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**ENVIRONMENTAL COMPLIANCE
ASSESSMENT FINDINGS**

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**FOR
WELDON SPRING SITE
REMEDIAL ACTION PROGRAM**

Prepared for
**UNITED STATES DEPARTMENT OF ENERGY
WELDON SPRING SITE**

Prepared
by

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LIST OF ACRONYMS

Acronym	Definition
AEC	Atomic Energy Commission
ARAR	Applicable or Relevant and Appropriate Requirement
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CSR	Code of State Regulations
CWA	Clean Water Act
CY	Calendar Year
DA	Department of the Army
DNR	Missouri Division of Natural Resources
DNT	Dinitrotoluene
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
EP	Extraction Procedure
FR	<i>Federal Register</i>
FUSPAP	Formerly Utilized Sites Remedial Action Program
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
PCBs	Polychlorinated biphenyls
PPM	Part per million
RCRA	Resource Conservation and Recovery Act of 1976
SARA	Superfund Amendments and Reauthorization Act of 1986
SHARP	Safety, Health, and Radiation Protection
SPCC	Spill Prevention, Control, and Countermeasures
TBP	Tributyl phosphate
TCLP	Toxicity Characteristic Leaching Procedure
TSCA	Toxic Substance Control Act
TSDF	Treatment, storage, and disposal facility
TNT	Trinitrotoluene
UST	Underground Storage Tanks
WSCP	Weldon Spring Chemical Plant
WSOW	Weldon Spring Ordnance Works
WSQ	Weldon Spring Quarry
WSRP	Weldon Spring Raffinate Pits
WSS	Weldon Spring Site
WSSRAP	Weldon Spring Site Remedial Action Program
WSUFMP	Weldon Spring Uranium Feed Materials Plant

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SECTION 1

EXECUTIVE SUMMARY

1.1 BACKGROUND

This report presents the results of an environmental assessment conducted at Weldon Spring Site Remedial Action Project (WSSRAP) in St. Charles County, Missouri, in accordance with the Formerly Utilized Sites Remedial Action Program (FUSRAP) Environmental Compliance Assessment Checklists. The purpose of this assessment was to evaluate the compliance of the site with applicable federal and Missouri environmental regulations. Assessment activities included the following:

- review of site records, reports, and files;
- inspection of the WSSRAP storage building, other selected buildings, and the adjacent grounds; and
- interviews with project personnel.

This assessment was conducted on August 28-30, 1989 by Dr. Kaye Sigmon and Ms. Beth Levine of the Department of Energy's Oak Ridge National Laboratory and Ms. Jaime Wright of Bechtel National, Inc., Oak Ridge. The assessment covered five management areas as set forth in the Checklist: (1) Hazardous Waste Management, (2) Polychlorinated Biphenyls (PCBs) Management; (3) Air Emissions; (4) Wastewater Discharges; and (5) Petroleum Management. No samples were collected. The report reflects conditions existing at the time of the site visit and may not include all deficiencies existing at the site. It may not include all potential deficiencies at the site. As stated in EPA's Environmental Auditing Policy [51 *Federal Register* (FR) 25004], "Environmental audits are only part of a successful environmental management program and thus should not be expected to cover every environmental issue or solve all problems."

1.2 SUMMARY OF FINDINGS

Most of the deficiencies with regard to the regulations addressed by the Environmental Compliance Assessment Checklists were administrative. PCB management was the primary area out of compliance with applicable regulations (see Section 3.1.2). The only significant finding was the potential for off-site release of PCBs in the event of the failure of tanks located near the Ash Pond.

Table 1 and the following descriptions summarize the findings for each of the five management areas (see Section 3 for detailed discussions). Deficiencies can be identified as significant, major, or minor. A significant deficiency is one that poses or is likely to pose a

direct and immediate threat to human health and safety or to the environment. It requires immediate action. Certain administrative deficiencies are also categorized as significant (e.g., failure to ensure that hazardous waste is going to a permitted facility, failure to report when required, and failure to meet a compliance schedule). A major deficiency may pose a future threat to human health and safety or the environment and can result in a notice of violation from a regulatory agency. It requires action, but not necessarily immediately. Minor deficiencies are mostly administrative and/or related to housekeeping requirements (e.g., lack of signs or labels or faulty record keeping). They may also result in temporary or occasional instances of noncompliance.

- HAZARDOUS WASTE - One major deficiency was noted with respect to hazardous waste management: incompatible wastes (corrosive acids and bases) were stored in the same area and were not separated by a wall, berm, or other device. Six minor deficiencies were also noted.
- PCB MANAGEMENT - One significant finding related to the potential for off-site discharge of PCBs, three major findings associated with storage and reporting, and four minor administrative findings were identified.
- AIR EMISSIONS - One minor deficiency was noted for air emissions, all relating to compliance with radionuclide NESHAPs.
- WATER DISCHARGES - No deficiencies were noted for water discharges.
- PETROLEUM MANAGEMENT - No deficiencies were noted for petroleum management.

TABLE 1.
ENVIRONMENTAL COMPLIANCE SUMMARY

COMPLIANCE AREA	DEFICIENCIES		
	SIGNIFICANT	MAJOR	MINOR
<u>HAZARDOUS WASTE MGMT</u>	<u>0</u>	<u>1</u>	<u>6</u>
Generator	0	0	0
TSD Facilities	0	1	6
<u>PCB MANAGEMENT</u>	<u>1</u>	<u>3</u>	<u>4</u>
Storage	1	2	0
Labeling	0	0	2
Reporting	0	1	1
Inspection	0	0	1
<u>AIR EMISSIONS</u>	<u>0</u>	<u>0</u>	<u>1</u>
Asbestos	0	0	
Radionuclides	0	0	1
<u>WATER DISCHARGES</u>	0	0	0
<u>PETROLEUM MANAGEMENT</u>	0	0	0
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SECTION 2

BACKGROUND AND SCOPE

2.1 BACKGROUND

The Weldon Spring Site (WSS) is a part of the Department of Energy (DOE) Surplus Facilities Management Program and is one of the two remedial action programs directed by the DOE Division of Facility and Site Decommissioning projects. The WSS includes the Weldon Spring Raffinate Pits (WSRP), the Weldon Spring Chemical Plant (WSCP), and the Weldon Spring Quarry (WSQ). The WSCP and the WSQ are currently on the National Priorities List (NPL) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The U.S. Environmental Protection Agency (EPA) has also proposed placing the Weldon Spring Former Army Ordnance Works on the NPL (54 FR 29820).

Remediation and decontamination activities at WSS come under the purview of both federal and state environmental regulations. Under Executive Order 12088 (43 FR 47707, October 13, 1973), "Federal Compliance with Pollution Control Standards," DOE facilities must comply with all applicable federal, state, and local pollution regulations. To verify compliance with such regulations, this environmental compliance assessment was conducted according to the Formerly Utilized Sites Remedial Action Program (FUSRAP) Environmental Compliance Checklist. The listing of parts of the WSS on the NPL, however, conditions the way in which these environmental regulations apply. Under § 121(e) of the reauthorization of CERCLA in the Superfund Amendments and Authorization Act (SARA) of 1986, NPL sites do not require federal, state, or local permits for the portion of removal or remedial actions conducted entirely on-site and in compliance with § 121; thus NPL sites are exempted from the administrative but not from the substantive requirements promulgated under federal environmental statutes. In addition, "any standard, requirement, criteria, or limitation under any Federal environmental law" that is deemed to be an Applicable or Relevant and Appropriate Requirement (ARAR) can determine the level of cleanup required at a NPL site [CERCLA § 121(d)]. Requirements under federal and state laws are, therefore, factored into the remedial process as ARARs.

