in some of the line areas. Some additional discussion on QA issues is found in Finding E-23 (Appendix C1).

C3.3.10 Oversight

The concept of oversight is fundamental to the conduct of activities at DOE facilities. This concept reflects the hierarchical approach to accomplishing DOE's objectives through DOE-HQ, operations office, and contractors. An ability to respond effectively and efficiently to different oversight entities is needed at all DOE facilities.

Consistent with DOE's overall concept, therefore, there is extensive oversight of the EH&S activities occurring at the FMPC (Findings M-01 and M-08). Oversight is provided 1) by internal WMCO processes, 2) by the local DOE Site Office, 3) by ORO,

4) by DOE-HQ, 5) by Westinghouse Electric Corporation, and 6) by external organizations.

The Performance Assessment organization conducts independent QA audits of activities at the FMPC, with deviations from the norm reported on Deviation and Corrective Action Reports (DCARs). Quality and Safety conducts surveillances and inspections of WMCO activities, with deviations from the norm also reported on DCARs. Quality and Safety tracks the status of corrective action for all DCARs and reports the status to WMCO managers.

Another reporting process involves Unusual Occurrence Reports (UORs) and Minor Event Reports (MERs). Performance Assessment tracks the status of corrective actions on all UORs and reports status to WMCO managers. Corrective action on MERs is tracked by the individual organizations.

The DOE Site Office currently has staff positions to oversee Environmental Compliance. As noted, all the Environmental Compliance positions are vacant. There are no on-site DOE staff positions to oversee safety and health activities. The DOE Site Office does have a small support services contract that provides environmental compliance assistance and limited health physics support. The conclusion is that the DOE Site Office has little ability to provide effective oversight of ES&H.

Oversight of the FMPC safety and health program is administered by ORO staff. While visits are made to the FMPC by the ORO health and safety staff, there does not appear to be a coordinated series of visits routinely made to the site (Finding M-07). ORO has conducted only nine safety and health appraisals since January 1986. Two of these appraisals were conducted in response to an EPA claim that an EPA employee received internal exposure while visiting the site. There were, however, four appraisals conducted by DOE-HQ, including two Technical Safety Appraisals (TSAs). Considering the

safety and health issues identified at the FMPC during this time, the number of appraisals conducted by ORO appears to be insufficient to adequately assess FMPC's compliance with DOE orders.

Corrective actions on the findings from the functional appraisals are tracked by the line managers. Corrective actions on findings from TSAs are tracked and reported to WMCO managers by Performance Assessment. Performance Assessment would likely also track corrective actions resulting from other external reviews.

Westinghouse Electric Corporation has formed a Nuclear Safety and Environmental Oversight Committee to review activities of WMCO and of other Westinghouse operations. The status of actions to implement the committee's recommendations is provided in WMCO's quarterly progress report to Westinghouse on its nonfinancial technical objectives. This progress report is developed by WMCO Administration. Administration also is responsible for coordinating development of WMCO's self-assessment submitted to ORO as part of the award fee process.

At the direction of the OEPA, DOE prepared a Best Management Practices Plan for FMPC activities. This plan identifies corrective actions that are needed. The WMCO Best Management Practices Committee was created to ensure development and maintenance of plans and procedures to minimize the potential for discharge of any toxic and hazardous materials into the waters of the State of Ohio. The committee's responsibilities do not include tracking and reporting to WMCO management on the corrective actions identified in the Best Management Practices Plan. Because of slippage in implementing the corrective actions in the Best Management Practices Plan, a revised action plan has recently been completed. WMCO's Environmental Compliance organization intends to track status on the revised plan.

The oversight of the FMPC is extensive and multilayered. There is a need to enhance the audit/appraisal process by ORO. The responsibility within WMCO for tracking and reporting on status of corrective actions is spread among several groups and, in the judgment of the subteam, does not facilitate the establishment of priorities or overall tracking of status by senior WMCO management.

C3.3.11 Incident Reporting and Trend Analyses

A key element of management assessment is a system for conducting analyses of abnormal incidents that occur to identify underlying problems that may go unnoticed if action were only taken separately in response to the individual incidents. Such trend analyses have become common practice in industry and are a requirement of the WMCO procedures.

While WMCO has a system for reporting abnormal incidents, trend analyses of minor events and unusual occurrences are infrequent (Finding M-01). Audits, surveillances, and inspections conducted by WMCO personnel result in a DCAR being prepared when a deviation from a specified requirement is noted. The collection of DCARs is analyzed periodically, generally twice each year, by Performance Assessment to identify trends or common causes of deviations.

Similarly, WMCO line managers must report incidents that deviate from standard practice or procedure. If the incident meets specified criteria, it is reported as an unusual occurrence; otherwise, it is considered a minor event. Up until mid-1988, WMCO periodically analyzed the MERs and UORs to identify trends or common causes of such incidents. MERs had been analyzed quarterly, and UORs had been analyzed annually. Since mid-1988, no such trend analyses have been conducted. A MERs analysis was due July

1989. A trend analysis of UORs, which is the responsibility of Performance Assessment, is not currently scheduled.

The reduction in WMCO staff resulted in the extended schedule for trend analysis of MERs and for essentially terminating the trend analysis of UORs. Trend analysis is critical at a time when the organization needs to be able to diagnose its own condition and initiate corrections prior to the development of findings by external groups. Cessation of trend analysis handicaps WMCO's ability to identify and solve their problems.

C3.3.12 Award Fee Process

The Cost Plus Award Fee contract is used to reward successful performance by a contractor in achieving DOE's objectives and to not reward unsuccessful performance. The ORO has a comprehensive and well-defined process for dealing with the award fee provisions of the contract with WMCO (Finding M-02). The level of performance objectives and criteria used seems to be appropriate for a major GOCO installation like the FMPC. It was noted that specific RCRA guidance was not as direct as one could provide; however, the subteam felt the level of guidance was adequate for a management contractor. There would appear to be appropriate emphasis on ES&H areas, approximately 50%, for both periods in FY 1989. There were, however, opportunities to improve and these are able to be accommodated in the existing ORO award fee process:

- by defining a minimum requirement for each performance evaluation committee (PEC) to provide feedback on WMCO performance during the evaluation period
- by maintaining current chairpersons and active memberships on PECs without significant lapses
- by providing specific guidance on high-profile weaknesses (e.g., RCRA compliance).

C3.3.13 Definition of Plant Configuration

In assessing the ability of management to effectively implement ES&H programs, a key factor is to determine the amount of control that management is able to exert. To exert control, management must have a stable picture of its physical facility. Perhaps the most important example is to consider the status of safety systems configuration control.

The FMPC Site Policies and Procedures Manual provides instructions for configuration control (FMPC-512, issued October 31, 1988) of safety systems, design features for safety, and Operational Safety Requirement (OSR) affected procedures (Data Sheet 32-14). According to FMPC-512, the configuration control program applies to any safety system or any design feature for safety that has been identified, described, and delineated in any FMPC FSAR, or safety study, and/or addressed in an appropriate OSR document. Procedures containing administrative controls for safety also are governed by FMPC-512. A baseline configuration reference point is established by formal approval of design criteria, and Titles II and III safety documentation [i.e., the Preliminary Safety Analysis Report (PSAR) for new projects in progress, or the safety study/FSAR and OSR for plant facilities or processes that are existing and in operation]. The baselining of a safety system design feature or an OSR-affected procedure establishes it under configuration control and would meet the requirements of FMPC-512.

Since the FMPC has not prepared OSRs or FSARs for existing site facilities, a baseline configuration has not been established for the safety systems (Finding S-02, Data Sheet 32-13; Appendix C2). Further, as-built drawings for safety systems in existing facilities do not exist. Current FMPC plans are to complete the facility FSARs in 1993. For new construction projects, as-built drawings are

produced and kept current through a fully functioning configuration control process.

C3.3.14 Compliance Status

Currently, one bilateral agreement and two Consent Decrees establish some of the environmental compliance requirements of the FMPC.

On July 18, 1986, DOE and EPA Region V entered into a Federal Facilities Compliance Agreement (FFCA). The purpose of the FFCA is to ensure compliance by DOE with several environmental statutes implementing regulations, including the Clean Air Act, RCRA, and CERCLA, at FMPC. Moreover, the agreement is further intended to ensure that the environmental impacts associated with past and present activities at FMPC are thoroughly and adequately investigated and that appropriate remedial response action is taken. EPA has advised DOE that several requirements of the FFCA have not been complied with (Data Sheet 34-03). Additionally, on December 2, 1988, DOE along with the U.S. Department of Justice and the State of Ohio executed and filed with the U.S. District Court for the Southern District of Ohio two Consent Decrees to ensure FMPC compliance with State of Ohio air pollution laws and hazardous waste and wastewater and runoff control requirements.

Currently, DOE is negotiating two additional agreements with EPA. The first, an interagency agreement is in preliminary stages of negotiation and, when executed, will supplement and, to some degree, supersede the July 18, 1986, FFCA. The second, an FFCA, is being negotiated to address the necessity for, scope of, and contents of National Emission Standards for Hazardous Air Pollutants (NESHAP) approval applications.

The DOE Site Office has lead responsibility for the negotiations. ORO and, occasionally, DOE-HQ also are represented on the negotiating team, with WMCO providing

technical support. The DOE Site Office also is responsible for coordinating drafts and negotiations with DOE-HQ.

There are two outstanding Findings of Violation. On February 13, 1989, EPA issued a Complaint and Findings of Violation and Compliance Order against WMCO individually for RCRA violations. Several of the cited violations represent a continuation of violations from previous notices of violations issued against DOE over the past several years. Additionally, the Complaint cited WMCO for failing to sign the RCRA permit application as operator (Data Sheet 34-06). This matter of who signs the permit is under discussion between ORO and DOE-HQ. On February 23, 1989, EPA issued DOE a Finding of Violation for failure to submit timely NESHAP applications (Data Sheet 34-01). This issue is expected to be addressed in the FFCA currently being negotiated.

On August 1, 1988, DOE submitted a National Pollutant Discharge Elimination System (NPDES) permit renewal application to OEPA. Pending approval, FMPC is operating pursuant to the December 2, 1988, Consent Decree. Additionally, under the NPDES, FMPC files a monthly noncompliance report with OEPA. Although the state acknowledges receipt of these reports, it routinely advises in their acknowledgment that failure to comply with the effluent limitations may be cause for enforcement action.

The state permitting requirements under the Clean Air Act raise an additional concern. For several reasons, a substantial number of renewal applications are not processed or approved by the regulators prior to expiration. FMPC has, however, continued to operate, pending approval, certain pieces of equipment that were addressed under the Consent Decree. The regulators are aware of this situation and the DOE Site Office has met with the regulators to prioritize these applications based on the current site mission needs. Additionally, the DOE Site Office is attempting to ensure more timely filings. The

regulators, however, have not formally approved the practice of operating without an approved permit (Data Sheet 34-05).

As with all applications, WMCO is responsible for drafting the application and submitting it to the DOE Site Office for review and filing with the appropriate regulatory authority. Under his line management authority and as Contracting Officer Technical Representative, the DOE Site Manager signs and files the permits. Recently, the DOE Site Manager has expressed some reservation of continuing this practice because of the associated potential liabilities (Data Sheet 34-02). Unless resolved, this reservation could lead to an inability to meet requirements.

In summary, DOE has experienced problems with complying fully with the terms of the existing FFCA, in particular with regard to the CERCLA provisions. Additionally, although the DOE Site Office generally responds to Notices/Findings of Violations in a timely manner, the response frequently incorrectly indicates that compliance has been achieved. Rather, the response should indicate the status of progress to address the compliance problems (Data Sheet 34-04). In many instances, this accounts for similar concerns being cited in subsequent notices of violations.

C3.4 Management and Organization Subteam Findings

The Management and Organization Subteam assessment findings of the FMPC are contained in this section. The following is a listing and short identification of the findings.

- M-01 Management processes
- M-02 Award fee process
- M-03 Mission and objectives
- M-04 WMCO training
- M-05 DOE personnel resources
- M-06 WMCO personnel resources
- M-07 ORO oversight
- M-08 WMCO/Westinghouse oversight
- M-09 Health/safety deficiencies
- M-10 Regulatory compliance guides
- M-11 DOE directives

Environment, Safety, and Health Assessment Findings

References Data Sheet

Identification Codes

03-08	17-03	32-02
03-09	30-01	32-03
03-10	30-05	32-06
17-01	30-06	

Finding(s)

The management processes of planning, trend analysis, corrective action tracking, and prioritization within WMCO have inefficiencies that hamper meeting of ES&H requirements.

Discussion

It appears that WMCO has a well-defined oversight program, including a schedule for continuing internal audits and ensuring that audits are being conducted. However, there does not appear to be a management control system in place at WMCO to catalog and prioritize the numerous findings into a management system that would allow for analysis to determine root causes and to correct high-priority findings. WMCO management treats all findings as high priority, recognizing that there are insufficient resources to address all findings concurrently. The findings are segregated into different departments, and the tracking is not well coordinated.

Audits, surveillances, and inspections conducted by WMCO personnel result in a DCAR being prepared when a deviation from a specified requirement is noted. The collection of DCARs is analyzed periodically, generally twice each year, by Performance Assessment to identify trends or common causes of deviations. In this way, underlying problems can be identified and corrected that may have gone unnoticed if actions were only taken separately in response to each of the DCARs.

Similarly, WMCO line managers must report incidents that deviate from standard practice or procedure. If the incident meets specified criteria, it is reported as an unusual occurrence; otherwise, it is considered a minor event. Up until mid-1988, WMCO periodically analyzed the MERs and UORs to identify trends or common causes of such incidents. The MERs had been analyzed quarterly; UORs had been analyzed annually. Since mid-1988, no such trend analyses have been conducted. A trend analysis of MERs is scheduled to be completed by Performance Assessment by September 30, 1989; a trend analysis of UORs, which is also the responsibility of Performance Assessment, is not currently scheduled. Corrective actions on MERs are the responsibility of individual line managers and are not tracked by any one department at WMCO. Corrective actions for UORs are tracked by Performance Assessment and status is reported to WMCO managers.

The ORO performs functional appraisals of FMPC activities. During FY 1988 and FY 1989, functional appraisals were conducted in the areas of fire protection, industrial safety, construction safety, QA, maintenance, firearms safety, industrial hygiene, facility safety, and in-house energy management. While these reviews were not as exhaustive as one might like, a large number of

Environment, Safety, and Health Assessment

findings resulted. Corrective actions on findings from the functional appraisals are the responsibility of line managers and are not tracked by any one department at WMCO.

References Data Sheet

DOE-HQ conducts TSAs of FMPC activities. Corrective actions on findings from TSAs are tracked and reported to WMCO managers by Performance Assessment. The Performance Assessment organization would likely also track corrective actions resulting from other external reviews, and an early attempt to use root cause analysis deserves support.

