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Conf-940632--4

FEMP-2325
PAPER

RCRA and CERCLA REQUIREMENTS AFFECTING CLEANUP ACTIVITIES AT A
FEDERAL FACILITY SUPERFUND SITE

BY

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January 31, 1994

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For Presentation at the
Air and Waste Management Association Conference
Cincinnati, OH
June 19 - 24, 1994

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* Fernald Environmental Restoration Management Corporation with the U.S. Department of Energy under Contract No. DE-AC05-92OR21972

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INTRODUCTION

The Fernald Environmental Management Project (FEMP) involves the cleanup of a Department of Energy (DOE) Superfund site located near Cincinnati, Ohio. The site was developed in the early 1950's as a uranium metals manufacturing facility to support the DOE weapons complex activities. In 1989, uranium production at the facility ceased and cleanup efforts began.

Because past activities at the site involved the production of uranium metals, various chemicals were used in the production processes. As a result of over thirty years of production activity, radiological and chemical contamination exists at the facility.

Due to the presence of radiological and chemical contamination at the site, both the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulations impact the present cleanup activities.

Since both RCRA and CERCLA regulations address environmental cleanup activities, an integrated approach to satisfy requirements of both regulations is warranted to obtain a quicker and cost-effective cleanup. While an integrated approach seems logical given the intent of both RCRA and CERCLA, the implementation of an integrated approach at the FEMP has taken almost two years, partly due to the differences in the scope of RCRA and CERCLA cleanup activities and goals. For example, RCRA focuses on individual cleanups of Hazardous Waste Management Units (HWMUs) while CERCLA remediates operable units (OUs) which can encompass HWMU areas.

This paper discusses two integration approaches used successfully at the FEMP. During the course of developing the FEMP's integration strategies, another federal facility, which is regulated by RCRA and CERCLA, was examined. In that case, the site deferred to RCRA regulations to satisfy the CERCLA requirements.

Although this approach worked at one federal facility, the DOE has signed for the FEMP, both a Consent Agreement and Consent Decree with the U.S. Environmental Protection Agency (EPA) and the State of Ohio, respectively. Since the Consent Agreement and Consent Decree were signed with different parties at different times for different reasons, deference to one regulation to address cleanup activities was not possible.

The Consent Agreement addresses remedial cleanup activities under CERCLA while the Consent Decree governs hazardous waste management activities at the site. Consequently, both the U.S. EPA and Ohio EPA have authority to address cleanup activities at the FEMP. This paper discusses how cleanup activities can occur under both RCRA and CERCLA regulations using integrated approaches.

STRATEGY DISCUSSION

The first successful integration of RCRA and CERCLA activities at the FEMP involved the groundwater monitoring program. In December 1991, the FEMP submitted a RCRA groundwater monitoring plan to Ohio EPA which addressed monitoring requirements associated with HWMUs. Ohio EPA reviewed the plan since the State of Ohio possessed RCRA Subpart F authority. After receiving Ohio EPA review comments on the plan, a revised plan was submitted to Ohio EPA in December 1992.

The December 1992 plan included an integrated approach to groundwater monitoring which attempted to address both RCRA and CERCLA requirements. FEMP groundwater personnel evaluated both RCRA and CERCLA requirements in developing an integrated monitoring plan. The plan focused on using existing RCRA monitoring wells before installing additional wells for data collection associated with the CERCLA Remedial Investigation (RI) process.

Normally, at a RCRA hazardous waste facility, each HWMU must be monitored individually with a minimum of 3 downgradient and 1 upgradient wells to allow for immediate detection of releases to the groundwater. Because contamination at the FEMP is from different sources, it would be impossible to identify if contamination is from an individual HWMU or past site activities. Therefore, 3 rings of monitoring wells were proposed in the 1992 plan in an attempt to integrate RCRA requirements into CERCLA requirements.