2.1.1 Objectives

The purpose of this environmental compliance assessment is to verify compliance with those regulations whose attendant liabilities are typically the focus of operating sites rather than remedial action sites such as WSSRAP. These regulations tend to receive less attention at remedial sites than does CERCLA, which is the primary regulatory driver for remedial activities. Compliance of WSSRAP was assessed relative to appropriate sections of federal and Missouri regulations associated with the following statutes:

- the Resource Conservation and Recovery Act (RCRA), Hazardous Waste Management and Petroleum Management;
- the Toxic Substances Control Act (TSCA), PCB Management;
- the Clean Air Act (CAA), Air Emissions; and
- the Clean Water Act (CWA), Water Discharges and Petroleum Management.

The assessment program also addressed those sections of final DOE Orders that are associated with these statutes.

The compliance assessment does not encompass CERCLA, compliance with which is monitored by DOE Headquarters through the Office of the Assistant Secretary for Environment, Safety, and Health and by the U.S. DOE Oak Ridge Operations Office. Similarly because radioactive wastes are addressed under CERCLA, this assessment program excludes the management and disposal of radioactive waste, unless that radioactive waste is mixed with a hazardous waste as defined by RCRA. The assessment of compliance with CERCLA is driven by site-specific conditions and agreements. A compliance assessment program for CERCLA could be developed and applied to the WSSRAP site in the future, if deemed to be useful.

2.1.2 Site Description and History (MK-Ferguson and Jacobs Engineering Group 1987)

The WSS is located in St. Charles County, Missouri, approximately 49 km (30 miles) west of St. Louis (Figure 1). The WSS includes the WSRP, the WSCP, and the WSQ, which respectively encompass 21.1, 68.4, and 3.6 hectares (52, 169, and 9 acres). The WSRP and WSCP properties are contiguous, while the WSQ is approximately 6.4 km (4 miles) to the south-southwest.

The WSRP and WSCP are located on the Missouri-Mississippi River surface-drainage divide. The terrain is gently sloping northward to the Mississippi River. The site is underlain by fractured bedrock, which is overlain by low permeability clays ranging from one to nine meters (3 to 30 feet) in depth. Most surface drainage from the WSRP discharges either through an intermittent stream in the Army Reserve Training Area to the west or into the Ash Pond on the WSCP property (Figure 2). The stream and Ash Pond discharges combine and flow northward into Schote Creek to Dardeune Creek and ultimately into the Mississippi River. Surface waters also drain from the Frog Pond, which receives most of the storm-water flow from the WSCP. Drainage of the southern portion of the WSCP flows southeast to the Missouri River. The drainage originates from leakage and storm-water runoff from the sanitary sewer system, which is no longer in service, and from surface flow from precipitation. Groundwater near the WSRP and WSCP occurs in perched lenses and in the underlying bedrock.

Up to 30 feet of silty clay soil and bedrock underlie the WSQ, which is on the northern bluff of the Missouri River valley. Drainage flows through the Femme Osage Creek and the Little Femme Osage Creek to the Missouri River, which is approximately 1.6 km (1 mile) to the east. Groundwater near the WSQ occurs both in bedrock and alluvium. The limestone bedrock contains complex fractures and solution channels. The Missouri River and pumpage from the St. Charles County well field influence its flow.

The climate in the area is continental with moderately cold winters and warm summers. Typical annual precipitation is approximately 85 centimeters (39 inches), and the average temperature is 13 C (56 F).

The 6,977 hectares (17,232 acres) addressed by the WSSRAP, which includes the August A. Busch Memorial Wildlife Area and lands transferred to the state, was originally acquired by the Department of the Army (DA) in April 1941. From 1941 through January 1944, Atlas Powder Company operated a trinitrotoluene (TNT) and dinitrotoluene (DNT) production facility, the Weldon Spring Ordnance Works (WSOW). The WSOW was designated as surplus in 1946, and, by 1949, all but 2,000 acres were transferred to the State of Missouri (August A. Busch Memorial Wildlife Area) and the University of Missouri (agricultural land). Except for small parcels transferred to St. Charles County, the remainder of the site became the Weldon

FIGURE 2

Spring U.S. Army Reserve and National Guard Training Area.

In May 1955, 205 acres of the former WSOW were transferred to the Atomic Energy Commission (AEC) for the construction and operation of the Weldon Spring Uranium Feed Materials Plant (WSUFMP), which included 13 major and 30 smaller buildings. In 1958, the AEC also acquired title to the WSQ, which had been used previously by the DA for disposal of TNT-contaminated rubble. The AEC used the WSQ for disposal of a small amount of thorium residue, but most of the material disposed of was uranium- and radium-contaminated building rubble and soils from the demolition of a uranium ore processing facility in St. Louis.

Until 1966, the WSUFMP operated a process that converted uranium ore concentrates to pure uranium trioxide, intermediate compounds, and uranium metal. A small amount of thorium was also processed. Wastes were stored in the four raffinate pits in the WSRP area. The site was returned to the DA in 1967 for use as a defoliant production plant to be known as the Weldon Spring Chemical Plant. In 1968, the DA began removing equipment and contaminated building materials at the site, which were disposed of in the WSQ and Pit 4. The defoliant project was cancelled before converting the facility to herbicide production, and the DA retained responsibility for the WSCP. The raffinate pits, however, were transferred back to AEC, which also retained control of the WSQ. The facilities were maintained in caretaker status until 1986.

In November 1984, the Office of Management and Budget directed DOE (successor to AEC) to assume responsibility for the WSCP from the DA. This transfer occurred on October 1, 1985. The WSRP, WSCP, and WSQ were designated as a major DOE decontamination project through DOE Order 4240.1E dated May 14, 1985. A DOE project office was established on the site in July 1986 and initiated environmental monitoring and characterization, thus moving the site beyond mere caretaker status.

2.1.3 Management Structure

The DOE WSSRAP Office manages WSSRAP with policy guidance from the DOE Office of Remedial Action and Waste Technology, Division of Facility and Site Decommissioning. MK-Ferguson is the Project Management Contractor and the Jacobs Engineering Group provides project support.

2.2 ACTIVITY REVIEW

Dr. Kaye Sigmon and Ms. Beth Levine of the Oak Ridge National Laboratory and Ms. Jaime Wright of Bechtel National Inc., Oak Ridge, conducted the compliance assessment of WSSRAP on August 28-30, 1989. The assessment included the following activities:

- review of records, reports, and files;
- inspection of the WSCP, WSRP, WSQ and adjacent grounds; and
- interviews with on-site personnel.

No samples were collected.

2.2.1 Hazardous Waste Management

WSCP generated hazardous waste when it consolidated laboratory chemicals and other stored materials and stored the filled containers on-site. WSCP also generated hazardous waste during site remediation. The principal RCRA hazardous wastes generated at WSCP to date are as follows:

- D001 - a solid waste that exhibits the characteristic of ignitability as outlined in 40 *Code of Federal Regulations* (CFR) 261.21;
- D002 - a solid waste that exhibits the characteristic of corrosivity as outlined in 40 CFR 261.22;
- D007 - a solid waste that is Extraction-Procedure (EP) toxic for chromium; and
- D016 - a solid waste that is EP toxic for 2,4-dichlorophenoxyacetic acid.

The Resource Conservation and Recovery Act (42 USC §§ 6901 to 6991i) is the principal federal statute governing the management of hazardous waste. EPA's regulations implementing RCRA are outlined in 40 CFR Parts 260 through 271. As an authorized state, Missouri has adopted the EPA regulations and added a few more stringent requirements. Missouri hazardous waste regulations are contained in Division 25 of Title 10 of the Missouri Code of State Regulations (CSR).

The assessment of hazardous waste management at WSSRAP was based on:

- interviews with site personnel;
- a review of documents related to hazardous waste management, specifically the 1988 Generator Quarterly Reports, the WSSRAP Safety and Health Manual, the Spill

Prevention, Control, and Countermeasures Plan (SPCC), the Emergency Prevention and Procedures plan, the Building 406 inspection records, personnel training records, Specification Number 3589-056, and the Closure Plan; and

- physical inspection of the site, particularly Building 406.