80-05 10-71

At the direction of the OEPA, DOE prepared a Best Management Practices Plan for FMPC activities. This plan identifies corrective actions that are needed. The WMCO Best Management Practices Committee was created to ensure development and maintenance of plans and procedures to minimize the potential for discharge of any toxic and hazardous materials into the waters of the State of Ohio. The committee's responsibilities do not include tracking and reporting to WMCO management on the corrective actions identified in the Best Management Practices Plan. Because of slippages in implementing the corrective actions in the Best Management Practices Plan, a revised action plan has been recently completed. The WMCO Environmental Compliance organization intends to track status on the revised plan.

Westinghouse Electric Corporation (WEC) has formed a Nuclear Safety and Environmental Oversight Committee to review activities of WMCO and of other WEC operations. The status of actions to implement the committee's recommendations is provided in WMCO's quarterly progress report to WEC on its nonfinancial technical objectives. This progress report is developed by WMCO Administration, who is also responsible for coordinating development of WMCO's self-assessment submitted to ORO as part of the award fee process.

Several requirements are established to develop plans for FMPC activities. These requirements are not well coordinated and detract from the ability of the DOE Site Office to manage WMCO and from the ability of WMCO to carry out the FMPC mission. Further, the purpose of certain required plans is not well understood by DOE Site Office and WMCO personnel. These plans do not appear to be vehicles for tracking or decision making with regard to activities being conducted at FMPC, but are intended to provide specific information to whichever organization established the requirement.

During the subteam review, two of the DOE Site Office personnel were working on preparation of the Site Development Plan and of the ES&H and Waste Management Plan. At that time, a near-term plan to restart the FMPC following the July 10, 1989, shutdown was not under development, nor did WMCO have a strategic plan in place to achieve the strategic goals that had been established.

Corrective actions are not currently scheduled. Corrective actions on findings are the responsibility of individual line managers and are not tracked by any one department at WMCO.

Root Cause(s)

The root causes appear to be inadequate resources and inadequate management attention.

The ORO performs functional appraisals of FMPC activities. During FY 1988 and FY 1989, functional appraisals were conducted in the areas of fire protection, industrial safety, construction safety, QA, maintenance, firearms safety, industrial hygiene, facility safety, and in-house energy management. While these reviews were not as exhaustive as one might like, a large number of

Environment, Safety, and Health Assessment

Findings Feedback to WMCO during the evaluation process across the Performance Evaluation Committees. For example, one committee meets bimonthly with WMCO to provide feedback. The Award Fee Committee meets monthly with WMCO. The Award Fee Committee requires the Performance Evaluation Committees to meet periodically with WMCO to discuss performance to date, but "periodically" is not defined.

Finding(s)

The ORO award fee process functions well and opportunities exist to improve implementation of the award fee provisions of the contract with WMCO.

Discussion

The ORO administers a Cost Plus Award Fee contract with WMCO for the operation of the FMPC. An Award Fee Determination Plan, prepared by ORO, establishes the process for determining the fee to be awarded WMCO for each 6-month evaluation period.

Performance Evaluation Committees, composed of ORO personnel at Oak Ridge and the Site Office at the FMPC, evaluate WMCO's performance in major performance areas. The major performance areas and the weightings established for FY 1989 were as follows:

	Weighting
Production and Waste Operations	20%
Engineering and Construction Management	20%
Environmental Management	20%
Safety and Health Management	20%
Environmental Restoration	10%
Planning and Budget	10%
	100%

An Award Fee Board, composed of the DOE Site Office Manager and senior ORO managers in Oak Ridge, review the evaluations of the Performance Evaluation Committees along with any WMCO self-assessment and recommend the fee to be awarded. The Fee Determination Official, who is the ORO Manager, reviews the recommendation of the Award Fee Board and determines the fee to be awarded.

Prior to the beginning of each evaluation period, ORO adheres to a firm schedule for establishing the performance objectives and criteria to be used in evaluating WMCO's performance in each major area. Similarly, at the end of each evaluation period, ORO adheres to a firm schedule for completing the evaluation in each major performance area and in determining the fee to be awarded WMCO. The evaluation process is generally completed in approximately 60 days. It is apparent that a well-defined process is followed by ORO to implement the award fee process. At the same time, several opportunities to make improvements in the current effort to implement the award fee process were noted:

- Feedback to WMCO during the evaluation period is uneven across the Performance Evaluation Committees. For example, one committee meets bimonthly with WMCO to provide feedback during the evaluation period, while another never meets with WMCO. The Award Fee Determination Plan requires the Performance Evaluation Committees to meet periodically with their respective WMCO counterparts to discuss performance to date, but "periodically" is not defined.
- The ORO evaluation of WMCO's performance for the second half of FY 1987 and both halves of FY 1988 noted that improvements were needed in the area of compliance with RCRA. Environmental Safety Assessment team was advised by ORO of its dissatisfaction with WMCO's efforts to comply with RCRA. The performance objectives and criteria established by ORO for the two FY 1989 evaluation periods do not, however, make explicit mention of compliance with RCRA. The lack of an explicit reference to RCRA compliance in the performance objectives and criteria is attributable to the desire on the part of ORO to not be too specific in establishing the performance objectives and criteria for a management and operations contractor.
- Two of the DOE Site Office personnel who were members of the Performance Evaluation Committees recently left for other positions. Also, an individual at ORO ceased being chairman of one of the committees in March 1989 when he was assigned to a different position. As of July 25, 1989, replacements had not been named. As the current evaluation period is more than half over, any further delay will make the evaluations more difficult. The award fee approval package is reported to be held at DOE-HQ.
- As noted above, ORO generally completed the evaluation process following each evaluation period in approximately 60 days. However, the evaluation for the first half of FY 1989 had not been completed as of July 25, 1989. As a result, WMCO is nearly two-thirds of the way through the current evaluation period without being advised of its performance for the preceding period. Since July 7, 1989, the award fee approval package has been under a hold at ORO based on the results of an ORO review.

Root Cause(s)

N/A

Environment, Safety, and Health Assessment Findings

References Data Sheet
Identification Codes
30-03 30-04 31-16

Finding(s)

A comprehensive process for defining the mission of the FMPC and the associated strategic objectives and goals needs to be established.

Discussion

The mission of the FMPC is generally recognized as undergoing a transition from a production facility for feed materials in defense programs to one of environmental restoration of the site. FMPC production was reduced from approximately 10,000 metric tons in 1987, to 7500 metric tons in 1988, and to 1200 metric tons in 1989. The staffing level was reduced by approximately 400 people during this time. Further uncertainty regarding FMPC's future was raised by the Nuclear Weapons Complex Modernization Report (2010 Report). The report's recommendations, if implemented, would mean no production at FMPC after FY 1994.

At the same time, the awareness of environmental concerns was growing along with a greater understanding of the implications of compliance with environmental regulations. On June 27, 1989, the Secretary of Energy announced a 10-point plan to strengthen environmental protection and waste management activities at DOE's production, research, and testing facilities. One of the points was to reset priorities to reflect that ES&H issues are more heavily weighted than production. A month after the announcement of the Secretary's 10-point plan, however, DOE-HQ has not provided guidance to ORO on its implementation at FMPC. Effective July 10, 1989, WMCO halted production activities, suggesting that the current demands of environmental compliance could not be accomplished along with the production requirements. A plan for resuming production was not available at FMPC as of July 25, 1989.

On June 26, 1989, DOE's Office of Defense Programs requested that alternative causes of action for preproduction be analyzed in an effort to establish a sound course of action for cessation of production operations at FMPC. This analysis was completed in early August 1989.

Uncertainty was continued with issuance of the predecisional draft of the "Environmental Restoration and Waste Management Five-Year Plan," July 1989. The plan does not explicitly discuss any DOE intention to terminate production operations at FMPC at any time through FY 1995. The plan does include funding for corrective actions in FY 1991-1995 to ensure production operations meet environmental regulations.

The future mission of FMPC, particularly over the next several years, is a complex issue. A comprehensive process for reaching the necessary decisions, which involves all affected parties, must be developed and articulated to minimize uncertainty and maximize accomplishments while the issue is being decided.

Once the mission for a facility such as FMPC is determined, strategic goals and performance objectives are frequently established to guide the detailed planning of work to be accomplished. Such strategic goals and performance objectives are of great importance to a facility. While strategic goals and performance objectives had been established for FMPC, improvements were needed.

Strategic Goals: WMCO had developed eight strategic goals for FMPC and had reflected the goals in the performance evaluation plans of WMCO managers. A significant effort was made to communicate the strategic goals to all WMCO employees. This effort was extremely laudable and WMCO is to be commended.

Prior to communicating the strategic goals, WMCO also had checked the goals with the DOE Site Office and no objection was raised. The strategic goals were viewed as internal WMCO goals. WMCO did not request that the strategic goals be approved by the senior management of ORO nor by the program managers in DOE-HQ. The strategic goals for FMPC should be viewed with sufficient importance to warrant their approval and ownership by the ORO senior managers and the DOE-HQ program managers.

Performance Objectives: In its administration of the Cost Plus Award Fee contract with WMCO, ORO establishes an Award Fee Determination Plan containing performance objectives and criteria for each 6-mo evaluation period. At the same time, the Westinghouse Electric Corporation annually establishes nonfinancial technical objectives that are used in evaluating the performance of the WMCO President. A comparison of these nonfinancial technical objectives with ORO's Award Fee Determination Plan shows that the performance measures in the two documents are generally similar in nature and level of detail but are in fact different. As a result, in the opinion of the subteam, the reinforcement that might be obtained if WEC had the same performance measures as ORO is lost. [Note: It is recognized that WEC might possibly have measures for evaluating the performance of the WMCO President that are of a different nature than ORO's. Those goals that are the same should be exactly the same and supported by the entire DOE/contractor organization. The goals unique to WEC for its people should be accepted by DOE management as not being inconsistent with mutual goals.]

Root Cause(s): Policy decisions regarding the future of the facility have not been made.

Inadequate management attention has been given to goals/objectives.

The future mission of FMPC, particularly over the next several years, is a complex issue. A comprehensive process for reaching the necessary decisions, which involves all affected parties, must be developed and articulated to minimize uncertainty and maximize accomplishments while the issue is being decided.

Findings

References Data Sheet

Identification Codes

01-02	15-06	26-10
06-04	16-01	27-05
07-04	22-06	31-12
15-03	25-09	31-16

Discussion

There is no central guidance or direction for training and no central point where requirements are determined and assurance provided that all requirements are fulfilled. The training office serves only a coordination role. This leads to a fragmented, reactive training program with responsibilities scattered among the individual organizations and the training office.

Root Cause(s)

- **inadequate resources and funding**
- **lack of priority and emphasis by management**
- **lack of supervision by senior management.**

Environment, Safety, and Health Assessment Findings

References Data Sheet Identification Codes

21-06 31-04 31-07
23-06 31-05 31-16

Finding(s)

The staffing of the DOE Site Office is insufficient in allotted numbers and in on-staff qualified personnel to discharge adequately the ES&H responsibilities of that office. Improvements in recruitment and retention of ES&H staff are essential.

Discussion

There is no public affairs position assigned to the DOE Site Office. The DOE Site Office Manager has spent a significant amount of his time over the past 2 years responding to public queries, the print and electronic media, community meetings and briefings, and other public affairs activities. A full-time DOE public affairs official could handle many of these activities for the manager and assist him in preparing for the activities he should participate in. This would allow the DOE Site Office Manager more time to manage the site activities and oversee contractor activities.

Similarly, the DOE Site Office does not have a full-time position for legal counsel or a counsel assigned on detail, full or part time. The permitting requirements, consent decrees, compliance agreements, law suits, and other legal activities at FMPC indicate the need for a full- or part-time counsel assigned to the DOE Site Office. Currently, legal activities are handled to the extent he can by the DOE Site Manager and referred to ORO for action when legal assistance is required. A legal counsel is assigned at ORO to cover FMPC, but this is not full-time support. The time required to forward the issue to ORO, discuss it with legal counsel, and get a final sign off can cause significant delays. The time required of the DOE Site Manager also is increased as he must devote more time to the issue to be thoroughly familiar with it and then time to familiarize the ORO counsel with the background and details.

The number of duties assigned to the administrative personnel in the DOE Site Office indicates additional administrative support may be required to support adequately the DOE Site Office and to manage the contractor activities related to budget and administration. Discussions with the Site Manager, Deputy Manager, and administrative personnel indicate that the administrative/budget area is not sufficiently staffed. This problem is exacerbated by the fact that the office is staffed 33% below the authorized level, thereby putting a greater burden on the remaining personnel.

Although there are general engineers assigned to the DOE Site Office, none are fully trained in environmental engineering or related skills. There are no environmental engineers, environmental scientists, health physicists, radiation specialists, or related skills assigned to the DOE Site Office, except a detailee. The detailee is a supervisory environmental engineer filling this position on an interim basis. 55% of the FY 1989 budget is designated for environment restoration and waste

management activities. Most of the major problems and issues are in these areas; however, the DOE Site Office has only one temporary detailee with environment-related qualifications.

When one reviews the duties assigned to DOE Site Office individuals as listed on the "DOE Site Office Responsibilities/Point of Contact Operational Activities," March 18, 1989, it is apparent that each person has a broad spectrum of duties. It appears that many of the individuals have responsibilities for which they are not fully qualified, based on their background and training, and that most have more duties than they can adequately cover in a reasonable workday or workweek.

The ORO is recruiting for four ES&H-related positions for the DOE Site Office with minimal success. At the present time, the DOE Site Office has no qualified ES&H-related personnel. A supervisory environmental engineer is detailed to FMPC from ORO, providing the only qualified ES&H person, but only on a temporary basis. ORO is recruiting for a supervisory environmental engineer, GM-14; environmental engineer, GS-13; health physicist, GS 11/12/13; and an industrial hygienist, GS-13. The DOE Site Office Manager, Deputy Manager, and ORO personnel office indicate that qualified personnel at ORO do not want to accept permanent assignment to FMPC, thus effectively eliminating one source for those critical skills. There is strong competition among commercial firms for these skills, and the commercial firms are offering generally higher salaries than the DOE grades pay. ORO personnel and DOE Site Office management state that they believe the notoriety of FMPC, the limited career opportunities, and the doubt about the continuation of FMPC as a production facility discourage people from accepting positions in the DOE Site Office.

Neither ORO nor the DOE Site Office management cited any positive factors that might be used to recruit people from DOE offices or the outside. There was no discussion of the fact that this site is generally ahead of most in the RI/FS remedial action and waste cleanup areas and that experience here will enhance one's career. The experience one gains at FMPC should be invaluable and in great demand at other DOE sites, as well as in industry, in the future as environmental restoration momentum increases.