The locations of the additional wells, which were required under CERCLA considered the RCRA Subpart F requirements. Subpart F requirements involve well installations for detection of contaminant plumes from RCRA regulated units. CERCLA requires well installations to determine the rate and extent of groundwater contamination at the FEMP.

The December 1992 groundwater monitoring plan attempted to bring the FEMP in compliance with the State of Ohio Administrative Code (OAC) Subpart F Hazardous Waste Rules 3745-65-90 through 94. The proposed plan utilized three downgradient lines of groundwater monitoring wells. One of the proposed lines included well installations at the FEMP property boundary line. The other two downgradient lines included the Waste Pit Area and former Production Area (see Figure 1).

In May 1993, FEMP personnel re-examined the plan and realized implementation of the plan as proposed was unrealistic. For example, the intention of RCRA Subpart F groundwater monitoring requirements is to immediately detect and determine the rate and extent of contaminant migration from the RCRA regulated unit. At the FEMP, the RI process under CERCLA began in 1988 to determine the nature and extent of contamination of groundwater on a site-wide basis. Under the Consent Agreement, the FEMP's schedule to submit the RI report on the site-wide groundwater contamination is 1994. Consequently, the RCRA requirement to immediately identify the rate and extent of groundwater contaminants could not be fulfilled, although the intent of the requirement was being fulfilled through the CERCLA RI process.

RCRA Subpart F requires that the sample results from the RCRA groundwater monitoring program be reported on an annual basis. Consequently, extensive time and resources were spent on preparing annual reports for submittal to Ohio EPA. Since the CERCLA RI process continued during the preparation of the annual report, some duplicative effort involving data collection, analyses, and management was occurring. The contamination problem at the FEMP, due to multiple sources, was too complex for a yearly annual report.

In addition, a reassessment of the downgradient wells proposed for installation in the Waste Pit Area and former Production Area resulted in the conclusion that the well installations would not provide new data critical to select a remedial action under CERCLA nor provide any new data intended by RCRA Subpart F requirements.

In May 1993, the FEMP proposed an alternative plan to the groundwater program described in OAC 3745-65-90(D). This proposal consisted of using the CERCLA RI Workplan and Addenda, which characterizes the nature and extent of groundwater contaminant migration sufficiently to select a remedial action. The FEMP proposed to continue quarterly monitoring of the FEMP property boundary wells to assess any potential off-site contaminant migration. The results of the quarterly monitoring would be submitted to Ohio EPA by March 1 of each calendar year. The estimated cost savings in implementing the alternative plan was approximately \$1.3 million for well installations and another \$1.3 million in analyses costs. The cost savings from the implementation of the alternative groundwater monitoring plan would be used to accelerate cleanup activities agreed upon by U.S. EPA, Ohio EPA, and the DOE.

After several meetings with Ohio EPA representatives between May and August 1993, the Director of the Ohio EPA issued a Director's Final Finding and Order (DF&O) on September 10, 1993. The DF&O addressed the FEMP's alternative plan and recognized the CERCLA RI process as a mechanism to determine rate and extent of groundwater contamination at the FEMP. The DF&O states the "desire to avoid duplication and to integrate groundwater monitoring activities required by OAC rules 3745-65-90 through 3745-65-94 with the site-wide RI/FS groundwater characterization required by the ACA (Amended Consent Agreement) and described in the Respondent's RI/FS Work Plans and Addenda." Further, the DF&O discussed that Ohio EPA would review and approve portions of CERCLA documents for purposes of demonstrating compliance with OAC rules 3745-65-90 through 3745-65-94.

With the successful RCRA/CERCLA integration of the alternative groundwater monitoring plan, the FEMP focused on a second area with both CERCLA and RCRA impact. This second area involved the cleanup and closure of HWMUs. RCRA regulations require the closure of HWMUs which are not permitted as a treatment, storage, or disposal facility. Since the FEMP is a Superfund site, CERCLA also requires the HWMUs to be remediated. The FEMP has over thirty HWMUs which will be addressed under either RCRA, CERCLA, or a combination of both regulations.