2.2.2 PCB Management

PCB management at operating facilities involves monitoring of in-service equipment; storage and disposal of equipment removed from service; and recordkeeping and reporting. For DOE operating and remedial action sites such as WSSRAP, identifying PCE-containing materials and determining the presence of radioactive contaminants are additional important aspects of PCB management. Identification of PCB-containing materials that could be shipped off-site for treatment and disposal was initiated in 1987. Forty-four transformers thus identified were removed and disposed of in 1988. Union Electric owns the transformers remaining in service (i.e., those near the water tower, the tributyl phosphate (TBP) tanks, and the project office building). Radioactively contaminated, PCB-containing oils and soils are in storage on-site in Building 406; and radioactively contaminated, PCB-containing TBP remains in tank storage. PCB Large Capacitors that have been removed from service are stored in Buildings 301, 408, and 435, which respectively house 24, 7, and 2 Large Capacitors. The capacitors that we examined contained Aerobox (a trade-name for a PCB oil), and are low voltage capacitors. All capacitors were not examined.

PCBs are covered by the federal TSCA (15 USC §§ 2601 to 2654). EPA regulations regarding the production, use, storage, handling, and disposal of PCBs are codified in 40 CFR Part 761. Although PCBs are not regulated as hazardous waste under Missouri rules, Chapter 13 of 10 CSR specifies state requirements for PCBs.

PCB management at WSS was evaluated using the following assessment activities:

- interviewing project personnel;
- reviewing records including the draft annual report, manifests, and sampling plan; and
- inspecting transformers and capacitors and the areas in which they are used or stored.

2.2.3 Air Emissions

No point sources requiring air emissions permits are present at WSSRAP. Electricity is used to heat the office building, which is the only operating building at the site. Asbestos, which is regulated under the National Emission Standards for Hazardous Air Pollutants (NESHAPs) under the CAA, is present in buildings such as 406 and 408. It is subject to the NESHAPs requirement for no visible emissions, and will be subject to the NESHAPs requirements for demolitions. Asbestos abatement is ongoing at the WSCP and has already occurred at Building 401 and 409. No asbestos removals, however, were being conducted during the site visit. The entrances to the buildings are marked to warn of the presence of asbestos.

Radionuclides governed under NESHAPs could be emitted from contaminated buildings, Pad 303, the pipe scrap pile behind Building 101, the WSQ, and from on-site soil and debris. Radon gas, external gamma radiation, and air particulates are monitored at the perimeter fence of the WSCP/WSRP and the WSQ as well as several off-site locations (e.g., the Francis Howell High School, August A. Busch Wildlife Area, and the U.S. Army Reserve Training area). As presented in the Annual Environmental Monitoring Report (MK-Ferguson and Jacobs Engineering Group 1987), radon gas and gamma radiation exposures were at or below background levels, and the net alpha activity from air particulates was not statistically different from background levels.

The primary federal legislation governing air emissions is the Clean Air Act (42 USC §§ 7401 through 7642), as amended. Federal regulations governing air pollution are contained in 40 CFR Parts 50 through 87 and in Missouri CSR, Title 10, Department of Natural Resources (DNR), Division 10, Air Conservation Commission, Chapters 1 through 5.

The environmental compliance assessment for air emissions included:

- interviews with Environment, Safety, and Health personnel;
- review of the 1987 Annual Environmental Monitoring Report; and
- an inspection of Pad 303 and the scrap pipe pile.

2.2.4 Wastewater Discharges

WSCP received a National Pollutant Discharge Elimination System (NPDES) permit from the Missouri DNR on November 4, 1988 (Permit Number MO-0107701). The permit is

effective through July 28, 1993. The permit identifies six outfalls: (1) an outfall to an unnamed tributary of the Missouri River; (2) four outfalls to unnamed tributaries of Schote Creel; and (3) an outfall to Wet Weather Tributary. The first five outfalls must be monitored either monthly or quarterly (depending on the outfall), but the permit imposes no effluent limitations. Site personnel from MK-Ferguson collect the samples, which are analyzed for different parameters by MK-Ferguson personnel and the contractor MetaTrace. The Wet Weather Tributary outfall is associated with a small wastewater treatment facility that handles discharges from the administration building. Samples of this outfall are taken and analyzed by Mid-Missouri Engineers, Inc. The permit imposes effluent limitations for this outfall.

Wastewater discharges are regulated under the federal CWA, as amended (33 USC §§ 1251 to 1387) and its associated EPA regulations (40 CFR Parts 122, 136, 403, and 405-471). The Missouri water pollution regulations are presented in Division 20 of Title 10 of the Missouri CSR.

The assessment of water discharges involved interviews with the Environmental Project Manager and an Environmental Technician within the Environmental Safety and Health Department and review of the NPDES permit and monthly NPDES monitoring reports.

2.2.5 Petroleum Management

WSSRAP has two underground storage tanks (USTs) near Building 436 that were taken out of service when the WSCP ceased operation. In addition, aboveground tanks containing kerosene, diesel, and/or unleaded gasoline for current use are located near Building 301 and between Building 408 and 410.

Environmental aspects of petroleum management are regulated at the federal level principally by Section 311 (j)(i)(c) of the Federal Water Pollution Control Act and 40 CFR Parts 110, 112, 280, 300, and 302. The Missouri DNR is the implementing agency for regulations under 40 CFR Part 280. The USTs were taken out of service prior to promulgation of these regulations.

The assessment of petroleum storage was based on a site tour, interviews with project personnel, and review of the "Construction Safety and Health Management Program" plan dated 17 April 1987.

SECTION 3

ENVIRONMENTAL COMPLIANCE STATUS

3.1 FINDINGS

This section describes the affirmative findings and deficiencies noted in each of the five management areas. Applicable regulatory citations are included for the deficiencies. Deficiencies can be classified as significant, major, or minor. A significant deficiency is one that poses or is likely to pose a direct and immediate threat to human health and safety or to the environment. It requires immediate action. Certain administrative deficiencies are also categorized as significant (e.g., failure to ensure that hazardous waste is going to a permitted facility, failure to report when required, and failure to meet a compliance schedule). A major deficiency may pose a future threat to human health and safety or the environment and can result in a notice of violation from a regulatory agency. It requires action, but not necessarily immediately. Minor deficiencies are mostly administrative and/or related to housekeeping requirements (e.g., lack of signs or labels or faulty record keeping). They may also result in temporary or occasional instances of noncompliance.

In general, WSSRAP's greatest asset is its personnel, who have expended considerable effort to identify and mitigate hazards at the site while working within the constraints of an aging physical facility.

3.1.1 Hazardous Waste

Affirmative Findings

Personnel provided all relevant information and timely responses to questions. Although not required, non-hazardous waste labels are used. In addition, locations and general descriptions of the contents of the drums are noted on engineering drawings for Building 406, which is an effective and innovative approach to recording such information.

Deficiencies

Major findings

1. Incompatible wastes (corrosive acids and bases) are stored in the same area and are not separated by a dike, berm, wall, or other device as required by 40 CFR § 264.177(c).