Recruiting for these skills has generally been done in Oak Ridge and other cities in that region. There has been no recruiting in the FMPC area, except Cincinnati. Columbus and Dayton, Ohio, Louisville and Lexington, Kentucky, and Indianapolis, Indiana, are all potential sources, but there has been no advertising in these areas. Meanwhile, ORO and DOE Site Office management state that no one wants to come here from ORO.

Root Cause(s)

Without expert manpower surveys and personnel evaluations, one cannot be sure of the root causes for the apparent staffing issues. Possible root causes include the following:

- inadequate grade structure for the skills needed at a sensitive site
- inadequate or insufficiently aggressive recruiting
- insufficient priority given to filling critical DOE Site Office positions
- lack of adequate planning or expectation of skills needed and inadequate personnel planning to provide needed skills.

Environment, Safety, and Health Assessment

Findings Most of the major tasks and issues are in these areas; however, the DOE Site Office has only one temporary detailee with environment-related qualifications.

References Data Sheet

Identification Codes

DOE Site Office individuals as listed on the "DOE Site Office Personnel Point of Contact Operational Activities", March 18, 1989, it is apparent that many of the individuals have broad spectrum of duties. It appears that many of the individuals have not fully qualified, based on their background and training, to perform more duties than they can adequately cover in a reasonable workday or

01-01 14-09 31-01

01-02 17-02 31-02

07-01 22-01 31-03

07-05 25-06 31-07

11-04 25-07 31-09

14-02 25-09 31-13

14-04 27-10 31-16

14-03 27-10 31-16

positions for the DOE Site Office with minimal success. At the present time, the DOE Site Office has no qualified ES&H-related personnel. A supervisory environmental engineer is detailed to FMPC from ORO, providing the only qualified ES&H person, but only on a temporary basis. ORO is recruiting for a supervisory environmental engineer, GM-14; health physicist, GS-13; health physicist, GS-11/12/13; and an industrial engineer, GM-14; environmental engineer, GS-13; health physicist, GS-11/12/13; and an industrial

Findings(s)

Resources at FMPC are insufficient to carry out the full spectrum of ES&H and waste management activities: DOE Site Office personnel at ORO do not want to accept permanent assignment among those effectively eliminating one source for those critical skills. There is strong competition among commercial firms for these skills, and the commercial firms are offering generally higher

Discussion

Discussions with DOE Site Office personnel, supported by budget documents, indicate that budgets submitted by FMPC to ORO have been reduced 20% to 25% during the budget process in FY 1989 and FY 1990. The FY 1989 budget required WMCO to reduce staff from over 1500 at the end of FY 1988 to 1100 by the end of FY 1989. The WMCO staff is at 1150 as of July 27, 1989.

Budget emphasis is shifting from production to ES&H, as indicated by the ~55% in FY 1989 for ES&H and remediation and ~45% for production.

The WMCO staff indicate they have been having difficulty in recruiting for ES&H-related positions. The radiological safety manager position had been open since April 24, 1989, and two engineer positions in the hazardous/mixed waste compliance area have been open since June 15, 1989. Competition for environment-related, qualified people is heavy in the civilian economy as well as within WEC. WEC's West Valley operation also is recruiting for various skills. Some improvements may be possible in recruitment, particularly if the advantages of working at FMPC can be packaged and presented aggressively. WMCO has, even with the difficulties, been able to hire hundreds of personnel during their 3-1/2 years tenure.

As a result of the budget reductions, the Strategic Planning Board met to set priorities for the fiscal year when final funding was known. WMCO, in a letter to the DOE Site Office, December 20, 1988, "Impact of FY 1989 Funding Allocations," provided a summary of activities that could be accomplished within their funding allocation and those things that could not be accomplished. Specific compliance, noncompliance, and similar items are not included in the letter.

Many members of the assessment team found specific deficiencies, poor practices, and lack of timely task completion that were attributed, at least in part, to insufficient resources. The evidence clearly indicates there are insufficient resources to achieve all routine activities, environmental requirement actions, waste management goals, and other ES&H activities. The activities that are included in FY 1989 tasks should be established by a risk-based priority system.

There is no evidence of a risk-based detailed prioritization at FMPC. In fact, most TSA and compliance review corrective actions are considered as the same priority. However, no evidence exists that the most critical tasks are not being done.

Root Cause(s)

The root causes include the following:

- the changing mission emphasis at FMPC
- the evolving policy regarding what constitutes compliance
- the restriction of the resources available to FMPC to achieve all planned activities as a result of the larger scheme of national and DOE priorities.

The DOE Site Office at FMPC has staff assigned (some on temporary detail from ORO) to oversee contract administration, construction activities, and environmental compliance. There are no on-site DOE personnel to oversee safety and health activities. The DOE Site Office does have a small support services contract that provides support in the environmental compliance and limited support in health physics.

Overview of the FMPC safety and health program is administered by ORO staff. While visits are made to FMPC by the ORO health and safety staff, there does not appear to be a coordinated series of visits routinely made to the site. A list of safety appraisals conducted since January 1986 by several different audit teams, including ORO, was provided to the assessment team by FMPC management. The list indicates that ORO has conducted only nine safety and health appraisals since January 1986. Two of these appraisals were conducted in response to an EPA claim that an EPA employee received internal exposure while visiting the site. There were, however, four appraisals conducted by DOE-HQ, including two TSAs. Considering the safety and health issues identified at FMPC during this time period, the number of appraisals conducted by ORO appears to be insufficient to assess adequately FMPC's compliance with DOE orders.

Root Cause(s)

The following seem to be the root causes:

- insufficient staff at the DOE Site Office to provide oversight
- difficulties in hiring staff in the DOE Site Office
- inadequate priority in ORO.

Environment, Safety, and Health Assessment Findings

References Data Sheet

Identification Codes

22-11	25-15	32-03
23-06	32-02	

Finding(s)

The ORO oversight of safety and health activities at FMPC needs to be strengthened to provide a more frequent and detailed oversight program.

Discussion

The DOE Site Office at FMPC has staff assigned (some on temporary detail from ORO) to oversee contract administration, construction activities, and environmental compliance. There are no on-site DOE personnel to oversee safety and health activities. The DOE Site Office does have a small support services contract that provides support in the environmental compliance and limited support in health physics.

Oversight of the FMPC safety and health program is administered by ORO staff. While visits are made to FMPC by the ORO health and safety staff, there does not appear to be a coordinated series of visits routinely made to the site. A list of safety appraisals conducted since January 1986 by several different audit teams, including ORO, was provided to the assessment team by FMPC management. The list indicates that ORO has conducted only nine safety and health appraisals since January 1986. Two of these appraisals were conducted in response to an EPA claim that an EPA employee received internal exposure while visiting the site. There were, however, four appraisals conducted by DOE-HQ, including two TSAs. Considering the safety and health issues identified at FMPC during this time period, the number of appraisals conducted by ORO appears to be insufficient to assess adequately FMPC's compliance with DOE orders.

Root Cause(s)

The following seem to be the root causes:

- insufficient staff at the DOE Site Office to provide oversight
- difficulties in hiring staff in the DOE Site Office
- inadequate priority in ORO.

Environment, Safety, and Health Assessment Findings

References Data Sheet
Identification Codes
25-03 32-04 32-05

Finding(s)

The WEC and WMCO have well-defined and documented oversight programs.

Discussion

A Nuclear Safety and Oversight Committee has been established by WEC to periodically review WEC operations at corporate facilities. The committee conducted a review of FMPC on November 17-18, 1988. Ten observations were identified, along with corresponding recommendations for improvement. Following each review, the WMCO general manager is responsible for preparing an implementation plan for the committee's observations and recommendations. The committee report addressed significant management and operational issues. As part of the FMPC response, eight strategic goals were developed and issued by the WMCO general manager. The emphasis of these goals is to improve the ES&H programs at FMPC. The various site organizations are in the process of translating the strategic goals into performance objectives. This is a noteworthy exercise by WMCO.

WEC also performs triennial reviews of the facility safety review system in accordance with DOE Order 5480.5. A triennial review of the FMPC facility safety review system was performed by a group of experts from other WEC sites on January 25-27, 1988. The Environmental Safety and Health Program Triennial Review Report was issued April 20, 1988. The review was carefully planned and executed, as evidenced by the high quality of the report.

Independent internal audits are conducted by WMCO Performance Assessment in accordance with DOE Orders 5482.1B and 5480.11. Site Policy and Procedure, FMPC-707, Audit Program, and Document No. WMCO QAP-7.01, Administration of Quality Assurance Audits, provide the policy, procedures, and instructions for administering audits. Schedules have been developed by Quality and Safety for performing audits. In addition, Safety and Health conducts "intra-departmental appraisals" in accordance with OSH-A-01-009, Standard Operating Procedure Operations Safety and Health Internal Appraisal Program.

Root Cause(s)

N/A

Environment, Safety, and Health Assessment Findings

References Data Sheet
Identification Codes
22-03 32-04 32-02

References Data Sheet

Identification Codes

21-01	25-15	32-09
21-03	25-16	32-10
21-11	32-01	32-13
23-01	32-07	
23-02	32-08	

Finding(s)

The safety and health program is well defined in WMCO implementation documents. Although well defined, numerous deficiencies identified in the past 3 years indicate that the program may not be adequately implemented.

Discussion

WMCO is operated under a Cost Plus Award Fee (CPAF) contract managed by ORO. The CPAF contract contains the necessary "contract language" requiring WMCO to implement the requirements of the DOE order system. It also contains the DOE nuclear safety clause. A safety policy, mission statement, organization charts, and departmental charters are employed to define the WMCO organizational structure. In addition, the WMCO site manager has issued a set of eight strategic goals, six of which pertain directly to safety and health. The Site Policies and Procedures Manual provides a top-level functional description of the organization (procedure FMPC-512). The manual includes departmental charters and provides top-level instructions for implementing the safety and health program. This manual is further supplemented by a series of topical manuals that define interfaces and procedures for activities that cut across more than one department (e.g., FMPC-2089, Radiation Control Manual). Operational procedures are developed to implement the requirements of the topical manuals and to provide instructions for specific on-site operations.

The responsibilities and authorities of each managerial, supervisory, and professional position are clearly defined in job descriptions and performance measurement system criteria. A review of these criteria revealed that they generally include specific safety objectives. By policy statement in the Site Policies and Procedures Manual, safety is defined as a line management responsibility that passes from the President, WMCO, through the organizational structure, to the working level. Quality and Safety functions provide overviews of WMCO activities and provide technical assistance to the organizations in specialized aspects of safety, health, and quality requirements and performance.

Another example of a well-defined element of the safety and health management process is the complete and documented ALARA program.

In 1982, WEC issued a management directive instituting a corporate ALARA program. The directive provides policy and requirements for implementation by the various WEC sites. The WMCO Radiation Control Manual, FMPC-2084, April 26, 1989, provides implementing instructions for the ALARA program, including requirements for establishing exposure estimates for all radiological work and operations. The ALARA program appears to be well defined in the various

site documents. For example, on May 1, 1989, production operations issued "Production Operations 1989 ALARA Program" that ties the ALARA program to the set of strategic goals issued by the WMCO site manager. It further requires each supervisor in production to develop a specific, trackable ALARA goal and prescribes methods by which the goals are to be achieved. In addition, there is a specific ALARA goal established for the entire site for 1989. Status of the site's ALARA goal is reported monthly in the Quality and Safety monthly report.

Root Cause(s)

N/A

**Environment, Safety, and Health Assessment
Findings**

References Data Sheet
Identification Codes
32-11

Finding(s)

No systematic process is ongoing to interpret environmental regulations as to their specific applicability to FMPC.

Discussion

In FY 1988, WMCO initiated development of a series of Regulatory Compliance Guides to interpret the various environmental requirements as to their specific applicability to FMPC and to delineate in understandable terms the actions required by WMCO personnel to ensure that environmental regulatory requirements are met.

In FY 1988, a schedule was developed for preparation of the more important guides. Several of the guides were prepared by the end of calendar year 1988. As a result of key staff members leaving FMPC, preparation of the guides has not continued in calendar year 1989. Currently, insufficient resources are available to continue preparation of the guides. A modified schedule for completion of the guides has not been prepared. The guides that have been prepared by FMPC were reviewed and found to be an excellent management tool for providing understanding and guidance to site managers and workers.

Root Cause(s)

The following seem to be the root causes:

- insufficient resources to continue preparation of the Regulatory Compliance Guides
- priority not consistent with current DOE objectives.

**Environment, Safety, and Health Assessment
Findings**

References Data Sheet
Identification Codes
25-03 25-05 33-06
25-04 33-05

Finding(s)

There is a good DOE orders review and implementation system operating within ORO and WMCO. There are minor improvements possible in the area of applicability determination at the DOE Site Office of the tracking of completion of actions regarding orders in WMCO.

Discussion

There is an automatic system operating at the ORO for distributing DOE orders and any ORO interpretations thereof. WMCO has a person who reviews incoming orders, determines the appropriate person to take responsibility for the order, and generates a commitment form for the action. This person also checks receipt of orders by comparison with the annual list generated by DOE-HQ.

The process does not involve any review or oversight by ORO or the DOE Site Office. The process is not tracked for closure within WMCO. As a result, there is little ability to provide management assurance that DOE orders are being implemented on a timely basis. Data on this accumulate only as a result of the normal, scheduled reviews, appraisals, and audits. The system works very well with these deficiencies. Orders are distributed efficiently, they are easy to access in the facility, and the WMCO site procedures manual is up to date with reference to orders.

Root Cause(s)

N/A

C3.5 Management and Organization Subteam Biographies

The members of the Management and Organization Subteam come from a variety of disciplines and organizations, both inside and outside the DOE. Biographies summarizing their education and experience are included on the following pages.