The FEMP originally proposed to Ohio EPA that the inactive HWMUs would be addressed under CERCLA removal or remedial actions. However, some of the CERCLA remedial actions which would address the HWMUs will not occur until late 1990s. Since the Consent Decree required submittal of closure plans for HWMUs before the FEMP CERCLA remediation activities are scheduled, the FEMP needed to reconcile the time differences.

The FEMP used CERCLA removal actions to address some HWMU closure requirements. CERCLA removal actions are used to eliminate releases or threatened releases to the environment. The removal action work plan (RAWP) which describes the intended procedures to be used to remove releases or threats of releases were submitted to Ohio EPA as a Closure Plan Information and Data (CPID) document. While the U. S. EPA would review and approve the RAWP under CERCLA, the CPID document would be approved by Ohio EPA under RCRA as a closure plan. Naturally, the RAWP/CPID document needed to include the RCRA requirements associated with typical closure plans.

One of the biggest problems with the combined RAWP and CPID documents involved soil contamination. Typically, the removal action work plan addresses removing the major source of contamination. Soil contamination (if extensive) is usually deferred to the remediation process under CERCLA. Ohio EPA closure guidance requires soils in a HWMU area to be excavated to concentrations of two standard deviations above the background concentration of the contaminant before the HWMU could be clean closed.

In September 1993, the FEMP clean closed one HWMU area that was addressed as a CERCLA removal action. The area involved soil contamination that was less than toxicity characteristic (TC) limits but not below the background plus two standard deviation criteria used by Ohio EPA. Consequently, approximately seventeen 55 gallon drums of soil were excavated to realize clean closure. Noting that other HWMUs also involved soil contamination, the FEMP discussed with Ohio EPA some volumetric criteria where the CERCLA process would dictate cleanup activities. This criteria intended to prevent the widespread containerization of excavated soils at a site where limited waste storage capacity exists. In addition, removal actions under CERCLA are intended to prevent releases or threats of releases to the environment. The remedial action stage of the CERCLA process addresses the final cleanup of contaminated soils.

The FEMP used an approach that contaminated soil in a HWMU area would be excavated if the total volume of soil could be contained in approximately two shipping containers. Each shipping container holds approximately six 55 gallon drums. The shipping container criteria was based on the judgement that excavation of additional volumes of soil under a RCRA closure activity is not warranted if the CERCLA remediation process will ultimately excavate or remediate the soil. Naturally, health and safety considerations play an important role in determining the volume of excavated soil. The FEMP approach on volumetric considerations relied on CERCLA to address soil contamination as a removal action if immediate safety and environmental concerns were found.

This proposed approach was presented to Ohio EPA representatives in September 1993. In addition, the FEMP proposed using other CERCLA documents in addition to the RAWP/CPID to address RCRA closure requirements. The other CERCLA documents include the RI and Feasibility Study (FS) reports, Record of Decision (ROD), Remedial Design/Remedial Action Work Plan (RD/RA WP), and Remedial Design, and Remedial Action reports.

At the FEMP, the CERCLA process will address areas where HWMUs are located. However, several CERCLA documents will need to be submitted to Ohio EPA to satisfy all the RCRA closure requirements. For example, the RI report will detail background information on a HWMU along with a discussion on rate and extent of contamination in an area.

The FEMP requested Ohio EPA to examine a list of HWMUs which the FEMP could clean close under RCRA or defer to a RCRA/CERCLA closure under a remedial action. The list included 17 HWMUs to be clean closed under RCRA with an additional 18 HWMUs to be clean closed under a RCRA/CERCLA integration process.

In December 1993, FEMP representatives focused on using documents developed under the CERCLA process to address some of the components of a HWMU closure. Table 1 was presented to Ohio EPA as an example of some information typically required by a RCRA closure plan and where under the CERCLA process the information could be found. While all of the information is not found in one CERCLA document, the checklist provides information on which CERCLA document the information would be found. Ohio EPA representatives indicated their willingness to review these documents for RCRA closure requirements.