Minor findings

2. The room in which containers of oxidizing wastes are stored does not have a mechanism (e.g., a berm or leak-free roof) to prevent run-on into the storage area, or alternatively, a collection system with sufficient excess capacity to contain any run-on. This is required by 40 CFR § 264.175(b)(4).
3. Sufficient aisle space is not provided between rows of containers within Building 406 to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment, as required by 40 CFR § 264.35.
4. Containers are stored before a detailed chemical or physical analysis was performed, as required by 40 CFR § 264.13(a)(1).
5. The waste analysis plan (Specification for Containerized Waste Handling, Transport, and Disposal, Spec. Number 3589-056) inadequately describes the methods used to perform a detailed physical and chemical analysis of hazardous wastes, as required by 40 CFR Part 264. It does not address sampling methods to determine the general category of the waste, a rationale for using a particular sampling method, EPA sampling methods, or chain of custody procedures.
6. The inspection records for the Building 406 wastes do not include the time of the inspection, the date and nature of any repairs or remedial actions that are taken to correct noted problems, or any indication that spill control equipment or decontamination equipment was also inspected [40 CFR § 264.15(d)].
7. The SPCC and the Emergency Plan and Procedures do not meet all the requirements for a contingency plan, as outlined in 40 CFR § 264.52. They do not address (1) explosions, (2) arrangements agreed to by the local police department, fire department and hospitals (etc), (3) evacuation plans and maps, and (4) the location, physical description, and capabilities of the spill response and decontamination equipment.

3.1.2 PCB Management

Affirmative Findings

Records of PCB management activities are excellent.

Deficiencies

Significant findings:

1. Radioactively contaminated and PCB-contaminated tributyl phosphate (TBP) is stored in tanks that are out of compliance with the requirements for storage prior to disposal (40 CFR § 761.65). The finding is deemed to be significant because tank failure could result in an off-site release.

Major findings:

2. Large Capacitors are stored in Buildings 301, 406, and 408, which do not comply with requirements for storage for disposal [40 CFR § 761.65(b)]. A leak of these capacitors, however, would not pose an immediate threat to the environment.
3. Large Capacitors have been stored in Buildings 301, 401, and 435 for longer than 1 year, the limit on storage for disposal [40 CFR § 761.65(a)].
4. A PCB annual report has not been finalized for calendar year 1988 (40 CFR § 761.180). Specific recommendations for modifying the report are noted in Section 4.2.2.

Minor findings:

5. Drums LPC-1 and LPC-4 and capacitors stored in Buildings 408 and 435 are not marked with the date when they were placed in storage for disposal, as required by 40 CFR § 761.65(c)(8).
6. Building 406 and capacitors removed from service are not marked with the M_L label as required under 40 CFR § 761.40(a).
7. TBP tanks and capacitors are not inspected every 30 days for leaks and conditions that could result in leaks as required for storage for disposal [40 CFR § 761.65(c)(5)].
8. Manifests must accompany PCB wastes transported in Missouri and must include correct generator and transporter identification numbers.

3.1.3 Air Emissions

Affirmative Findings

Areas containing asbestos are marked to prevent unknowing entry.

Deficiencies

Minor findings:

1. Airborne radionuclide emissions (excluding radon-220 and radon-222) are not monitored at the source, and dose equivalents to members of the public are not calculated using EPA-approved models (e.g., AIRDOS-EPA and RADRISK), as required by 40 CFR § 61.93.

3.1.4 Wastewater Discharges

Deficiencies

No deficiencies were noted for water discharges.

3.1.5 Petroleum Management

No deficiencies were noted for petroleum management.

SECTION 4

OBSERVATIONS AND RECOMMENDATIONS

This section of the report contains observations on the deficiencies identified in the previous section and recommendations for addressing these deficiencies. If the remedy to a deficiency is obvious, however, it is not repeated in this section. Observations and recommendations are numbered to match the findings in the corresponding management area in Section 3. This section also includes additional observations regarding management issues, comments on future liabilities based on pending legislation, and recommendations based on good management practices.

4.1 GENERAL OBSERVATIONS AND RECOMMENDATIONS

Results of the Environmental Compliance Assessment at WSSRAP indicate largely administrative compliance deficiencies. The greatest current liabilities occur in the area of PCB management.

The WSSRAP has extensive documentation for all aspects of its activities. Personnel have considered options and possible scenarios that could pose risks to the environment and have taken actions independent of legal liability to mitigate those risks. Because WSSRAP is not an operating facility, information is sometimes contained in documents other than those that would be required for an operating site. For example, no single operating record exists. Developing a cross-reference that identifies where pertinent information to fulfill regulatory requirements is found would facilitate compliance for site personnel as well as external auditing.

4.2 SPECIFIC OBSERVATIONS AND RECOMMENDATIONS

4.2.1 Hazardous Waste Management

1. Alkali and acid wastes should be stored in separate room of the storage building or, at a minimum, should be separated by berms.
2. Given that WSSRAP plans to retrofit Building 434 into a RCRA storage area, it seems impractical to spend any significant resources to fix the roof and replace the windows in the room in which oxidizing wastes are stored. This room should be made more leak-

proof, however, such as by boarding up the broken windows and hole in the roof.

Transfer of wastes to Building 434 should be expedited.

3. As a good management practice, the aisle space between rows of containers should be at least as wide as the device (e.g., forklift, dolly) used to handle and move containers.
4. Although the lack of waste analysis prior to storage is a finding, it is already in the process of being remedied. In a written memorandum from July, 1989, an Environment, Safety, and Health staff member noted that several containers had not been sampled to determine if they were RCRA characteristic wastes and the contents of some containers were unknown. The memorandum recommended that the containers be sampled to remedy this situation. This recommendation has been adopted, and the necessary container sampling program is being initiated. This program should be completed as soon as possible.
5. Even though the requirement for a waste analysis plan is an administrative requirement, wastes cannot be properly identified and subsequently managed without one. Therefore, it is recommended that a generic waste analysis plan (i.e., a plan not solely associated with one phase of containerization) be developed. This plan should include sampling methods for determining waste categories and rationales for when to use a particular method.

Additional observations and recommendations follow below:

- As a good management practice, all hazardous waste containers should be labeled with the words "Hazardous Waste." Known information should be recorded on the hazardous waste labels. It is recommended that all containers are labeled as either "Hazardous Waste," "Non-Hazardous Waste," "Mixed Waste," "Radioactive Waste--LSA," or "Contents Unknown" and that each class of waste be stored within the same area of the storage facility. Waste oil containers should also be labeled. Each container should have a label that provides current information, and any old labels should be removed from the container.
- Even though the requirement for training records is administrative in nature, it is recommended that job titles and job descriptions be added to the training records. 40

CFR § 265.16(d) requires that job titles and job descriptions be provided in the training records.

- Barium fluoride is stored in Building 406. It could be hazardous under the EP toxicity test but is neither labeled hazardous nor nonhazardous. The waste should be evaluated, if it has not already been, to determine whether or not it is hazardous.
- The writing on some of the labels has faded sufficiently to be illegible. The faded labels should be properly marked and care should be taken in the future to use permanent pens.
- An old, leaking battery is stored in Building 435. Lead acid batteries stored for reclamation are exempt from storage provisions under RCRA. Nevertheless, because this battery has leaked, it should be removed, packed in a drum, and transferred to Building 406.

4.2.2 PCB Management

General Observations:

PCB-containing materials are stored near other materials such as flammables in Building 406. Although incompatibles are bermed to segregate them in compliance with RCRA requirements, berms would not prevent ignition of the PCB fluids from the flammables stored nearby. Incomplete combustion products from fires involving PCBs include polychlorinated dibenzofurans, polychlorinated biphenyls, and possibly polychlorinated dibenzo-p-dioxins, which are more potent carcinogens than are PCBs. Because of the fire risk, PCB-containing materials should be kept in a separate room. The room located opposite the one containing oxidizers would be an appropriate choice, but the asbestos-containing pipe lagging would have to be removed first. Expediting the transfer of drums to Building 434 is also an alternative.

The following comments refer to the corresponding findings in Section 3.0:

1. Several issues associated with this finding require clarification. First, to lend perspective to the legal and environmental risk associated with these tanks, it is important to note that the trapezoidal diversion ditch can be blocked and thus off-site migration of substances from any TBP tank release could be blocked, if required. Because the area

is not under continuous surveillance, early detection of a leak could, however, not be guaranteed. In addition, the TBP tanks are contaminated with 134 and 162 ppm PCBs, respectively. A significant leak would have to occur to release a Reportable Quantity, which is 1 pound of PCBs.