Name: Richard J. Blaney

**Association
(Company):** U.S. Department of Energy

Experience: 22 Years

1984-present Civilian Radioactive Waste Management Program. Working on development of a geologic repository for permanent disposal of spent nuclear fuel and high-level waste

1976-1984 Office of Inspector General. Conducted management reviews of projects for developing energy technologies

1967-1976 Reactor Development and Technology. Worked to develop advanced nuclear reactors

Education: B.S., Electrical Engineering, Manhattan College, 1965
M.S., Nuclear Engineering, Texas A&M University, 1967

Assigned Area: Management

Name: John L. Gilbert

**Association
(Company):** ICF Kaiser Engineers

Experience: 37 Years

1989-present Program Manager with ICF Kaiser Engineers in waste management and environmental restoration

1988 Chairman of the High-Temperature, Gas-Cooled Reactor Subpanel of the Energy Research Advisory Board Panel on the review of New Production Reactor Technologies

1986-1989 Consultant to DOE Offices of ES&H, Defense Programs, and the New Production Reactor in addition to support to commercial firms in the areas of ES&H, management, and organization

1977-1986 Assignments in ERDA/DOE included the Offices of Nuclear Energy, Project and Facilities Management, Defense Programs, and Under Secretary staff. Responsible for operations office liaison and management, project management, organization, staffing, and ES&H

1950-1977 Conducted and managed research and development and program management in the U.S. Air Force

Education: B.S., Mathematics, Ohio University

M.S., Research Management, Rensselaer Polytechnic Institute

Assigned Area: Management

Name: Edward Keheley

**Association
(Company):** U.S. Department of Energy - San Francisco Operations Office

Experience: 25 Years

1989-present Deputy Assistant Manager for Defense Program at DOE-SAN

1985-1989 NE Headquarters Program Manager for safety, quality, and reliability for the SP-100 Space Nuclear Reactor Development Program

1977-1985 Nuclear safety/environmental compliance in DOE-SAN safety organizations (Branch Chief/Division Director)

1967-1977 Worked in the Naval Reactors Program

Education: B.S., Biology, University of Utah

Graduate work at University of Utah and University of California in Physics

Naval Nuclear Power School. All DOE-sponsored safety courses as well as many others

Assigned Area: Management

Name: Jefferson O. Neff

**Association
(Company):** U.S. Department of Energy

Experience: 23 Years

1988-present Responsible for managing cleanup/decommissioning of radiation facilities contaminated by Federal programs

1978-1988 Managed the research and evaluation programs for the site selection for disposal of commercial nuclear waste

1975-1978 Managed the evaluation and design of a fusion power system for commercial power application

1966-1975 Managed the design of Liquid Metal Fast Breeder Reactor core components and the development of associated quality assurance standards

Education: B.A., Physics, Miami University of Ohio, 1966

1 year Graduate School, Nuclear Engineering, University of Florida, 1968

120 hours training as Contracting Officer

Assigned Area: Management

C3.6 Management and Organization Subteam Protocols and Lines of Inquiry

C3.6.1 Purpose

The purpose of the Management and Organization Subteam is to 1) assess the effectiveness of DOE management and administration of ES&H programs at Fernald and evaluate the DOE oversight of the GOCO facility, 2) assess the contractor management and administration of ES&H programs at Fernald, 3) review firsthand ES&H policies and procedures, and 4) observe on-site practices. These assessments, reviews, and observations will be used as a basis for evaluating the strengths and weaknesses of DOE and contractor management as they contribute to ES&H performance.

C3.6.2 Approach

A general assessment will be made as a result of the review of pertinent documents and interviews with local DOE staff, key ORO staff, and senior contract management. The results of the Environment and Safety and Health Subteams will be used to the extent possible to identify and support findings and issues that have management and operations implications.

The four members of the Management and Organization Subteam shall perform overall

assessment of the management-related issues by a review of documentation, by management interviews, and by other appropriate on- or off-site (e.g., ORO, DOE-HQ, WEC) review.

This general review will be coordinated initially by personal interactions between the leaders of the Safety and Health and Environment Subteams. A cross-correlation will be made to the data and findings of the other teams to ensure a consistent report of all key management issues. If necessary, additional interviews and document review will be scheduled to fully assess any of the key issues. Root causes will be derived where possible to provide a basis for initiating action to correct management issues.

C3.6.3 Staffing/Schedule

There are four members of the Management and Organization Subteam. All members have extensive professional management experience. The team represents a total of more than 100 years of experience in management of complex technical programs and activities.

Schedule (business days):

- 7/17 Day 1: Inbriefing/badging/site visitor safety indoctrination
(with other Tiger Team members)/training
- Day 2: On-site surveillance visit/training
- Day 3: On-site surveillance visit/identification of management
issues/review of documents
- Day 4: Conduct management interviews/documentation review
- Day 5: Conduct management interviews/documentation review

- 7/25 Day 6-7: Initiate report preparation/further documentation review
- Day 8: Conduct management interviews/documentation review
- Day 9: Complete any follow-up interviews/site visits
- 7/26 Day 10-12: Initiate writing assignments for subteam, complete first draft (subteam departs, with exception of subteam leader, who will cover any late management findings from the Environment and Safety and Health Subteams)
- 7/31 Day 15: Provide subteam leader draft report
- Day 17: Review Safety and Health Subteam report
- Day 20: Review Environment Subteam report
- 8/7 Day 22-27: Prepare subteam final draft report.

C3.6.4 Assessment Criteria

The identification of management concerns will be largely a subjective one, based on the expertise of the reviewers. As a means to "calibrate" the reviewer to classical ES&H management lines of inquiry, the following documents provide pertinent performance attributes:

- Technical Safety Appraisal Reference Manual (Vol. 1/2), May 1989.
- Performance Objectives and Criteria for Management Appraisals, DOE, March 1987.
- Draft Environmental Protection Audit Criteria for Environmental Compliance Program Management (DOE/EH-20), 1989.
- Draft Tiger Team Inspection Plans -- Safety Assessment Team (Starostecki, July 1989)

While the management evaluation will be driven primarily by on-site findings, the final assessment should serve to answer the following questions for both DOE and contractor management:

- Has DOE clearly defined the ES&H performance objectives to be met by the operating contractor? Do contractor management actions reflect an appreciation of DOE expectations and priorities?
- Are well-accepted management practices demonstrated in the planning, organization, direction, performance measurement, and oversight of the program? Are ES&H priorities well defined and implemented? Do clear lines of ES&H accountability exist within line management.
- Do management actions reflect an appreciation of ES&H considerations for their operations from the standpoint of risk and compliance?
- Is communication through the chain of command effective?
- Is management open to self- and external criticism? Are the results of reviews used effectively?
- Is there an effective system to identify and promptly act on deficiencies?
- Is resource allocation and use consistent with priority and risk?

- Is management fully aware of program and facility conditions?
- Has a positive ES&H culture been established within the organization?

Weaknesses in any of the above areas should be pursued for their underlying management implications and, where possible, identification of probable root causes.

Root causes are the contributing reasons ("why") for observed ES&H deficiencies ("what"). Probable root causes are identified through a reasoned judgment of why the observed deficiencies likely occurred (and would likely recur) based on 1) an understanding of the essential management attributes of an effective ES&H program and 2) an evaluation of the strengths and weaknesses of operations against these attributes founded on fact finding at the site.

The subjective evaluation of management issues can be approached by developing a data base of facts for major management areas, such as organization, communication, control, self-assessment processes, resources, training, planning, etc.

C3.6.5 Assessment Process

1. The management assessment begins with an inbriefing by DOE and contractor senior staff. This is followed by a series of interviews with each member of the on-site DOE staff. Interviews are continued with the vice presidential level of the contractor, WMCO.
2. At this point, the subteam will develop areas of focus and translate these into an outline for the subteam report. Areas of focus are assigned to individual subteam members to pursue additional document review and/or interviews to develop facts, conclusions, and tentative findings. A crosscheck with material coming in from

the other subteams is performed each day to provide reference material for management findings.

3. The basis for each conclusion and recommendation (where made) shall be validated with, first, the Tiger Team leader and, second, with selected senior site management (by the Management and Organization Subteam Leader) prior to finalizing the report. The purpose of this validation is: 1) to give site management a heads-up on the conclusions of the subteam and 2) to establish whether pertinent facts have been overlooked, or a flaw in the construction of the root causes has been made.

C3.6.6 Report

The initial draft report should be completed on July 31, as noted previously. It will remain pending until both the Environment and Safety and Health Subteams' assessments have been finalized and it is determined that no further management findings are to be made.

Findings and observations should be documented with the forms provided at the inbriefing.

C3.6.7 Lines of Inquiries

The initial lines of inquiries are provided below. These are organized into five areas and are used to develop an understanding of the DOE and contractor staff that implement the mission of the FMPC. Branching lines of inquiry will be followed to the extent necessary to render a defensible judgment on the management aspects of the facility. Lines of inquiry are used to develop a list of focus areas and outline sections for the subteam report. After developing the focus areas, the lines of inquiry are used as a guide for developing information.

Organization

Lines of authority
ES&H authority
Resource priorities
Corporate support

**Communication -
Objectives/Criteria**

Formality and consistency
Incentives (CPAF)
Personnel performance evaluation
Intergovernmental
Interagency (EPA, OEPA)
Intraagency (DOE-HQ, ORO)
Directives/technical
 specification process
Standard operating procedures
Training
Mission
Documentation
Configuration control

Assessment

CPAF criteria
Reporting systems

Trend analysis
Audit and surveillance
Corrective actions
Management presence
Statusing
Quality assurance
Performance measurement

Resources

Planning
Training
Recruitment
Retention
Workloads
Classification
Incentives (awards)
Staffing
Budgeting

Legal

Existing agreement:
 Delegations
 Agreements under negotiation
 Permits

C3.7 Management and Organization Subteam Data Sheets

The Management and Organization Subteam data sheets for each area investigated are contained in this section. The following is a listing and short identification of each data sheet.

- 30-01 Lack of trend analyses
- 30-02 Good award fee process
- 30-03 Confused mission
- 30-04 Confused strategic goals
- 30-05 Inadequate tracking on corrective actions
- 30-06 Requirements for plans poorly coordinated
- 30-07 Award fee process not used on specific issues
- 30-08 Uneven feedback on award fee process

- 31-01 Reduction of WMCO staff
- 31-02 Good organizational initiative
- 31-03 Inadequate integration in WMCO
- 31-04 Inadequate qualified environmental staff in DOE/FMPC
- 31-05 Inadequate time to manage DOE staff
- 31-06 DOE morale low
- 31-07 DOE recruitment not aggressive
- 31-08 WMCO morale moderately high
- 31-09 WMCO recruitment not aggressive
- 31-10 OEPA and EPA/DOE relations
- 31-11 FMPC community relations
- 31-12 Lack of training policy and procedures
- 31-13 Inadequate resources
- 31-14 Good use of DOE employee incentives
- 31-15 Good use of WMCO employee incentives
- 31-16 Inadequate safety and health resources and planning

- 32-01 Well-defined safety and health program
- 32-02 Inadequate ORO oversight of FMPC
- 32-03 Infrequent ORO appraisals
- 32-04 Good independent Westinghouse oversight
- 32-05 Good independent WMCO audits
- 32-06 Lack of prioritization on audit findings
- 32-07 Well-defined ALARA program
- 32-08 Well-implemented ALARA program
- 32-09* Slow preparation of FSARs
- 32-10* OSRs not being prepared
- 32-11 Lack of regulatory compliance guides
- 32-12 Waste shipment delayed
- 32-13 Lack of safety systems configuration control

33-01* Good QA plan/procedures
33-02 Good support of QA by top-level management
33-03 Inadequate QA implementation
33-04 Good order identification/implementation
33-05 Inadequate closure in order implementation
33-06 Good directives system

34-01* NESHAP notice of violation
34-02* Permit signatory liability
34-03* FFCA implementation failure
34-04* Incomplete response to notices of violation
34-05* Operation after Clean Air Act Permits expire
34-06* WMCO RCRA citations

* Potential agreement noncompliance and/or potential regulatory/DOE noncompliance.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 30 - M&O - Trends - 01

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCO Human Resources

Reference Data 1) WMCO Manager, 1989, personal communication; 2) FMPC 706; 3) DCAR Trend Reports, February 1989, July 1988, December 1987; 4) FMPC 703 and 704; 5) Unusual Occurrence Trend Report, March 1988, April 1987; and 6) Minor Event Trend Report, August 1988, May 1988.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Prior to a year ago, WMCO periodically and regularly analyzed minor event reports and unusual occurrence reports for trends. Since that time, trend analyses of such reports have not been made.

Discussion

- Audits, surveillances, inspections, and tests conducted by WMCO personnel result in a Deviation and Corrective Action Report (DCAR) being prepared when deviating from a specified requirement (Reference 2).
- The collection of DCARs is analyzed periodically, generally twice each year, by the Performance Assessment Department to identify trends or common causes of deviations. In this way, underlying problems can be identified and corrected that may have gone unnoticed if action were only taken separately in response to each of the DCARs (Reference 3).
- Similarly, WMCO line managers must report incidents that deviate from standard practice or procedure. If the incident meets specified criteria, it is reported as an unusual occurrence; otherwise, it is considered a minor event (Reference 4).
- Up until mid-1988, WMCO periodically analyzed the Minor Event Reports and Unusual Occurrence Reports to identify trends or common causes of such incidents. Minor Event Reports had been analyzed quarterly; Unusual Occurrence Reports had been analyzed annually. Since mid-1988, no such trend analyses have been conducted. A trend analysis of Minor Event Reports is scheduled to be completed by the Performance Assessment Department by

September 30, 1989; a trend analysis of Unusual Occurrence Reports, which is also the responsibility of the Performance Assessment Department, is not currently scheduled (References 1, 5, and 6).

Tentative Finding(s)

Trend analysis of minor events and unusual occurrences is infrequent.

Probable Root Cause(s)

The reduction in WMCO staff resulted in the extended schedule for trend analysis of Minor Event Reports and for essentially terminating the trend analysis of Unusual Occurrence Reports.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 30 - M&O - AFP - 02
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity Oak Ridge Operations Office

Reference Data 1) Award Fee Determination Plan for WMCO, FY 1989; 2) Award Fee Schedule; 3) Letters, J. L. Grone to B. Boswell, "Award Fee Determination for WMCO," December 8, 1988 and June 7, 1988; and 4) Senior Management, ORO, 1989, personal communication.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

ORO operates a well-defined process for the award fee provisions of the contract, but the evaluation for the first half of FY 1989 has not yet been completed.

Discussion

- An Award Fee Determination Plan, prepared by ORO, establishes the process for determining the fee to be awarded WMCO for each 6-month evaluation period. The plan establishes a three-level organizational structure for determining the award fee:
 - Performance Evaluation Committees, composed of ORO personnel at Oak Ridge and the FMPC Site Office, evaluate WMCO's performance in major areas.
 - An Award Fee Board, composed of the Site Office Manager and senior ORO managers in Oak Ridge, review the evaluations of the Performance Evaluation Committee along with any WMCO self-assessment and recommend the fee to be awarded.
 - The fee determination official, who is the ORO Manager, reviews the recommendation of the Award Fee Board and determines the fee to be awarded (Reference 1).
- Prior to the beginning of each evaluation period, ORO adheres to a firm schedule for establishing the performance objectives and criteria to be used in evaluating WMCO's performance in each major area. Similarly, at the end of each evaluation period, ORO adheres to a firm schedule for completing the evaluation in each major performance area and in determining the fee to be awarded WMCO (Reference 2).