At present, the FEMP and Ohio EPA are discussing the mechanism to implement an integrated RCRA/CERCLA process on HWMU closures. Implementation of an integrated closure process is estimated to save several million dollars since specific closure plans on individual HWMUs will not be written but rather addressed under the CERCLA process.

CONCLUSIONS

The FEMP achieved success on an integrated groundwater monitoring program which addressed both RCRA and CERCLA requirements. The integrated plan resulted in a cost savings of approximately \$2.6 million. At present, the FEMP is also working on an integrated closure process to address HWMUs at the site. To date, Ohio EPA seems willing to discuss an integrated program with some stipulations. If an integrated program is implemented, a cost savings of several million dollars will be realized since the CERCLA documents can be used in place of a RCRA closure plan.

The success of an integrated program at the FEMP is impossible without the support of DOE and the regulators. Since DOE is an owner/operator of the facility and Ohio EPA regulates hazardous waste management activities at the FEMP, both parties must be satisfied with the proposed integration activities. Similarly, U.S. EPA retains CERCLA authority over the site along with a signed consent agreement with DOE, which dictates the schedule of the CERCLA activities.

Another federal facility used RCRA closure plans to satisfy CERCLA activities. This federal facility was in a different U.S. EPA Region than the FEMP. While this approach was successful for this site, an integrated approach was required at the FEMP because of the signed Consent Agreement and Consent Decree. For federal facilities which have a large number of HWMUs along with OUs, an integrated approach may result in a timely and cost-effective cleanup.

ACKNOWLEDGEMENTS

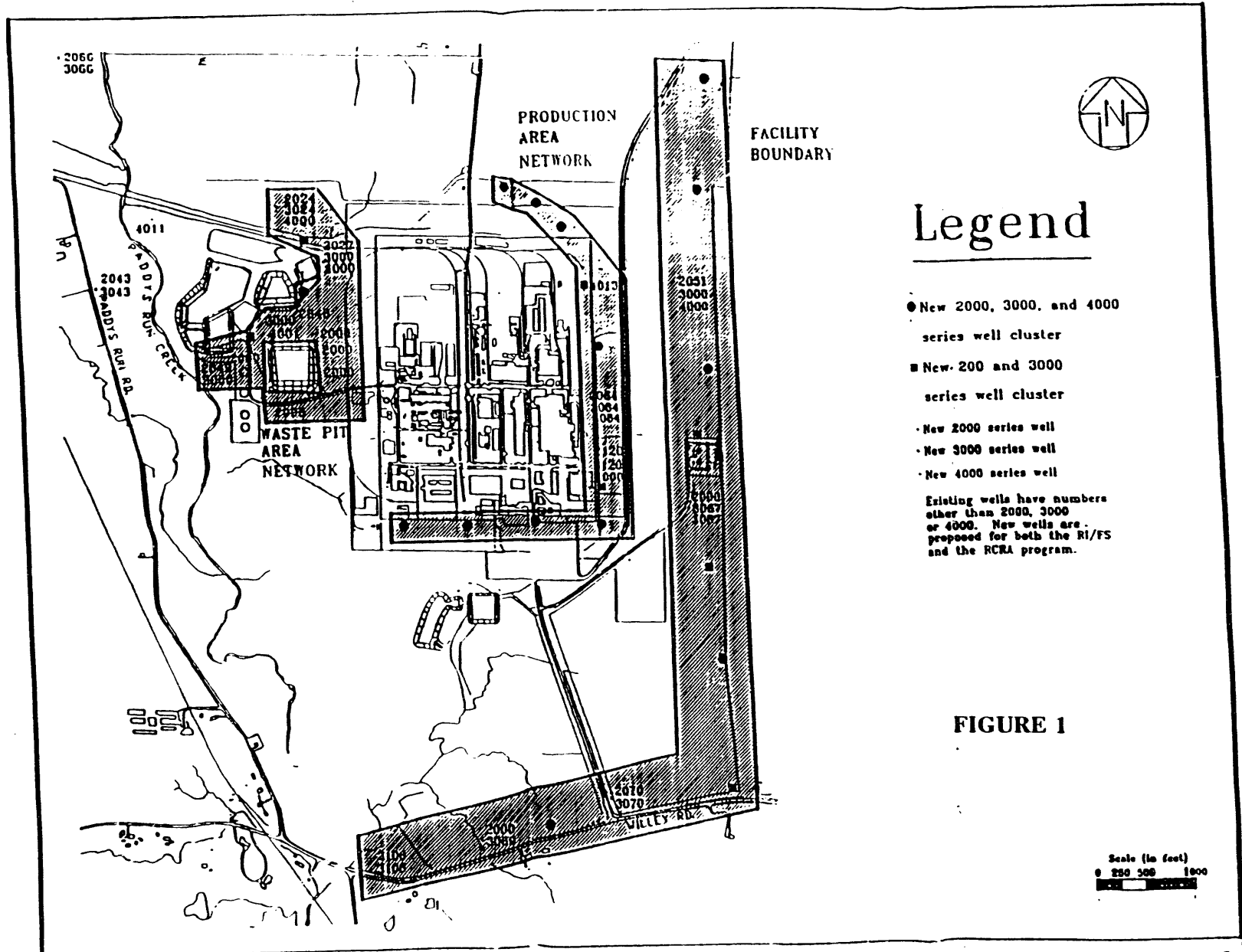
The author acknowledges the assistance of Ken Alkema, Magali Cowan, Jennifer Curtis, Jack Hoopes, Kathy Little, Angie Weisgerber, and Keith Wilkerson in writing and reviewing this paper. In addition, I thank Julie Collier for help in typing the manuscript.