Second, the near-term risks of the off-site release of PCBs could be minimized by constructing a temporary dike using a synthetic liner draped over walls made of sand bags and by conducting inspections of the tanks. The temporary dike could be used until the emergency contract to build a permanent dike is in place. This contract should be expedited. Frequent inspections would result in early detection of a leak or deteriorating conditions that could give rise to a leak. Inspections of PCB-contaminated materials in storage for disposal is required every 30 days. These inspections should be recorded in a log and retained.

The tanks could, however, still be deemed out of compliance with the requirement under storage for disposal [40 CFR § 761.65(B)] for a roof and walls sufficient to prevent rainwater from reaching the PCBs or PCB Items, which is a third issue requiring attention. The tank itself is sufficient to prevent rainwater from reaching the PCBs, but it could be considered a PCB Item. We recommend that WSSRAP discuss the status of the tanks with the appropriate state and regional regulators. They should be made aware of several factors. First, the tanks are not intended for long-term storage of materials. When the TSCA-approved incinerator at the Oak Ridge Gaseous Diffusion Plant can accept the TBP for destruction, it will be shipped off-site and the tanks will be dismantled. Unfortunately, the schedule for start-up of the incinerator has been subject to frequent delays in the past. Second, building a roof over the tanks would gain no additional protection beyond that provided by constructing a dike and inspecting the tanks daily or weekly for leaks and deterioration. We recommend therefore seeking agreement with the state and region that the approach presented above is adequate to address the regulatory concerns regarding these tanks. The following documentation should be prepared for them to support the argument:

- design drawings and schedule for the construction of the berm;
 - waste analysis and acceptance by the incinerator; and
 - inspection schedule and log.
- 2-3 Capacitors should be moved into an approved storage area, decontaminated, and shipped off-site for disposal as soon as practical.
4. The PCB annual report should be finalized as soon as possible. The current format that provides explanatory text to introduce the required information is an excellent approach. The text should indicate that the 1988 shipments were the first off-site shipments of PCB waste and that the WSSRAP is a remedial action site that has not been in operations for years. In order to comply with reporting requirements of 40 CFR Part 761, Subpart J, the report should be amended to include the following:
- dates that waste were placed in storage;
 - total numbers of PCB Transformers and Capacitors and total weights shipped off-site; and
 - information for calendar year 1988 instead of July 1988 to July 1989.

In addition, the report introduces some confusion by not segregating non-PCB from PCB-containing articles. Interviews with project personnel and inspection of manifests confirmed that transformer carcasses were properly disposed of. The report, however, indicates that a transformer that had previously contained 380,000 ppm PCB was sent to Andrew Iron and Metal, which was otherwise only used for disposal of non-PCB items. Disposal of carcasses that contained fluids of greater than 500 ppm PCB are regulated under TSCA. The report should specify the PCB concentration in the fluid drained from the carcass and indicate that the carcass as well as the fluid were disposed of according to TSCA provisions. A brief explanation in the text of actions taken to comply with these provisions of TSCA would be informative, especially noting that the requirements for draining, flushing, and properly disposing of PCB Transformers was met. Also, the numbers of capacitors in Buildings 408 and 435 do not correspond with

what we observed on the site tour, during which we found two in Building 435, Bay B, and seven in Building 408. Last, the PCB-containing soils in Building 406 are not listed on the inventory. Because we may not have noted all discrepancies, we recommend that site personnel verify the quantity and location of PCBs in storage and correct the annual report accordingly.

6. In general, marking of buildings at WSSRAP includes all hazards associated with the buildings (i.e., hazardous waste, asbestos, radioactivity, PCBs). The M_L label required under 40 CFR § 761.60, however, is not always used, and Building 406 lacks a PCB label of any type.
7. Instituting an inspection program for the TBP tanks and consolidating all PCB-containing equipment in a building that is inspected would correct this problem.
8. The Missouri regulations largely apply to PCB facilities, which WSSRAP is not. Because of the way the regulations are framed, these requirements may not technically apply to WSSRAP. The point should be clarified with the state.

4.2.3 Air Emissions

Although buildings containing asbestos are marked with a warning of the presence of asbestos, individual areas are not always marked. Building 406 contains a single bag of asbestos stored among non-hazardous waste, but the specific bag is not segregated and identified. Similarly, in Building 434, it is not clear which bags contain asbestos. Building 406 contains no warning that the room to the right of the entrance has pipe lagging falling from the pipe. Marking these areas would minimize unknowing entry or tampering with the potential sources of airborne emissions.

The radionuclide emissions monitoring that is currently conducted at Weldon Springs does not meet the requirements of the radionuclide NESHAPs (40 CFR § 61.93). The regulations applicable at the time of the assessment (40 CFR § 61.92) required that the dose equivalent to members of the public be less than or equal to 25 millirem per year based on air emissions only and calculated using EPA-approved models (e.g., AIRDOS-EPA and RADRISK).

To address this finding, DOE should monitor at the source and use an EPA-approved

model to determine if the applicable standard is being met. Even though the requirement for an annual report is administrative, it would be useful from a toxic tort perspective to have some form of an annual report at the site. As outlined in the now current radionuclide NESHAPS (54 FR 51654), the annual radionuclide report should include the following information:

- the name and location of the facility;
- a list of the radioactive materials used;
- a description of the handling and processing that the materials undergo;
- a list of the points (stacks, vents, doors) where radioactive materials are released to the atmosphere;
- a description of any effluent controls used at each source and its efficiency;
- the distances from the point sources to the nearest residence, school, business, or office and the nearest farms producing vegetables, milk, or meat;
- the values used for all user-supplied input parameters for the computer models and the source of these data; and
- the signature of the principal executive officer and the date when signed.

EPA proposed revisions to the radionuclide NESHAPS on March 7, 1989 (54 FR 9612). The revisions were finalized on December 15, 1989 (54 FR 51654).

Given that WSCP/WSRP/WSQ is a superfund site, the lower emissions standards and inclusion of radon standards in the now current radionuclide NESHAPS may cause WSSRAP reporting problems if the standards cannot be met. The person in charge of a vessel or facility is required to notify the National Response Center of any release of a hazardous substance in a quantity greater than the reportable quantity for that substance, as promulgated pursuant to CERCLA § 103(a). This notification requirements is waived if the release is a "federally permitted release." Any airborne release of radionuclides that is in compliance with the radionuclide NESHAPS is considered a "federally permitted release" under CERCLA §101(10)(H) and is therefore exempt from the CERCLA reporting requirement. A release that is greater than that allowed under the radionuclide NESHAPS or any airborne release of radionuclides not covered under the NESHAPS is not considered a federally permitted release and is therefore subject to the reporting requirements (54 FR 22527).

Compliance with the radionuclide NESHAPS will be difficult at sites such as WSSRAP

where remedial actions are occurring to address radionuclide contamination. DOE recognizes this problem and has requested that the EPA amend the proposed NESHAPs so that the standards would not apply to a site until the remedial action is completed (Personnel communication, September 8, 1989, Dick Geiger, Office of Environmental Guidance, U.S. DOE). If this amendment is made, then compliance with the radionuclide NESHAPs would not be of concern until after the remedial action is completed. However, the site's airborne emissions would no longer be a federally permitted release, and the release would be subject to the CERCLA § 103 reporting requirements if the reportable quantity is exceeded.