- The evaluation process is generally completed in about 60 days (Reference 3).
The evaluation for the first half of FY 1989 had not been completed as of July 25, 1989. ORO had submitted its evaluation to DOE-HQ for approval but had withdrawn the award fee package on July 17, 1989, based on an evaluation by ORO.

Tentative Finding(s)

N/A

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 30 - M&O - Mission - 03

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity DOE

Reference Data 1) "U.S. Department of Energy's Feed Materials Production Center," prepared by Jane Powell, 1989; 2) "Nuclear Weapons Complex Modernization Report (2010 Report)," Department of Energy, 1988; 3) Predecisional Draft, "Environmental Restoration and Waste Management Five-Year Plan," Department of Energy, 1989; 4) "Ten-Point Plan," announced by Admiral Watkins, June 1989; 5) J. Lytle to W. Bibb, "Cessation of Nuclear Materials Production Operations at FMPC," June 26, 1989; 6) Cincinnati Enquirer, July 28, 1989; and 7) Cincinnati Enquirer, August 6, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The mission of the FMPC, particularly for the near term, is not clear. Specifically, it is not clear if FMPC production of uranium metal will be terminated in 1 year, 2 years, or 4 years.

Discussion

- FMPC production requirements decreased dramatically with the placement of the N Reactor at Hanford in cold standby in 1988, the further decision that the N Reactor would be held in standby only for tritium production, and the reduced operating level of production reactors at Savannah River and their subsequent shutdown for repairs and upgrading. FMPC production was reduced from approximately 10,000 metric tons in 1987 to 7500 metric tons in 1988 and to 1200 metric tons in 1989 (Reference 1).
- Reduced production levels have resulted in the need to reduce manpower at FMPC. FMPC experienced a reduction in force in March 1988. One hundred fifty-six people were affected including 50 transfers, 51 positions reduced through attrition, and 55 positions eliminated. Manpower was reduced again in December 1988, when a major reduction in force was implemented for over 210 hourly and approximately 40 salaried personnel. Manpower was further reduced by approximately 55 personnel through layoff, retirement, transfer, and resignation in May 1989 (Reference 1).

- The Nuclear Weapons Complex Modernization Report (2010 Report) called for production operations to end at FMPC at the end of FY 1994 (Reference 2).
- The predecisional draft of the "Environmental Restoration and Waste Management Five-Year Plan," July 1989, contains plans for improvements to be made at FMPC. The plan does not explicitly discuss any DOE intention to terminate production operations at FMPC at any time through FY 1995. The plan does include funding for corrective actions in FY 1991-1995 to bring production operations into compliance with environmental regulations (Reference 3).
- The "Ten-Point Plan" announced by Admiral Watkins on June 27, 1989, included the following points:
 - Resetting priorities to reflect that environment, safety and health issues are more heavily weighted than production. DOE is beginning negotiations with states hosting DOE nuclear facilities to allow direct access and to improve state monitoring capabilities.
 - Modifying the criteria for awarding contractor fees to reflect increased emphasis on environment, safety and health (Reference 4).
- On June 26, 1989, DOE-HQ requested ORO to analyze alternative courses of action for ceasing production operations at FMPC. The courses of action to be analyzed all provided for preproduction of materials requirements in FY 1990, but allowed ORO to identify other alternatives for consideration. The report of the analysis results was due in 6 weeks (Reference 5).
- On July 28, 1989, in a front-page article, the Cincinnati Enquirer reported on the House and Senate Armed Services Committees' recommendation to halt production operations by October 1, 1990. The article also noted the opposition of Senator Glenn to the recommendation and the concern of a local citizens group that a decision to terminate production operations should not be blamed on them (Reference 6).
- On August 6, 1989, in a front-page article, the Cincinnati Enquirer reported that the confusion regarding plans for ceasing production operations at FMPC was affecting worker morale (Reference 7).

Tentative Finding(s)

The mission of the FMPC for the next several years is currently unclear.

Probable Root Cause(s)

Policy decisions regarding the process for terminating production operations have not been made.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 30 - M&O - Goals - 04
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity DOE

Reference Data 1) B. Boswell, 1989, WMCO, personal communication; 2) J. Reafsnyder, DOE Site Manager, 1989, DOE, personal communication; 3) Award Fee Determination Plan for WMCO, Part II, Objectives and Performance Criteria, FY 1989; and 4) Letter, B. Boswell to P. G. Woods, "1989 Non-Financial Objectives - Quarterly Progress Report," March 29, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Strategic goals are set for FMPC without DOE-HQ or senior ORO management approval; DOE and Westinghouse Electric Corporation have different performance objectives for WMCO.

Discussion

- Eight strategic goals for FMPC had been developed by the WMCO Strategic Management Board. A significant effort was made to communicate the strategic goals to all WMCO employees (e.g., the goals were posted prominently in the FMPC cafeteria and were issued to each employee via a laminated card). The strategic goals were reflected in the performance evaluation plans of WMCO managers (Reference 1).
- The Site Office Manager had reviewed the strategic goals and had no objection to them. The strategic goals were not approved by ORO senior management or by the program managers in DOE-HQ. The strategic goals were viewed as internal WMCO goals (Reference 2).
- The Award Fee Determination Plan for FY 1989 established performance objectives and performance criteria in the areas of production and waste operations, engineering and construction management, environment management, safety and health management, environment restoration, and planning and budget (Reference 3).
- The Westinghouse Electric Corporation established 1989 non-financial objectives that are used in evaluating the performance of the WMCO President. These objectives addressed the areas of safety performance, environmental improvements, materials production, quality performance, development and construction, and Affirmative Action (References 1 and 4).

- The DOE Site Office did not regard the strategic goals for FMPC as being of sufficient importance to warrant DOE-HQ or ORO senior management approval. Westinghouse Electric Corporation did not think to use the award fee performance objectives for their non-financial objectives.

Tentative Finding(s)

Strategic goals are set for FMPC without DOE HQ or senior ORO management approval; DOE and Westinghouse Electric Corporation have different performance objectives for WMCO.

Probable Root Cause(s)

There is a lack of resources to focus on the overall objectives. Also, frustration exists with the changing mission.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 30 - M&O - Oversight - 05

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCO

Reference Data 1) FMPC 706; 2) FMPC 707; 3) WMCO Management, 1989, personal communication; 4) FMPC 703; 5) FMPC 704; 6) List of Appraisal Reports, 1989, R. Hansen; 7) FMPC Best Management Practices Plan, 1988, R. Weston; 8) FMPC 210; 9) WMCO Management, 1989, personal communication; 10) Letter, P. Woods to B. Boswell et al., "Nuclear Safety and Environmental Oversight Committee," January 18, 1989; and 11) WMCO Management, 1989, personal communication.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The WMCO responsibility for tracking progress on corrective action is spread among several organizations.

Discussion

- The WMCO Performance Assessment Department conducts independent quality assurance audits of activities at FMPC, with deviations from the norm reported on Deviation and Corrective Action Reports (DCARs). Also, the WMCO Quality and Safety Department conducts surveillances and inspections of FMPC activities, with deviations from the norm reported on DCARs. The Quality and Safety Department tracks the status of corrective action for all DCARs and reports the status to WMCO managers (References 1, 2, and 3).
- If abnormal incidents occur during the conduct of work at FMPC, WMCO line supervisors are required to report such incidents. If the incident meets specified criteria, an Unusual Occurrence Report (UOR) is generated; otherwise the incident is treated via a Minor Event Report (MER) (References 4 and 5).
- The Performance Assessment Department tracks the status of corrective action for all UORs and reports the status to WMCO managers. Corrective actions on MERs are the responsibility of line managers and are not tracked by any one department at WMCO (Reference 3).

- ORO performs functional appraisals of FMPC activities. During FY 1988 and FY 1989, functional appraisals were conducted in the areas of fire protection, industrial safety, construction safety, quality assurance, maintenance, firearms safety, industrial hygiene, facility safety, and in-house energy management (Reference 6).
- Corrective actions on findings from the functional appraisals are the responsibility of line managers and are not tracked by any one department at WMCO (Reference 3).
- DOE-HQ conducts Technical Safety Appraisals (TSAs) of FMPC activities. Corrective actions on findings from TSAs are tracked and reported to WMCO managers by the Performance Assessment Department. The Performance Assessment Department would likely also track corrective actions resulting from other external reviews (Reference 3).
- At the direction of the Ohio EPA, DOE prepared a Best Management Practices Plan for FMPC activities. This plan identifies corrective actions that are needed (Reference 7).
- The WMCO Best Management Practices Committee was created to ensure development and maintenance of plans and procedures to minimize the potential for discharge of any toxic and hazardous materials into the waters of the State of Ohio. The committee's responsibilities do not include tracking and reporting to WMCO management on the corrective actions identified in the Best Management Practices Plan (Reference 8).
- Because of slippages in implementing the corrective actions in the Best Management Practices Plan, a revised action plan has been completed recently. The WMCO Environmental Compliance Group intends to track status on the revised plan (Reference 9).
- The Westinghouse Electric Corporation (WEC) has formed a Nuclear Safety and Environmental Oversight Committee to review activities of WMCO and of other WEC operations. The status of action to implement the committee's recommendations is provided in WMCO's quarterly progress report to WEC on its non-financial technical objectives (Reference 10).
- The WMCO Administrative Department is responsible for coordinating development of WMCO's self-assessment submitted to ORO as part of the award fee process (Reference 11).
- The WMCO Administrative Department is responsible for preparing WMCO's quarterly progress report to WEC on its non-financial objectives (Reference 3).

Tentative Finding(s)

The WMCO system for tracking progress on corrective actions is not adequate.

Probable Root Cause(s)

There is inadequate emphasis on sitewide coordination of corrective activities.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 30 M&O Plans 06

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity DOE

Reference Data 1) DOE Order 5480.1B; 2) DOE Order 5820.2A; 3) DOE Order 4300.1B; 4) DOE Site Office Personnel, 1989, personal communication; 5) DOE Site Office Personnel, 1989, personal communication; 6) Senior DOE FMPC Management, 1989, personal communication; 7) Predecisional draft, "Environment Restoration and Waste Management Five-Year Plan", 1989, DOE; 8) Senior DOE Management, 1989, personal communication; 9) WMCO Management, 1989, personal communication; and 10) WMCO Senior Management, 1989, personal communication.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Several different planning documents are required to be developed for different DOE offices, including EH, DP, Controller, and Administration.

Discussion

- DOE Order 5480.1B requires an ES&H Implementation Plan to describe the approach, resources, and time period planned for implementing ES&H orders that require such plans on a sitewide basis. This plan is required to be approved by the senior program official at DOE-HQ, following the concurrence of the Assistant Secretary for Environment, Safety, and Health (Reference 1).
- DOE Order 5820.2A requires an annual Waste Management Plan to compile and consolidate how waste management operations are conducted, what facilities are being used to manage wastes, what forces are acting to change current waste management systems, and what plans are in store for the coming fiscal year. The Waste Management Plan is required to be submitted to the Office of Defense Programs, Office of Environment, Safety, and Health, and other appropriate DOE-HQ organizations for review and comment. DOE Order 5820.2A does not establish responsibility for approval of the plan (Reference 2).

NOTE: The Site Office combines the plans required by DOE Orders 5480.1B and 5820.2A into one plan and annually develops an ES&H and Waste Management Plan. The Site Office receives little or no feedback on the plan (Reference 8).

- DOE Order 4300.1B requires a Site Development Plan to ensure the orderly growth and development of the site. The Site Development Plan is required to contain a short range 5-year plan that must be revised annually. The 5-year plan is to be a short-range implementation plan for the long-term strategies and objectives established elsewhere in the Site Development Plan. In accordance with the DOE order, the Manager of the ORO approves the Site Development Plan, following review by the Director of Administration at DOE-HQ. The development of the plan is a two-step process, with the planning assumptions approved first, followed by development and approval of the plan itself. WMCO indicated that this two-step process was helpful. The Site Office indicated that feedback on the plan was received from the ORO personnel in Oak Ridge, who in turn interacted on the plan with DOE-HQ (References 3,4,9).
- A 5-year long-range plan is required to be developed annually for the Office of Controller as part of each year's budget submission to DOE-HQ. Little or no feedback on the plan itself is to be received by the Site Office.

NOTE: The Site Office prepared the long-range plan in April 1988, but obtained approval to not prepare the plan in 1989. The requirement for preparing the plan in 1990 remains (References 5,6).

- A Materials Management Plan is required to be developed annually for the Office of Defense Programs. This plan identifies the material balances at FMPC for uranium products over the next 16 years. Little or no feedback is received by the Site Office on the plan (Reference 6).
- The predecisional draft of the Environmental Restoration and Waste Management Five-Year Plan states that each operations office will be required to develop a 5-year implementation plan. The implementation plan would be updated annually (Reference 7).
- A plan for restarting FMPC activities, following the July 10, 1989 shutdown, did not exist as of July 25, 1989, nor did WMCO have a strategic plan in place for achieving the strategic goals that had been established (Reference 10).

Tentative Finding(s)

Requirements for development of plans for FMPC activities are not well coordinated.

Probable Root Cause(s)

Several different offices impose their individual requirements for plans from FMPC without regard to plans developed for other purposes. Planning requirements are not coordinated within DOE to facilitate production of plans in the field.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 30 - M&O - AFP - 07
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity ORO

Reference Data 1) Award Fee Determination Plan for WMCO, Part II Objectives and Performance Criteria, FY 1989; 2) Letters, J. LaGrone to B. Boswell, "Award Fee Determination for WMCO", December 2, 1988; June 7, 1988; December 2, 1987; 3) Senior DOE Management, 1989, personal communication; and 4) Letter, J. LaGrone to W. Jacobi, "RCRA Compliance - FMPC", July 12, 1989.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The award fee performance objectives and performance criteria for FY 1989 do not explicitly address ORO's dissatisfaction with WMCO with regard to RCRA compliance.

Discussion

- The ORO evaluation of WMCO's performance for the second half of FY 1987 and both halves of FY 1988 noted that improvements were needed in the area of compliance with RCRA (Reference 2).
- The Environmental Safety Assessment Group was advised by ORO of its dissatisfaction with WMCO's efforts to comply with RCRA (References 3 and 4).
- The performance objectives and criteria established by ORO for the two FY 1989 evaluation periods do not, however, make explicit mention of compliance with RCRA (Reference 1).

Tentative Finding(s)

The award fee process is not used to directly address areas where WMCO's performance is not satisfactory.