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DOE-FERMCO PRIME CONTRACT NO. IS DE-AC05-920R21972.

Table 1. Checklist used to cross reference CERCLA document to RCRA HWMU closure requirements.

APPLICABLE Y/N	RCRA CLOSURE PLAN CHECKLIST REQUIREMENTS AND CERCLA CROSS REFERENCE INDEX CITATION	CERCLA DOC	CROSS REFERENCE INDEX
	1. FACILITY DESCRIPTION		
	1.1 General description, size & location	RI	1.2.1.5, p. 1-21 1.2.25, p. 1-33
	1.2 Topographic map	RI	Fig 1-10, p. 1-62, Fig 1-11, p. 1-63 Fig 1-16, p. 1-68 3.3, pp. 3-8 & 3-9
	1.4 Hydrogeological information Ground water and soil conditions Ground water monitoring conditions	RI	3.4.1.6 - pp. 3-18 to 3-28 2.9.2, pp. 2-41 to 2-44
	1.5 Surface impoundment description Wastes managed List of hazardous wastes, including radioactive components, Listed and Characteristic Include names of materials, not just waste codes Estimates of inventory to be removed Procedures for handling removed inventory Capacity, number and size of containers Secondary containment design containers Liner systems and leachate collection systems Run on and run off control systems (see section 5)	RI FS RD/RA RD/RA RD/RA RI	4.25, pp. 4-53 to 4-58 Table 1-11, 1-12 See above See above Table 2-1, p. 2-4 1.2.15, p. 1-21 3.3.4.1 & .2, pp. 3-11 to 3-12



Legend

- New 2000, 3000, and 4000 series well cluster
 - New 200 and 3000 series well cluster
 - New 2000 series well
 - New 3000 series well
 - New 4000 series well
- Existing wells have numbers other than 2000, 3000 or 4000. New wells are proposed for both the RI/FS and the RCRA program.

FIGURE 1

Scale (in feet)
 0 250 500 1000

FIGURE 1 - Downgradient well locations proposed in groundwater monitoring plan

DATE

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5/6/94

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