Facilities could have a continuous release of a hazardous substance in a quantity that is above a reportable quantity. To avoid requiring a facility to report this release every 24 hours, CERCLA § 103(f)(2) allows less frequent reporting when the release is "continuous" and "stable in quantity and rate." EPA proposed regulations on April 19, 1988 (53 FR 12867; proposed 40 CFR § 302.8) to implement this provision. Notification of continuous releases can be made in an annual report per CERCLA § 103(f), and immediate notification under CERCLA § 103(a) would not have to be provided unless there is a statistically significant increase in the quantity released. The proposal includes methodology for determining when a statistically significant increase occurs. In addition, the proposed rule for federally permitted releases published July 19, 1988 (53 FR 27268) notes that some releases that are not federally permitted may not pose sufficient hazard to warrant reporting. The EPA Administrator will consider establishing an administrative exemption from the CERCLA notification if the release poses no hazard, or only rarely poses a hazard, that would result in response actions being taken (53 FR 27270). Such an exemption has not been proposed but only been considered.

Release reporting is also required under Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 (the Emergency Planning and Community Right-to-Know Act). Section 304 of SARA requires that State and local emergency officials be notified of a release of a hazardous substance in quantities above that substance's reportable quantity. This section also requires reporting for releases for which notification is required under CERCLA § 103(a). Hence, those incidents involving a statistically significant increase in the quantity released from a continuous release must be reported under SARA § 304. However, continuous

releases that are reported under CERCLA § 103(f) are not subject to the SARA reporting requirements.

4.2.4 Wastewater Discharges

No further observations and recommendations are made with regards to this management area.

4.2.5 Petroleum Management

Although the USTs were taken out of service prior to promulgation of federal rules, 40 CFR § 281.73 allows the agency implementing the tank rules to require closure of tanks according to UST provisions if the tanks are deemed to pose a threat to human health and the environment. Because of the (1) small amount of product needed to contaminate groundwater, (2) the presence of approximately 70 gallons of product in one tank, and (3) the age of the tanks, the tank should be drained to reduce the probability that it could release into the environment and measures should be taken to ensure that the tanks are addressed in the overall remedial process.

In addition, the aboveground tanks currently in service do not comply with requirements in the Construction Safety and Health Management Program plan for diking and minimum clearance of 5 feet between tanks [Section VII(E)(2)].

4.3 OTHER CONSIDERATIONS

We reviewed and commented on several additional issues of concern to personnel at WSSRAP. These issues are ancillary to the audit and are not current regulatory liabilities. That they are being considered by staff at WSSRAP, however, reflects staff concern for minimizing future liabilities by planning ahead for future activities. Among these are (1) the regulatory position with regard to the status under RCRA of wastes in the WSQ, (2) off-site shipment policy, (3) administrative versus substantive requirements for compliance under CERCLA, (4) waste minimization, and (5) the role of individual statutes in driving schedule of activities versus the role of the CERCLA process. This section documents our comments on these issues.

4.3.1 Position Paper on the Regulatory Status of WSQ With Regard to RCRA

The annual environmental monitoring report for CY 1987 lists the following among the waste that may necessitate regulation under RCRA: phenanthrene, fluoranthene, and benzo(b)fluoranthene, TNT, and volatile organics such as methylene chloride, xylene, and ethyl benzene (concentrations ranging from 1 to 50 ppm) (MK-Ferguson and Jacobs Engineering Group 1987). If these wastes are hazardous as defined under RCRA, hazardous wastes will be generated when the WSQ is remediated. The presence of these constituents, as stated in the position paper, does not necessarily deem the waste to be hazardous. The waste would only be regulated under RCRA if it is a listed waste or is characteristically hazardous. The TNT is not explosive in concentrations found in the WSQ and therefore is not a hazardous waste by characteristic. Further, other constituents such as the fluoranthene are most likely from oils present in the engines disposed of in the WSQ. There is no evidence that listed waste streams containing these constituents (i.e., wood preserving waste, certain chemical manufacturing wastes) were ever present at the WSS. Thus based on this analysis, the position paper correctly concluded that the wastes do not meet the hazardous waste definition and therefore will not be hazardous waste when they are removed from the WSQ; nevertheless, it acknowledges that RCRA requirements may be appropriate and relevant, although not legally applicable, standards for management of these waste. One additional factor was not considered, however, and that is the Toxicity Characteristic Leaching Procedure (TCLP).

Although the TCLP has been finalized for use in regulations regarding restrictions on the land disposal of waste, its use as a replacement for the EP toxicity Test as a means of determining whether a waste is hazardous has not been finalized (51 FR 21685). When it is finalized, some volatile constituents in the WSQ could exceed the threshold levels for regulation as hazardous waste. For example, the proposed threshold level for regulating methylene chloride under the TCLP is 8.6 mg/l. Proposed modifications of the TCLP could result in changes in this value in the final rule (53 FR 18024, 53 FR 18792, 53 FR 28892). Before a definitive statement can be made regarding the RCRA status of wastes in the WSQ, tests should be conducted on these waste to determine if the materials would be hazardous based on the TCLP. Also, the monitoring report should reflect the uncertainty regarding the RCRA

status of the waste rather than state that they will be regulated under RCRA when they are removed from the WSQ (MK-Ferguson and Jacobs Engineering Group 1987, P. 80).

4.3.2 Selection of Off-Site Facilities for Waste Disposal

The federal government is the largest entity to contribute to any waste site and is therefore potentially the wealthiest Potentially Responsible Party for future Superfund waste sites. Off-site facilities to which wastes are sent should therefore meet the highest operating standards and be the most financially stable among the array of choices. This measure minimizes future liability under CERCLA. In addition, CERCLA § 121(d)(3) requires that off-site receiving facilities comply with applicable federal and state laws, that the unit receiving the waste is not releasing hazardous constituents into groundwater, surface water, or soil and that releases from other units at the facility be addressed by a corrective action program. Based on interviews with project personnel, it is apparent that some checks regarding compliance status of the receiving facilities is done and, in some cases, direct knowledge of the facilities operations is known. We suggest documenting the process and criteria used to select off-site facilities and pursuing the most in-depth review of these facilities possible to ensure that the CERCLA mandate is met.

4.3.3 Administrative versus Substantive Requirements

CERCLA § 121(e) exempts NPL sites from the permitting requirements under federal, state, and local laws. How broadly this exemption applies to administrative requirements is unclear. Some administrative requirements are necessary to ensure proper management and should be a part of a waste management program absent a clear regulatory requirement. WSSRAP's has sought agreement with EPA on which requirements are substantive and which are purely administrative under RCRA. Further, WSSRAP complies with some administrative requirements because those requirements are necessary to ensure that wastes are managed properly. Concurrence with the regional EPA is the appropriate mechanism to sort out substantive versus administrative requirements, and EPA's opinion should be sought on any additional requirements about which WSSRAP is uncertain.

4.3.4 Waste Minimization

Waste minimization was an additional area of concern, because WSSRAP does not conduct processes in which wastes can be minimized. The remedial actions such as decontaminating scrap metal, however, could be viewed as processes. The chemicals used to decontaminate should be carefully selected to minimize the production of hazardous waste in the process. Minimization at the source occurs through product selection and procurement controls. Care should also be taken to verify that the wastes produced are not hazardous. Using non-hazardous abrasives or detergents for removal of surface contaminants could result in production of waste that is hazardous by the characteristic of EP toxicity. The overall evaluation of the remedial activity as a process could lead to identifying nonhazardous inputs to the process as well as hazardous process wastes. Attention to waste minimization in the planning stages, as WSSRAP is doing, is the most effective means of ensuring minimization in the long term.

4.3.5 Schedules for Compliance Actions

Because WSSRAP is a remedial action site rather than an operating facility, actions must be factored into the overall remediation schedule that is developed to minimize and rank priorities for mitigating hazards. In some cases, such as building a storage facility around the TBP tanks, compliance with requirements under TSCA or RCRA may drive allocation of resources for actions that are not in the best interest of the larger issue of longer term remediation. Both TSCA and RCRA were developed for facilities with on-going operations. In order to better serve the longer term goal of remediating the WSS, agreements should be sought between the regional EPA, the state, and the DOE on compliance issues that may serve short-term concerns under environmental statutes but may adversely affect the longer term schedule and goal of remediating WSSRAP. In all cases, WSSRAP must be able to demonstrate protection of human health and the environment and document choices made.