Probable Root Cause(s)

There is dependence on the management contractor to develop goals to meet overall performance objectives, and there are inadequate resources to foresee evolving requirements.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 30 - M&O - AFP - 08
 And. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89

Building or Activity ORO

Reference Data 1) Award Fee Determination Plan for WMCO, FY 1989; 2) ORO Management, 1989, personal communication; 3) ORO Management, 1989, personal communication; 4) ORO Management, 1989, personal communication; and 5) DOE Site Office Personnel, 1989, personal communication.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Feedback to WMCO during the evaluation period is uneven across the Performance Evaluation Committees. Membership of the Performance Evaluation Committees is not current due to recent changes in personnel.

Discussion

- In accordance with the Award Fee Determination Plan, a Performance Evaluation Committee is established to evaluate WMCO's performance in major areas. The committees are composed of ORO personnel at Oak Ridge and the Site Office. The major performance areas and the weightings established for FY 1989 were as follows (Reference 1):

	<u>Weighting</u>
Production and Waste Operations	20%
Engineering and Construction Management	20%
Environmental Management	20%
Safety and Health Management	20%
Environmental Restoration	10%
Planning and Budget	<u>10%</u>
	100%

- The Performance Evaluation Committee for Planning and Budget conducted bimonthly meetings with WMCO counterparts with agenda to review WMCO's activities (Reference 2).

- The Performance Evaluation Committee for Safety and Health Management did not meet with their WMCO counterparts during the first evaluating period of FY 1989. The Chairman of the committee did not visit the FMPC during the period, although he did meet with the WMCO counterpart once in Oak Ridge (Reference 3).
- The Award Fee Determination Plan requires the Performance Evaluation Committees to meet periodically with their WMCO counterparts to discuss performance to date, but "periodically" is not defined (Reference 1).
- Two Site Office personnel who were members of the Performance Evaluation Committees, one of whom was a Chairman, recently left for other positions (References 4 and 5).
- Another individual advised that he had ceased being Chairman of the Performance Evaluation Committee for Planning and Budget when he was assigned to a different position (Reference 2).

Tentative Finding(s)

Opportunities exist to improve implementation of the award fee process.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - Staffing - 01
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-13-89

Building or Activity WMCO Human Resources

Reference Data Interview with Human Resources Manager.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

WMCO staffing reduced from 1507 employees at the beginning of FY 1989 to 1150 employees by the end of June 1989 to meet FY 1989 budget of an average of 1300 employees for the year.

Discussion

This observation shows the effort of WMCO management to make necessary employment adjustments to maintain staffing levels within budget constraints. Losses through June 30, 1989, totaled 402, 242 of which were involuntarily separated (45 new hires replaced 45 of 160 attrited voluntarily). WMCO estimates staff will have to be reduced to 1100 by the end of FY 1989 to meet objectives. Voluntary attrition is expected to result in losses of 42 additional employees.

Tentative Finding(s)

N/A

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - Staffing - 02

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCO TrainingReference Data "FY 1989/1990 FMPC Organizational Development Plan" undated; June 1989 organizational charts provided to assessment team; interview with Human Resources Manager.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

WMCO has restructured its staff functions to respond to increased emphasis on environment, safety, and health and environmental restoration. A continuing review is planned to keep up with shifting DOE priorities.

Discussion

On April 19, 1989, WMCO management announced a major reorganization to better align the staff to support the new long-range strategic objective that recognizes the increasing importance of environmental restoration and waste management. An updated "FY 89/90 FMPC Organizational Development Plan" provided to the DOE Site Office about February 1, 1989, called for this realignment. A second objective was to continue "to build an effective site remediation organization."

This FY 1989/1990 plan is only an outline and does not give detailed plans to meeting changing requirements, filling key positions, or meeting training needs of those moved from one department to another.

Tentative Finding(s)

N/A

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - Management - 03
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-13-89Building or Activity WMCO Mgmt.Reference Data Discussions with WMCO senior management (down through Vice President level) and Manager Human Resources.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Current charters for the individual WMCO departments were not available to allow the team to clarify organizational uncertainties.

Discussion

There appeared to be some differences of opinion on some key WMCO roles, responsibilities, and functions. Examples of management differences of opinion included the following: The Vice President for FMPC restoration indicates RCRA activities will essentially be complete by the end of this FY (except unknown drums and some sampling); therefore, the RCRA Department under him has limited life. The President of WMCO indicated the RCRA Office will be around a long time. When asked why WMCO did not have a consolidated status report on all ES&H and waste management activities, he replied that the Manager of Performance Assessment was created to do that job among others. The Manager of Performance Assessment did not think this was his responsibility.

Tentative Finding(s)

There is some lack of an integrated understanding of organizational objectives among WMCO senior (Vice President) managers.

Probable Root Cause(s)

Lack of firm guidance and clear assignment of organizational responsibilities on the part of WMCO senior management is the cause of this finding.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - Management - 04
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-13-89Building or Activity DOE Site OfficeReference Data Discussions with DOE Site Manager.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

There are no fully qualified environmental engineers or personnel with related skills in the DOE Site Office.

Discussion

Although there are general engineers in the DOE Site Office, there are no environmental engineers, health physicists, radiation specialists, environmental scientists, or personnel with related skills in the Site Office. The major activity at FMPC is rapidly changing from production of material to environmental restoration, compliance, and waste management.

Tentative Finding(s)

A major deficiency in the DOE Site Office is the lack of any fully qualified people in any of the environment and related disciplines.

Probable Root Cause(s)

The competition for these qualifications in commercial industry and the willingness of industry to pay higher salaries greatly contributes to the inability to hire such people. There is no evidence of aggressive recruiting for people with these skills (see Data Sheet Reference I.D. 31-07). The current classification of these positions may not be appropriate to the situation at FMPC.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - Management - 05

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity DOE Site OfficeReference Data Discussions with DOE Site Manager, Deputy Manager, ORO Assistant Manager for Defense Programs and ORO Personnel Office.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

It appears that the DOE Site Office has insufficient personnel and/or insufficient qualified personnel in certain critical areas.

Discussion

The numerous media inquiries and public/community requests for information and interviews indicate a need for a full-time public affairs officer. Similarly, the law suits requiring action and response, permits, consent decrees, etc., indicate the need for full- or near-full-time legal support for the Site Office. There are no fully qualified environmental engineers or related skills people in the Site Office.

Tentative Finding(s)

There is insufficient time for the DOE Site Office senior staff to provide adequate management and oversight of FMPC contractors.

Probable Root Cause(s)

The lack of on-site public affairs and legal support causes the DOE senior management to devote an inordinate amount of time to these activities and compromise personnel and staffing management functions.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - Management - 06
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-13-89Building or Activity DOE Site OfficeReference Data Response to morale questionnaire by Assessment "Tiger" Team Members and personal observation.

Observation(s) **Category**
 1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	—

N/A

Discussion

Initial interviews indicated DOE Site Office morale was very low, based on opinions of two senior managers. Observations during other interviews and a survey of team member opinions, based on their interviews, indicate that morale is moderately low to low. Indications are that morale is lower in the senior management level and moderately high in the younger, less senior personnel in the Site Office.

Tentative Finding(s)

Morale in the DOE Site Office is moderately low overall. Senior management morale is lowest, while younger Site Office personnel have somewhat higher morale. No one found morale high.

Probable Root Cause(s)

In the view of DOE Site and ORO management, morale dropped quickly after the Summary Judgment in the Class Action Suit of Fernald area residents vs. DOE. Interviews with senior management indicated they were discouraged, which makes it difficult for them to motivate others. Precise courses of motivation or lack thereof in individuals is difficult to assess in a limited review such as this. One can only speculate that the lack of a clear future for FMPC, discouragement mentioned above, and the bad press contribute to this relatively low morale.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - Recruiting - 07
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-13-89

Building or Activity WMCO Personnel

Reference Data Fernald site office recruitment 7/88 - 7/89 undated 2 pages, discussions with ORO personnel office, DOE site management.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

DOE Site Office is recruiting for four ES&H-related positions with minimal to no success.

Discussion

DOE Site Office now has four vacancies in position related to ES&H: Supervisory Environmental Engineer GM-14; Environmental Engineer GS-13; Health Physicist, GS 11/12/13; Industrial Hygienist, GS-13. The Site Office Manager, Deputy Manager, and ORO Personnel Office indicate that qualified personnel at ORO do not want to accept permanent assignment to FMPC. As of August 12, however, several candidates had been identified for each position. The market for people with these skills is excellent, and many commercial firms are bidding for them. The attitude discussed by the cited people is that the FMPC has very bad notoriety, the career opportunities at FMPC are limited, and the continued existence of the Site Office beyond 2 or 3 years is in doubt. There was no indication of trying to sell people on the fact that this site is generally ahead of most in the RI/FS, remedial action, and waste cleanup areas, and that the experience gained here will be invaluable and in demand at other DOE facilities in the future. A large effort has been made in the past by ORO to recruit specialty skills such as radiation safety/health physicists. These have not been successful.

Tentative Finding(s)

DOE-ORO and Site Office are not maximizing the opportunities in recruiting for critical ES&H skills.

Probable Root Cause(s)

There are inadequate resources and time to focus on employment/recruiting, and there is a routine approach to the critical recruitment area.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - WMCO Morale - 08
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCOReference Data Response to FMPC morale questionnaire by Environmental Safety Assessment Team members and personal observation.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
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N/A

Discussion

WMCO senior management indicated morale among WMCO employees was moderately low. Morale was found to be moderately high, based on personal interviews and the opinion of assessment team members from their interview with WMCO employees. No one thought WMCO employee morale low, and only three respondents thought WMCO employee morale was moderately low. One former National Lead of Ohio employee was quoted as saying he felt betrayed and impugned by the summary judgment.

Tentative Finding(s)

The morale of WMCO employee is moderately high.

Probable Root Cause(s)

If is difficult, in a limited assessment such as this, to determine what motivates individuals. It is the responsibility of the leadership to motivate the employees. WMCO senior management admitted they were discouraged by the summary judgment, the lack of clear guidance on the future of FMPC, and the seemingly endless bad press. This makes it difficult for them to motivate other employees.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - Recruiting - 09

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCO

Reference Data "Open position record" (WMCO) dated 7-26-89 "Open positions as of 6-19-89" (WMCO) Discussion with Manager, Human Resources and Executive Vice President.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

WMCO is having some difficulty filling ES&H-related positions with well-qualified people.

Discussion

WMCO is having less difficulty in filling ES&H positions than the Site Office; however, a manager for the radiological safety position has been open since April 24, 1989, and two engineer positions in the hazardous/mixed waste compliance area have been open since June 15, 1989. WMCO staff indicates some difficulty competing for more ES&H resources. Other Westinghouse companies, in particular West Valley, are seeking similarly skilled personnel, thus minimizing the opportunity to hire from within Westinghouse. Rationale given for difficulty in hiring ES&H-related skills were similar to the Site Office's (i.e., notoriety of FMPC and possible limited life of FMPC). There is no indication of selling the opportunities, in or out of Westinghouse, that work of this nature offers career enhancement due to the lead role FMPC is playing in CERCLA/RCRA waste management cleanup.

Tentative Finding(s)

Westinghouse, in their recruiting, does not appear to be maximizing the opportunities offered by work at FMPC.

Probable Root Cause(s)

There is personal discouragement at senior management level regarding the future of FMPC, the notoriety in the press, the significance budgetary uncertainties, and the mission uncertainty.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - Management - 10
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89

Building or Activity DOE Site Office

Reference Data Discussions with FMPC DOE Site Manager and Deputy Manager and OEPA Representative.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Relations with Ohio EPA (OEPA) are good, with EPA Region V are strained, with community around FMPC somewhat strained, and with some individuals in the surrounding community good.

Discussion

The Site Office currently has very good relations with OEPA. The Site Office Manager is concerned that state or local political decisions could change those relations quickly. The relations with EPA Region V have been more difficult primarily due to the perceived stringent requirements going beyond national standards. Relations with the community around FMPC were stated to be very good until the summary judgment in the class action suit. After that, the Site Office staff says their credibility went below zero and relations have become strained, except for a few unnamed individuals.

Tentative Finding(s)

Relations between the DOE Site Office and the EPA are strained as a result of discussions about site regulatory requirements.

Probable Root Cause(s)

There is a lack of agreement between EPA Region V and DOE about regulatory interpretation.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - Management - 11

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCO

Reference Data Discussions with President, Executive Vice President, Manager Public Affairs - WMCO and OEPA Representative WMCO VP GOBU Environmental Affairs.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

The perception of WMCO is that relations with Ohio EPA (OEPA) are good, with EPA Region V are more difficult because of lack of agreement on requirements, with community around Fernald somewhat strained, and with some individuals in the community very good.

Discussion

Westinghouse management is concerned about the lack of direct contact with EPA and OEPA, but that situation has improved recently. The Site Office remains the official spokesman for FMPC with the two EPAs, but Westinghouse personnel are participating more actively in discussions and meetings. All the WMCO officials indicate community relations deteriorated after the summary judgment in the class action suit, stating that FMPC credibility was totally destroyed. Relations with some individuals (not named) in the community remain very good.

Tentative Finding(s)

N/A

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - Management - 12
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCO Training

Reference Data WMCO Site Procedures Manual, FMPC-2054, Topical Manual, Westinghouse letter "Nuclear Safety and Environmental Oversight Committee" dated January 18, 1989 signed Philip G. Woods, Committee Sec. to M. B. Boswell et al., Letter W. H. Britton, WMCO to Reafsnnyder dated December 20, 1989 "Impact of FY 1989 Funding Allocations" Attachment II. Interview with Acting Manager Human Resources and Manager H. R. Development.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

No formal policy and procedures on training are available. The document is in draft form.

Discussion

Budget cuts in FY 1989 cut training staff from 22 to 8. Training is the responsibility of the separate departments, except that training required across the departments. This latter training is the responsibility of the Manager of Human Resources Development. The Human Resources Development office maintains automated training records on WMCO personnel, keeps records of approved lesson plans, monitors instructors from technical staff to ensure good teaching skills and provides assistance to improve their skills as needed, maintains files of training materials, prepares overheads and other materials as requested, responsible for WMCO audio-visual staff, generally assists departments in developing curriculum and training aides for subject matter training. Departments are responsible for training in their own areas (e.g., operations is responsible for plant operations training). Departments keep schedules to meet DOE requirements; Human Resources Development office provides list of who is due for training. Training is fragmented among the departments and the development office. There is no central authority responsible for ensuring all training requirements are identified and met.

Training activities cut as result of the FY 1989 budget cut include accredited operator training program and training procedures and materials to prepare for restart of facilities on standby.

Tentative Finding(s)

There is no central control point responsible for determining requirements, directing training, and ensuring completion of all required training; therefore, training is fragmented and generally reactive rather than proactive.