SECTION 5
REFERENCES

MK-Ferguson and Jacobs Engineering Group. 1987. Annual Environmental Monitoring Report, Weldon Spring Site Missouri.

SECTION 6

CORRECTIVE ACTION PLAN

The following corrective action plan was developed by the WSSRAP in response to the assessment. Each item is cross-referenced to the findings in Section 3.

6.1 HAZARDOUS WASTE MANAGEMENT (SECTION 3.1.1)

6.1.1 Deficiencies - Major Findings

FINDING 1: Incompatible wastes (corrosive acids and bases) are stored in the same area and are not separated by a dike, berm, wall, or other device as required by 40 CFR § 264.177(c).

RESPONSE: WSSRAP concurs with this finding. Conscientious efforts have been made to separate the acids and bases to the extent possible within the constraints of the present RCRA storage area. Several of the segregation techniques described in 40 CFR § 264.177 have been utilized as a means of separating or protecting incompatible materials, as evident by the following examples:

- Three containers of solid "oxidizer" have been placed in a room containing only those materials. The room is located in an separate corner of the building which provides separation from all other materials. Two drums of concentrated acids (corrosives) are contained within a separate bermed area. Four drums of PCB-contaminated materials are contained within another separate bermed area. Other incompatibles are separated by adequate distance and palletizing within the storage area. The entire perimeter of the room used for storage of liquid materials is bermed to separate these materials from those in other rooms within the building.
- WSSRAP had previously recognized this and other deficiencies related to the hazardous waste storage area, and this gave the initial impetus for the construction of a new waste storage facility. Existing Building 434 is being refitted for this purpose. Berms will be constructed, floors sealed, a sprinkler system and an alarm system will

be installed, and other improvements will be made so that the facility will meet all regulatory requirements. When the wastes are moved from the present storage facility to Building 434, the incompatible wastes will be separated by location and berm. The upgrading of Building 434 and movement of drums are scheduled for completion by February 1990.

6.1.2 Deficiencies - Minor Findings

FINDING 2: The room in which containers of oxidizing wastes are stored does not have a mechanism (e.g., a berm or leak-free roof) to prevent run-on into the storage area, or alternatively, a collection system with sufficient excess capacity to contain any run-on. This is required by 40 CFR § 264.175(b)(4).

RESPONSE: WSSRAP concurs with this finding. The roof was repaired on September 8, 1989.

FINDING 3: Sufficient aisle space is not provided between rows of containers within Building 406 to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment, as required by 40 CFR § 264.35.

RESPONSE: WSSRAP concurs with this finding. Several of the non-hazardous, solid wastes have been removed from the RCRA storage area and rearranged the remaining drums have been rearranged to increase aisle space and alleviate this problem. In the long term, sufficient aisle space will be maintained after of the drums are moved to Building 434.

FINDING 4: Containers have been stored before a detailed chemical or physical analysis was performed, as required by 40 CFR § 264.13(a)(1).

RESPONSE: WSSRAP concurs with this finding; approximately 30% of the 458 final containers were suspected but not known to contain toxic or hazardous waste, and were placed in storage in Building 406 without detailed chemical or physical analysis. However, this requirement seems explicitly aimed at active facilities generating a hazardous waste through a manufacturing process or commercial TSD facilities accepting materials from off-site sources, and does not appear to be appropriate for a CERCLA remedial action. WSSRAP's policy of

containerizing and storing uncharacterized waste in a secure location concurrent with analysis seems the logical and prudent course and the one most consistent with the overriding objective of protecting the environment and the health of the workers.

FINDING 5: The waste analysis plan (Specification for Containerized Waste Handling, Transport, and Disposal, Spec. Number 3589-056) inadequately describes the methods used to perform a detailed physical and chemical analysis of hazardous wastes, as required by 40 CFR § 264. It does not address sampling methods to determine the general category of the waste, a rationale for using a particular sampling method, EPA sampling methods, or chain-of-custody procedures.

RESPONSE: We concur with this finding. The recognition of 40 CFR Part 264 as an appropriate and relevant requirement and understanding the ramifications of being both a generator and a TSD facility are fairly recent developments at the WSSRAP. The shortcomings of the waste analysis plan contained in the referenced document are evidence that our original plan did not provide for the requirements associated with long-term storage. The WSSRAP objective was to dispose of the hazardous waste long before the requirements for long-term storage would become an issue.

FINDING 6: The inspection records for the Building 406 wastes did not include the time of the inspection, the date and nature of any repairs or remedial actions that were taken to correct noted problems, or any indication that spill control equipment or decontamination equipment was also inspected (40 CFR § 264.15(d)).

RESPONSE: WSSRAP concurs with this finding. Since the compliance audit by ORNL, the time of inspection has been noted on the inspection check list with each inspection. In the future, repairs will be noted on the form, and a space for time of inspection will be included in new inspection check list forms.

The safety and emergency equipment is currently inspected monthly by the site safety section; a written schedule for inspecting the spill control equipment is being developed and will be included in the site SPCC.

FINDING 7: The SPCC and the Emergency Plan and Procedures do not meet all the requirements for a contingency plan, as outlined in 40 CFR § 264.52. They do not address 1) explosions, 2) arrangements agreed to by the local police department, fire department, and hospitals, 3) evacuation plans and maps, and 4) the location, physical description, and capabilities of the spill response and decontamination equipment.

RESPONSE: The SPCC Plan and the Emergency Plans and Procedures for the Weldon Spring Site predate the completion of the containerized waste consolidation subcontract. As such, these documents do not address all of the contingency plan requirements relative to RCRA waste storage areas. These documents are currently under revision and will be combined into a single Emergency Preparedness Plan. This plan will incorporate all of the requirements of 40 CFR § 264.52 as they relate to storage of RCRA hazardous wastes. On an interim basis, these requirements have effectively been met by issuance of a series of internal memoranda.

6.2 PCB MANAGEMENT (SECTION 3.1.2)

6.2.1 Deficiencies - Significant Findings

FINDING 1: Radioactively contaminated and PCB-contaminated tributyl phosphate (TBP) is stored in tanks that are out of compliance with the requirements for storage prior to disposal (40 CFR § 761.65). The finding is deemed to be significant because tank failure could result in an off-site release.

RESPONSE: WSSRAP concurs with this finding. Since the time of the audit, WSSRAP has discovered the TBP may be also a RCRA waste due to mercury contamination. Existing lab data indicates the presence of leachable mercury in excess of toxic extraction procedure limits. A recent QA audit of the laboratory providing this data indicated that there was no assurance that the reported value for mercury was reliable. WSSRAP will assure that the TBP tanks are also in compliance with the RCRA tank storage requirements. WSSRAP has formulated a plan and specifications for construction of secondary containment. All improvements shall be completed and the tanks shall be in compliance with all regulatory requirements by December 1, 1989.

6.2.2 Deficiencies - Major Findings

FINDING 2: Large capacitors are stored in Buildings 301, 406, and 408 which do not comply with requirements for storage for disposal (40 CFR § 761.65(b)). A leak of these capacitors, however, would not pose an immediate threat to the environment.

RESPONSE: WSSRAP concurs. The capacitors in Building 408 have been moved to Building 406 and are now labeled and contained within a bermed area. The capacitors in Building 301 would be difficult to remove prior to the dismantling of the cabinet containing them. The cabinet itself has been labeled and the capacitors are inspected monthly.

FINDING 3: Large capacitors have been stored in Buildings 301, 401, and 435 for longer than one year, the limit on storage for disposal (40 CFR § 761.65(a)).

RESPONSE: WSSRAP concurs with this finding. We acknowledge that the disposal of capacitors needs to be addressed. Until radioactive contamination can be removed, the capacitors are unsuitable for commercial incineration. We plan to continue to store these units in a manner that complies with the other requirements for PCB storage until decontamination is accomplished.

FINDING 4: A PCB annual report has not been finalized for CY 1988 (40 CFR 761.180). Specific recommendations for modifying the report are noted in Section 4.2.2.

RESPONSE: WSSRAP concurs with this finding. The PCB annual report is being modified according to the recommendations; it will be finalized by December 1989.

6.2.3 Deficiencies - Minor Findings

FINDING 5: Drums LPC-1 and LPC-4 and capacitors stored in Buildings 408 and 435 are not marked with the date when they were placed in storage for disposal, as is required by 40 CFR § 761.65(c)(8).

RESPONSE: WSSRAP concurs. The drums of PCB fluids will be marked with storage dates based on field notes or other records indicating the date the material was placed in storage. The capacitors in Buildings 408 and 435 have been relocated to Building 406 and are appropriately dated and labeled.

FINAL

FINDING 6: Storage areas (Building 406) of certain items removed from service (capacitors) are not marked with the ML label as required under 40 CFR § 761.40(a).

RESPONSE: WSSRAP concurs and the deficiency has been corrected.

FINDING 7: TBP tanks and capacitors are not inspected every 30 days for leaks and conditions that could result in leaks as required during storage for disposal (40 CFR 761.65(c)(5)).

RESPONSE: WSSRAP concurs. Since September 11, 1989, the TBP tanks have been inspected daily. WSSRAP plans to continue this practice until the TBP is removed from the site.

The capacitors, except for those in Building 301, have been moved to the waste storage area in Building 406 and will be inspected during the regular weekly inspection. The capacitors in Building 301, a radioactively contaminated area, will be inspected monthly.

FINDING 8: Manifests must accompany PCB wastes transported in Missouri and must include correct generator and transporter identification numbers.

RESPONSE: The cited regulation applies only to the shipment of PCB wastes with PCB concentrations of 50 ppm or greater to Missouri PCB facilities. All such shipments have been to facilities outside the State of Missouri. Manifests accompanied each shipment of PCB wastes. There was one typographical error in the transporter I.D. Number for the January 24, 1989 shipment of drummed PCB contaminated floor tiles, (Manifest No. 187JW). The transporter I.D. Number on the manifest was MMD980791321. The correct I.D. Number is MND980791321. A note of this error has been placed in the file containing the PCB manifests. All other I.D. numbers are correctly recorded on the manifests.

6.3 AIR EMISSIONS (SECTION 3.1.3)

FINDING 1: Airborne radionuclide emissions (excluding radon-220 and radon-222) were not monitored at the source, and dose equivalents to members of the public were not calculated using EPA-approved models (e.g., AIRDOS-EPA AND RADRISK), as required by 40 CFR § 61.93.

RESPONSE: The PMC is currently monitoring radionuclide emissions by air monitoring at the critical receptor location. Paragraph 5 of 40 CFR § 61.93 allows the use of this method with prior EPA approval. Preliminary approval has been granted by EPA contingent on the submission of a detailed description of the sampling and analytical methodology. A report detailing the methodology is now being drafted and will be ready for submission to EPA by March 31, 1990.

6.4 SPECIFIC OBSERVATIONS AND RECOMMENDATIONS (SECTION 4.2)

6.4.1 Hazardous Waste Management (Section 4.2.1)

1. Alkali and acid wastes should be stored in separate rooms of the storage building or, at a minimum, should be separated by berms.

RESPONSE: See Comment 3.1.1.1 [*Section 6.1.1, Response to Finding 1*].

2. Given the WSSRAP Plans to retrofit Building 434 in to a RCRA storage area, it seems impractical to spend any significant resources to fix the roof and replace the windows in the room in which oxidizing wastes are stored. This room should be made more leakproof, however, such as by boarding up the broken windows and hole in the roof. Transfer of wastes to Building 434 should be expedited.

RESPONSE: See Comment 3.1.1.2 [*Section 6.1.1, Response to Finding 2*]. In addition, the broken windows have been covered.

3. As a good management practice, the aisle space between rows of containers should be at least as wide as the device (e.g., forklift, dolly) used to handle and move containers.

RESPONSE: See Comment 3.1.1.3 [*Section 6.1.1, Response to Finding 3*].

4. Although the lack of waste analysis prior to storage is a finding, it is already in the process of being remedied. In a written memorandum from July 1989, an Environment Safety and Health staff member noted that several containers had not been sampled to determine if they were RCRA characteristic wastes and/or the contents of some containers were unknown. The memorandum recommended that the containers be sampled to remedy this situation. This

recommendation has been adopted and the necessary container sampling program is being initiated. This program should be completed as soon as possible.

RESPONSE: WSSRAP concurs.

5. Even though the requirement for a waste analysis plan is an administrative requirement, wastes cannot be properly identified and subsequently managed without one. Therefore, it is recommended that a generic waste analysis plan (i.e., a plan not solely associated with one phase of containerization) be developed. This plan should include sampling methods for determining waste categories and rationales for when to use a particular method.

RESPONSE: WSSRAP concurs with the recommendation for a plan which outlines the sequential actions for identifying unknowns. A draft plan will be completed by December 1989.

6.5 ADDITIONAL OBSERVATIONS AND RECOMMENDATIONS

ITEM 1: As a good management practice, all hazardous waste containers should be labeled with the words "Hazardous Waste". Known information should be recorded on the hazardous waste labels.

It is recommended that all containers are labeled as either "Hazardous Waste", "Non-Hazardous Waste", "Mixed Waste", "Radioactive Waste--LSA", or "Contents Unknown" and that each class of waste be stored within the same area of the storage facility. Waste oil containers should also be labeled. Each container should have a label that provides current information, and any old labels should be removed from the container.

RESPONSE: WSSRAP concurs and is in the process of assuring all containers are properly labeled.

ITEM 2: Even though the requirement for training records is administrative in nature, it is recommended that job titles and job descriptions be added to the training records. 40 CFR § 264.16(d) requires that job titles and job descriptions be provided in the training records.

RESPONSE: The computerized Safety, Health, and Radiation Protection (SHARP) training and documentation system employed at the WSSRAP provides a means of tracking the

many training requirements of all workers on the project including subcontractors to ensure employees are current. It does not specifically represent the training records required under 40 CFR 265. Job descriptions and titles for all WSSRAP PMC employees are currently maintained by the Project Support Department within the PMC. This file meets the administrative requirement of 40 CFR § 265.16(d).

ITEM 3: Barium fluoride is stored in Building 406. It could be hazardous under the EP toxicity test but is not labeled either hazardous or non-hazardous. The waste should be evaluated, if it has not already been, to determine whether or not it is hazardous.

RESPONSE: WSSRAP concurs. Based on the assumption that the material would fail the EP toxicity test for barium, the drums have been labeled as a D005 hazardous waste. Water solubility data for barium fluoride supports the above assumption.

ITEM 4: The writing on some of the labels has faded sufficiently to be illegible. The faded labels should be properly marked and care should be taken in the future to use permanent pens.

RESPONSE: WSSRAP concurs and will ensure that all drums are legibly marked.

ITEM 5: An old, leaking battery is stored in Building 435. Lead acid batteries stored for reclamation are exempt from storage provisions under RCRA. Nevertheless, because this battery has leaked, it should be removed, packed in a drum, and transferred to Building 406.

RESPONSE: WSSRAP concurs; however, the leakage appears minimal and is not an imminent threat to health or the environment. Consequently, it will be addressed during Phase II of the chemical recontainerization effort.