Probable Root Cause(s)

The lack of a WMCO training policy after 3-1/2 years of operating FMPC leads one to believe training is a low priority and/or management is complacent about training and the need to meet changing missions at FMPC.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - Management - 13
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCO

Reference Data Letter, WMCO to DOE Site Office "Impact of FY 1989 Funding Allocations" dated Dec. 20, 1989; Interview with E. Jane Powell, W. H. Britton, R. J. Hansen, W. B. Boswell; Oak Ridge Operations Budget Estimates - FY 1991 - Volume II, April 1989; Oak Ridge Operations Budget Estimates - FY 1990 - Materials Production GE - Operating Expenses and Capital Acquisitions, April 1988; Fiscal Year 1991 Budget Operating and Capital Programs, February 14, 1989; Fiscal Year 1990/1991 Budget Operating Programs, Revision 2, March 25, 1988; Fiscal Year 1990/1991 Budget Defense Waste Program GF-01; Oak Ridge Operations Budget Estimates - FY 1990, Defense Waste - Program GF 01 - Waste Operations Projects, April 1988; Oak Ridge Operations Budget Estimates - FY 1991 - Atomic Energy Defense Activities - Environmental Restoration, April 1989; Oak Ridge Operations Budget Estimates - FY 1990 - Environmental Restoration - Program GF 11, April 1988; Fiscal Year 1990/1991 Budget Environmental Restoration Program GF-11, February 22, 1988.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Increases in the ES&H waste management budgets (GF) are not keeping pace with decreases in production budget (GE) resulting in reduction of WMCO staff.

Discussion

DOE Site Office personnel indicate budgets submitted to ORO are being cut 20% to 25% in FY 1989 and FY 1990. This is borne out by the budget documentation. The Strategic Planning Board, which includes senior DOE Site Office personnel and senior WMCO staff, meets to set priorities for the FY when final funding is known. ES&H and waste management activities reduced as a result of FY 1989 budget cuts include off-site waste shipments, preventive maintenance, activities for ALARA improvements, safety and health, and emergency preparedness support. While no essential ES&H activities are stopped, there is an appearance of lack of commitment to meet RCRA, health and safety, and cleanup agreements. WMCO has identified a \$35M shortfall for FY 1990 in the environmental and waste management areas.

Tentative Finding(s)

Funding for FMPC may be insufficient in FY 1990/1991 to meet ES&H and waste management commitments or to efficiently manage these activities at FMPC.

Probable Root Cause(s)

Budget requests from FMPC in FY 1989 and expected in 1990 are reduced an average of 20% to 25% by the time appropriations are allocated to FMPC. Work to be accomplished at the reduced funding level must be determined by setting priorities -- a DOE responsibility. There may be insufficient funds to meet all the higher priority requirements.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 M&O Management 14

Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-13-89Building or Activity DOE Site PersonnelReference Data Discussion with FMPC Site Manager.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

ORO uses performance appraisals, plaques, and other awards available to them to boost morale and help with staff retention.

Discussion

The Site Manager states that he is more concerned about retaining current staff than replacing losses. With the cooperation of ORO, the site manager is using awards to help retention. The staff received performance ratings well above the ORO/DOE average. Where possible, plaques, ceremonies, and/or certificates also are being used to recognize excellent effort by personnel.

Tentative Finding(s)

N/A

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - Management - 15
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCO PersonnelReference Data Feed Materials Production Center Salaried Employees Handbook (WMCO) dated February 1989, Interview with Acting Manager Human Resources.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

Westinghouse has a fairly broad spectrum of awards and incentives to aid in staff retention and to encourage quality work.

Discussion

The Westinghouse corporate awards program includes the Gemstone Award for quality performance in five categories: wage, non-exempt professional, management, and teams. The Signature award is given for engineering and manufacturing professional excellence. Awards are given for each 5-years increment of service, and the 20+ award is given for those employees with 20 or more years of service. Incentive programs include educational assistance, membership in professional societies and the cost of attending appropriate meetings and family scholarships.

Tentative Finding(s)

N/A

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 31 - M&O - Management - 16
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-21-89Building or Activity DOE-HQ PersonnelReference Data Interview with Senior DOE Line Management at HQ 8/14/89.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

There are insufficient resources budgeted for FMPC ES&H and waste management activities to be completed on the currently planned schedule.

1	2	3	4	5
—	—	—	X	—

Strategic plan for FMPC (DOE-HQ level) does not exist and resources are not available to prepare a plan now while the future of FMPC is being decided. A training program for nonreactor nuclear production facility operator has been prepared, but resources to develop a detailed plan and budget justification are not available.

1	2	3	4	5
—	—	—	X	—

The grade classification for key DOE Site Office positions is too low to successfully recruit all the qualified ES&H-related skills needed at FMPC.

Discussion

The "GE" budget has been steadily reduced to compensate for the reduced production requirements. The slightly enriched uranium line for N Reactor feed is in cold standby. Part of the operations at FMPC will continue even after production stops to process on-site waste material. A decision has not been made whether to close the plant, if production is transferred to commercial sources, or to put it in cold standby.

There are insufficient funds each year in the "GE" line for both production and compliance activities. This has been true for several years. Attempts have been made to obtain contingency funds to cover the compliance items that eventually come up during the year after funds have been budgeted and allocated to FMPC. This has been turned down so the compliance items must be paid for from production funds or through reprogramming at ORO.

The DOE-HQ view is that FMPC or ORO have not asked for sufficient "GE" funds to adequately cover waste management or cleanup activities, including RI/FS work at FMPC. The (DOE-HQ) staff has added funds to the budget requested in the last three fiscal years (FY 1988, 1989, 1990).

The production retention and environment, safety, and health implementation (ES&HI) project and subprojects have been prioritized to delay those items not necessary for current or near-term operations. Compliance items are prioritized according to regulatory requirements and ALARA or best safety practices, with the latter only funded after production and regulatory items.

The decision on whether to close FMPC will be made only after commercial vendors have been fully qualified, a process just starting. The DOE-HQ staff recognizes this leaves the mission of the FMPC in doubt. They believe the emphasis on ES&HI and waste and the needed production to meet current and 2-year inventory needs should provide FMPC sufficient guidance to develop at least a 5-year strategic plan. The staff confirmed that no guidance has been given to the field organizations relative to the Secretary's 10-point plan, which calls for primary emphasis on ES&H compliance and cleanup.

The DOE-HQ staff has provided a training program for nonreactor nuclear production facilities similar to that for Savannah River reactor operator training now being developed. The manpower and resources to prepare a detailed training plan and budget justification are not available, so no immediate action is expected on this training proposal.

The DOE-HQ staff believes that the manpower and resources are not sufficient at DOE-HQ and at the DOE Site Office to carry out the Secretary's direction for oversight and ES&HI and waste management actions. They have proposed that the grade structure at FMPC be upgraded to that of an area office to allow the sufficiently high grades to attract the needed people with ES&H-related skills. They are aware of the FMPC vacancies in this area, and agree with FMPC that they will be difficult to fill. The increased grades may not solve the problem but may help.

The DOE-HQ staff acknowledges the need for a high-level strategic plan for FMPC, but that the resources are not available to prepare such a plan. They are working on the 5-year ES&H and waste management plan, the budget, and future mission-decision activities.

Tentative Finding(s)

Inadequate DOE resources exist at FMPC to effectively manage the ES&H program at FMPC.

Probable Root Cause(s)

The probable root causes seem to be the inadequate grade structures for recruitment and the inadequate resources for ES&H.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 32 - M&O - S&H Documents - 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity Admin.Reference Data Safety Policy, Strategic Goals, Site Policies and Procedures Manual, various topical manuals; e.g., Radiation Control Manual, Operational Procedures.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

WMCO safety and health program is well defined in site documents.

Discussion

In addition to the WMCO safety policy, strategic goals and objectives have been developed. Safety and health responsibilities for line managers are appropriately described in the various WMCO safety documents.

Tentative Finding(s)

The WMCO safety and health program is defined in a series of tiered documents. Appropriate implementation documents are in place.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 32 - M&O - Oversight - 02
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89

Building or Activity DOE/FMPC

Reference Data FMPC Contract, Listing of Safety Appraisals since January 1, 1986, discussions with DOE Site Manager.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

ORO Site Office does not perform adequate safety and health oversight of FMPC.

Discussion

As a result of not having the staff with appropriate safety and health backgrounds, ORO Site Office does not perform adequate oversight of FMPC.

Tentative Finding(s)

The ORO Site Office does not have sufficient staff to perform adequate oversight activities at FMPC.

Probable Root Cause(s)

Staff with appropriate safety and health backgrounds has been a recruiting difficulty.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 32 - M&O - Oversight - 03

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity DOE/FMPC

Reference Data Listing of ORO Safety Appraisals since January 1986, Discussions with DOE site management, FMPC Strategic Goals, Discussions with ORO Assistant Manager for Defense Programs.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

ORO audits and appraisals of FMPC are infrequent.

Discussion

In the past 3 years, ORO has conducted only nine discipline appraisals at FMPC. Two of the appraisals were the result of an EPA claim that an EPA employee received internal exposure while visiting the site. Some safety disciplines have been formal audited only one time in the past 3 years.

Tentative Finding(s)

The ORO audits and appraisals are too infrequent to be used as a reliable oversight tool to assess the adequacy of the FMPC safety and health program.

Probable Root Cause(s)

An aggressive appraisal program is lacking.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 32 - M&O - Oversight - 04
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-13-89Building or Activity DOE/FMPC

Reference Data Report of Corporate Westinghouse Nuclear Safety and Oversight Committee,
Corporate Westinghouse Triennial Review of FMPC conducted January 25-27, 1988.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential
 Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

Corporate Westinghouse established independent oversight committees to review corporate facilities.

Discussion

Corporate Westinghouse has established a Nuclear Safety and Oversight Committee to periodically review Westinghouse operations at corporate facilities. The committee conducted a review of FMPC on November 17-18, 1988.

Tentative Finding(s)

Corporate Westinghouse provides adequate oversight of the WMCO safety and health programs.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 32 - M&O - Oversight - 05
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCO

Reference Data Quality and Safety Department internal audit schedule, Site Policy and Procedure (FMPC-707), Document No. WMCO QAP-7.01, Procedure OSH-A-01-009, Standard Operating Procedure - Operations Safety and Health Internal Appraisal Program.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

Independent internal audits are conducted in accordance with DOE Order 5482.1B.

Discussion

WMCO has a well-defined safety and health oversight program in various site documents. Independent internal audits are performed by the Quality and Safety Department. Schedules have been developed by the audits. Intradepartmental audits also are conducted.

Tentative Finding(s)

WMCO has a well-defined safety and health oversight program.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 32 - M&O - Management - 06
Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89

Building or Activity WMCO

Reference Data Discussion with DOE/WMCO Management. List of safety audits 1986-1989.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Audit findings are not being prioritized.

Discussion

WMCO treats all audit findings as high priority, but has no management system in place that prioritizes and places management emphasis on those that most affect the safety and health program. Findings have resulted from corporate Westinghouse oversight activities, DOE-HQ audits, and TSAs, as well as ORO audits. The large number of findings resulting from these audits/appraisals require a management control system to ensure that they are adequately addressed.

Tentative Finding(s)

FMPC does not have a well-defined system to catalog and prioritize the many audit findings generated at the site.

Probable Root Cause(s)

Inadequate management attention is the cause of this finding.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 32 - M&O - ALARA - 07
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89

Building or Activity WMCO

Reference Data WMCO Radiation Control Manual (FMPC-2084), Production Operations 1989 ALARA Program, "Strategic Goals," Quality and Safety Department Monthly Report, discussions with FMPC Management.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

The as low as reasonably achievable (ALARA) program appears to be well defined.

Discussion

Corporate and WMCO documents adequately describe the ALARA program. Corporate Westinghouse has issued a corporate ALARA policy. Implementation documents flow down through line management. Exposure goals are established and ALARA status is reported monthly.

Tentative Finding(s)

The WMCO ALARA program appears to be well defined in site administrative documents.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 32 - M&O - ALARA - 08
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-13-89Building or Activity ALARAReference Data Production Operations 1989 ALARA Program, "Quality and Safety Department Monthly Report".**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

The as low as reasonably achievable (ALARA) program appears to be well implemented.

Discussion

ALARA goals are established, and tracking systems are in place for production operations. Operations Division has issued a program plan for 1989 that includes goals and methods by which the goals will be achieved. Status is reported monthly.

Tentative Finding(s)

The WMCO ALARA program appears to be implemented down to the lowest levels.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 32 - M&O - FSAR - 09
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-13-89

Building or Activity WMCO

Reference Data DOE Orders 5481.1B-5480.5, Site Policy and Procedure (FMPC-508) Discussions with FMPC Management.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

A schedule has been issued for the preparation of Final Safety Analysis Reports (FSARs); however, the rate of preparation is too slow for the process to be effective.

Discussion

WMCO has initiated preparation of draft FSARs, but does not plan to complete the process until 1993. DOE orders require the preparation of Safety Analysis Reports (SARs). Without SARs the safety risks of operating facilities may not be adequately evaluated.

Tentative Finding(s)

FSARs have not been prepared for major plant facilities.

Probable Root Cause(s)

Inadequate management attention and complacency due to historical operating experience are the causes of this finding.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 32 - M&O - OSRs - 10
 And. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCOReference Data DOE Orders 5481.1B - 5480.5, Site Policy and Procedure (FMPC-508), discussions with FMPC management.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Operational Safety Requirements (OSRs) are not being prepared.

Discussion

Although OSRs are required to be a part of the facility FSAR, WMCO does not plan to prepare OSRs prior to preparation of the FSAR. OSRs are required by DOE orders and should be prepared for existing facilities independent of the facility FSAR. Otherwise it is uncertain if the appropriate safety limits and administrative controls have been established for production facilities.

Tentative Finding(s)

WMCO is not preparing OSRs for major plant facilities and operations as required by DOE orders.

Probable Root Cause(s)

Inadequate management attention and complacency of management due to historical operating experience are the causes of this finding.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 32 - M&O - Guides - 11
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCOReference Data Regulatory Compliance Guides, Schedule for preparing Regulatory Compliance Guides, discussions with FMPC management.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Regulatory Compliance Guides provide useful guidance to WMCO managers and supervisors.

Discussion

In FY 1988, WMCO initiated development of a series of Regulatory Compliance Guides. However, due to insufficient resources, the guides are no longer being prepared.

Tentative Finding(s)

Development of Regulatory Compliance Guides has been stopped due to lack of resources.

Probable Root Cause(s)

Inadequate management attention and policy implementation are the causes of this finding.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 32 - M&O - Waste - 12
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-13-89

Building or Activity Waste

Reference Data Presentation by FMPC Site Manager, FMPC Waste Minimization Program, DOE Scrap Reclamation Program, Discussions with ORO/Site and FMPC management.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Schedule for removal of low-level waste is in jeopardy.

Discussion

Large volumes of DOE waste in various forms have been collecting at FMPC for many years. It is a repository for various types of waste, including thousands of drums of low-level waste, scrap metal, and thorium. Waste shipments by FY 1989 have been reduced due to a reduction in funding.

Tentative Finding(s)

WMCO is reducing the amount of waste planned to be shipped in FY 1989.

Probable Root Cause(s)

The lack of funds to dispose of this waste is the root cause of this finding.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 32 - M&O - Config. - 13

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCO

Reference Data FMPC Site Policy and Procedure (FMPC-512), Quality and Safety Department schedule for completing FSARs, discussions with FMPC management.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

Safety systems for major facilities are not under configuration control.

Discussion

WMCO has adequate procedures in place to define the configuration control process. WMCO utilizes the Final Safety Analysis Report (FSAR) process to establish a baseline for systems. Once a baseline is established, the system is placed under configuration control. Since WMCO has been slow in preparing FSARs, safety systems have not been adequately addressed. Insufficient resources are available to prepare the FSARs; therefore, safety systems are not under configuration control.

Tentative Finding(s)

Major facilities at FMPC have not been baselined; therefore, their safety systems are not under configuration control.

Probable Root Cause(s)

Insufficient management attention to preparation of FSARs and management complacency because of historical operating experience have caused the FMPC facilities to not be baselined.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 33 - M&O - QA - 01
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCOReference Data WMCO Site Policy and Procedures Manual FMPC-2054 6/30/89, FMPC Quality Assurance Plan, FMPC-2139, 5/31/88.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

Procedure FMPC-710 requires FMPC to operate with QA programs that satisfy DOE orders and ANSI/ASME NQA1.

1	2	3	4	5
—	—	—	—	X

A QA plan for sitewide application exists and is responsive to all 18 criteria.

1	2	3	4	5
—	—	—	X	—

The QA plan was not updated to reflect WMCO reorganization.

1	2	3	4	5
—	—	—	X	—

Charters for new organization not included in SPPM.

Discussion

The documentation for the sitewide program is of high quality in terms of its thoroughness and completeness. The program is flexible for application by individual departments. The QA plan reviewed (Control Copy #86) had not been updated to reflect the WMCO reorganization of April 1989. While this does not negate the superior plan that has been prepared, this observation does show a lack of follow-through at the implementation level.

Tentative Finding(s)

Top level QA documentation is in place and of high quality in its content.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 33 - M&O - QA - 02
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCOReference Data Personal Interview with Vice President Level of WMCO.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

Department managers express support of QA/QC activities.

Discussion

The line managers accept responsibility for quality and feel it is their responsibility to implement quality. Several of the managers seemed quite familiar with the processes whereby they achieve quality in their respective organizations. Others expressed some uncertainty due to the newness of their positions. There was no confusion regarding their line responsibility for quality.

Tentative Finding(s)

Top-level management supports top-level QA program.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 33 - M&O - QA - 03

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCO

Reference Data Technical Safety Appraisal of the FMPC WMCO, DOE/EH-0092, June 1989, Data sheets from Environment and Health and Safety Subteams.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Many QA procedure noncompliances exist at the implementation level.

Discussion

There are numerous examples in the reference data above where QA procedures and procedures in general are not being followed or have not been generated for ongoing processes in the facility. This lack of follow-through on detailed processes is diluting the achievement of quality in the work place.

Tentative Finding(s)

Considerable improvement is required in the preparation and approval of procedures and in the assurance that procedures are followed once prepared.

Probable Root Cause(s)

Middle and top management are not implementing their policy on QA. There is a tolerance for poor performance against procedures.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 33 - M&O - Orders - 04

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCO

Reference Data FMPC Site Policies & Procedures Manual FMPC 2054, 6/30/89. FMPC-605; Data Sheet Ref I.D. 25-03; 25-05 WMCO Management personal communications 8/8/89.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

WMCO has a good internal procedure for identifying and determining applicability of all incoming orders.

Discussion

WMCO has a fully developed system for identifying DOE orders that are applicable to the FMPC. There is an automated mailing system that provides copies to WMCO. At WMCO, the directives administrator is responsible for identifying a cognizant staff member; then, a commitment form is generated with a 30-day time frame for action and the action is defined by the cognizant staff member. WMCO is considering adding these actions to their commitment control process, which would close the process on order implementation.

Tentative Finding(s)

WMCO process for identifying applicable orders is a well-developed and mature process adequate for order implementation. However, there is little to no involvement by the Site Office or ORO in the review of applicable orders, specific guidance on implementation, and review of application.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 33 - M&O - Orders - 05
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity DOE/ORO Site OfficeReference Data 1988/89 Files 1320 and 1321, DOE Site Office, personal communication; Memo, Wilkens ORO to Dist B., Subj. Preliminary Drafts of the DOE orders.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	—	X

Site Office participates in review of draft orders, generates letters to Contractor, gives comments to ORO.

1	2	3	4	5
—	—	—	X	—

Site Office has little participation in transmittal of DOE orders.

1	2	3	4	5
—	—	—	X	—

Resolution of funding questions for implementation of order does not appear to be settled directly.

1	2	3	4	5
—	—	—	—	X

ORO has centralized its system for commenting on draft orders.

Discussion

There is a fully functional system for commenting on draft orders. The system is centralized and integrated at ORO. The Site Office is involved in securing WMCO comments and provides FMPC comments to ORO. There is usually a cost analysis provided by WMCO or some indication of exception that should be taken to draft and final orders. There is not much evidence in the file of similar involvement by DOE line management with final orders. (The exception being DOE Order 5400.1.)

Tentative Finding(s)

Treatment of draft DOE orders is well done at ORO and WMCO organizations; management process on final order does not show closure. There seems to be some lack of documented agreement on application, exemptions, and cost for final orders.

Probable Root Cause(s)

Historically, order implementation has been the responsibility of the GOCO contractor with little need for prioritization by DOE. With changes in resources and mission, more management attention is required to sort out what can and should be done regarding orders, and to document the agreements.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 33 - M&O - Orders - 06
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89

Building or Activity WMCO/DOE

Reference Data WMCO/DOE contract (DE-AC05-86OR21600) Statement of Work p. 7.C.001a; COTR letter, R. Lynch to J. Reafsnyder 10/29/85, letter, Pegg to Clawson, 10/20/86 (WMCO:QS:86:104).

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	—	X	—

DOE orders require compliance only if transmitted by contracting office in WMCO contract.

1	2	3	4	5
—	—	—	—	X

Commitment system within WMCO to track order compliance is being revamped.

Discussion

The contract specifies that orders need to be provided by the Contracting Officer. The Contracting Officer Technical Representative (COTR) letter to Reafsnyder does not seem to give this authority; therefore, order application would seem to be only on a best judgment basis by WMCO. WMCO's internal attitude is that orders are applicable and they have a good internal system to ensure assignment of orders to appropriate positions. Also, WMCO is taking steps to improve the tracking of commitment of action regarding the orders. They will include specific commitments on their orders in the WMCO commitment system.

Tentative Finding(s)

The directives system seems to be functioning reasonably well with minor improvements being recognized as needed and being made.

Probable Root Cause(s)

N/A

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 34 - M&O - Compliance - 01

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity DOE/WMCO

Reference Data Feb. 23, 1989 U.S. EPA Findings of Violation, EPA - 5-89-A-31, Aug. 10, 1988 letter J. Reafsnyder to U.S. EPA submitting applications; A. Schwartzman (WMCO) letter to J. Reafsnyder (Feb. 24, 1989); Interviews with Site Office and WMCO staff and management.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

EPA has issued DOE a Notice of Violation (NOV) for failure to file timely applications for approval to modify an existing source subject to a NESHAP.

Discussion

On August 10, 1988, DOE filed an application with EPA for a determination on whether certain equipment installed at FMPC constituted a "modification" under EPA regulations. At that time, DOE requested that, if EPA determined them to be modifications, the applications should then be considered applications to modify. On December 23, 1988, EPA denied approval of these applications. Based on subsequent letters from J. Reafsnyder to B. Boswell, WMCO suspended operation of the equipment in question. Thereafter, on February 23, 1989, EPA issued DOE the aforementioned NOV. It should be noted that DOE has never accepted EPA's interpretation that this constitutes a "modification". The FFCA currently being negotiated is expected to resolve this issue, settle the NOV, and address related issues.

Tentative Finding(s)

EPA has issued DOE an NOV for failure to file timely applications for approval to modify an existing source subject to a NESHAP.

Probable Root Cause(s)

There is a long-standing disagreement with EPA Region V over it's interpretation on what constitutes a "modification."

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 34 - M&O - Compliance - 02

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89

Building or Activity Site Office/ORO/WMCO

Reference Data Interviews with Site Manager, ORO Management and Legal office, WMCO management and staff.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

The Site Manager's recent reluctance to sign permit applications may lead to future noncompliance situations.

Discussion

Applications for permits are prepared by WMCO and reviewed by a contractor, Lee Wan, and Site Office staff. In some instances, ORO also is asked to review. In the past, the Site Manager has signed all permit applications and transmitted them to the appropriate regulatory authority. In interviewing the Site Manager, however, he indicated that in light of the potential for legal liability, he is hesitant to continue to sign permits that may expose him to additional liability. He has discussed this matter with ORO, although there has been no resolution. This matter needs to be addressed in the near future so as to avoid a noncompliance situation.

Tentative Finding(s)

The Site Manager's recent reluctance to sign permit applications may lead to future noncompliance situations.

Probable Root Cause(s)

In part, this concern is the result of the lack of any formal guidance by DOE on the legal liability of managers under existing environmental laws.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 34 - M&O - Compliance - 03
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89

Building or Activity DOE/WMCO

Reference Data Jan. 6, 1989 W. Muno (EPA) letter to J. Reafsnyder (site Manager); Oct. 27, 1988 W. Muno letter to J. LaGrone (ORO); Jan. 31, 1989 Catherine McCord (EPA) to J. Reafsnyder; B. Constantelos (EPA) Jan. 19, 1989 letter to J. Reafsnyder; Interviews with U.S. EPA staff and site office/WMCO staff and management.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	X	—	—	—

DOE has experienced problems in fully implementing the terms of the 1986 FFCA.

Discussion

In the above-referenced letters, EPA has advised DOE that it is not complying with the terms of the 1986 FFCA. In particular, these letters address violations of the CERCLA provisions of the agreement (e.g., Community Relations requirements, access to off-site wells, etc). To some degree, the overall problem can be attributed to differing interpretations as to the FFCA requirements. Moreover, EPA delays in providing comments or approvals on DOE submissions can only contribute to further delays in compliance.

Tentative Finding(s)

DOE has not fully complied with the terms of the FFCA.

Probable Root Cause(s)

Inadequate planning that began when FFCA schedule was first established is a probable cause. A failure to come to closure has occurred with EPA on outstanding issues.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 34 - M&O - Compliance - 04

Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity WMCO/DOE

Reference Data Aug. 31, 1988 letter J. Reafsnyder to Ohio EPA; March 29, 1988; Feb. 5, 1988, May 8, 1988 letters, J. Reafsnyder to U.S. EPA; Interviews with Ohio EPA, Site office & WMCO staff and management.

Observation(s)**Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

Although DOE responds in a timely manner to Notices/Findings of Violations, these responses are sometimes incomplete and may result in future similar violations.

Discussion

As indicated by the above-referenced letters from DOE to Ohio EPA and EPA, DOE generally responds in a timely manner to notices/findings of violations. In interviews with the regulators and after reviewing the responses, it seems clear that for certain violations (e.g., training) the response incorrectly states that DOE is now in compliance, when in fact DOE has only developed or initiated a program to come into compliance. In several instances, this failure to completely disclose has resulted in additional violation notices for identical problems.

Tentative Finding(s)

DOE's response to Notices of Violations are timely, but not complete.

Probable Root Cause(s)

There is a failure to understand regulator's concerns.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 34 - M&O - Compliance - 05
 Aud. ID Number Team (Env., Subject (Rad Prot, Fire Seq. Data Sheet No.
 S&H, M&O) Prot, RCRA, CAA, etc.)

Date 8-13-89

Building or Activity DOE/WMCO

Reference Data July 14, 1989, FMPC (DOE) Source Report Air Permit Status; J. Reafsnyder (DOE) March 30, 1989 letter to B. Boswell (WMCO); B. Boswell March 16, 1989 letter to J. Reafsnyder; Interviews with site office and WMCO staff and management and ORO counsel.

Observation(s)

Category

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

DOE has operated equipment after CAA permits have expired.

Discussion

In numerous instances although DOE has filed for renewal of CAA permits with Ohio EPA, DOE has continued to operate the units pending approval after the expiration date. In many instances, DOE has filed for renewal just prior to the expiration date, although the existing permits provide for filing within 60 days of expiration. In light of the limited resources and numerous filings, the approval typically takes 5-10 months. DOE has met with the regulators to discuss this matter and to prioritize its filings. Nevertheless, DOE has never received authority to continue to operate pending approval. DOE now is attempting to ensure more timely filings.

Tentative Finding(s)

DOE has operated equipment after CAA permits have expired.

Probable Root Cause(s)

Management of CAA permit filing has been inadequate. Also, there is a failure to resolve the issue with the regulator.

Environment, Safety, and Health Assessment Data Sheet

Identification Code: 34 - M&O - Compliance - 06
 Aud. ID Number Team (Env., S&H, M&O) Subject (Rad Prot, Fire Prot, RCRA, CAA, etc.) Seq. Data Sheet No.

Date 8-13-89Building or Activity Site Office/WMCO/OROReference Data U.S. EPA Administrative Complaint, RCRA Docket No. V-W.89-R-11; interviews with WMCO management, site office management and ORO management and Legal office.**Observation(s)****Category**

1=Potential Near-Term Significant Impacts 2=Potential Agreement NonComp 3=Potential Reg/DOE NonComp 4=Potential BMP NonComp 5=Noteworthy Compliance or Practice

1	2	3	4	5
—	—	X	—	—

WMCO has been cited for RCRA violations for failure to sign permit applications as "operator" of the facility.

Discussion

RCRA requires that operators must sign permit applications. On Feb. 13, 1989, EPA issued WMCO an Administrative Complaint, Finding of Violation and Compliance Order. Among other matters, EPA determined that WMCO is the operator of the facility and, as such, is required to sign RCRA applications. In the past, ORO has not required the M&O contractor to sign applications. ORO and HQ have been discussing this, although there has been no resolution to date. EPA's position is clear, however. Unless DOE and WMCO can come to some agreement with EPA, WMCO will be faced with the same finding of violation and penalty in the future.

Tentative Finding(s)

EPA has interpreted RCRA as requiring WMCO to sign permit applications as "operator" of FMPC.

Probable Root Cause(s)

There is no DOE-wide policy on this issue.