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PAPER

APPLICATION OF CLEAN WATER ACT (CWA) SECTION 404 COMPENSATORY WETLAND MITIGATION UNDER THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA)

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Application of Clean Water Act (CWA) Section 404 Compensatory Wetland Mitigation Requirements Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)[1]

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Abstract:

Pursuant to Section 404 of the Clean Water Act (CWA), activities resulting in the discharge of dredge or fill material into waters of the United States, including wetlands, require permit authorization from the U.S. Army Corps of Engineers (ACOE). As part of the Section 404 permitting process, compensatory wetland mitigation in the form of wetland enhancement, restoration, or construction may be required to off-set impacts sustained under a Section 404 permit.

Under normal circumstances, compensatory mitigation is a relatively straight forward process; however, issues associated with mitigation become more complex at sites undergoing remediation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), because on-site response/remedial actions involving dredged and fill material are not subject to the formal Section 404 permitting process. These actions are conducted in accordance with the substantive permitting requirements of the ACOE's Nationwide and individual permitting programs. Wetland mitigatory requirements are determined through application of the U.S. Environmental Protection Agency's (USEPA's) 404(b)(1) Guidelines promulgated in 40 CFR Part 230 and are implemented through compliance with substantive permitting requirements during the conduct of response/remedial actions.

A programmatic approach for implementing wetland mitigatory requirements is being developed at a former U.S. Department of Energy (DOE) uranium refinery undergoing CERCLA remediation in southwestern Ohio. The approach is designed to define the regulatory mechanism that will be used to integrate CWA driven wetland mitigatory requirements into the CERCLA process. Other factors being considered in the development of the approach include the feasibility and timing of mitigatory efforts in conjunction with remedial actions, compatibility with the intended future use of the site, and stakeholder concerns. Once finalized, the approach could be applied to other CERCLA facilities nationwide.

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Introduction

The U.S. Department of Energy's (DOE) Fernald Environmental Management Project (FEMP) occupies 1,050 acres in rural southwestern Ohio, approximately 18 miles northwest of downtown Cincinnati, Ohio. From 1952 to 1989, the FEMP produced high-purity uranium metal products in support of U.S. defense programs. Production was halted in 1989, after the United States Environmental Protection Agency (USEPA) placed the site on the National Priority List and remedial efforts were initiated under the Comprehensive Environmental Response, Compensation, and Liabilities Act (CERCLA)(42 U.S.C. §9601 et. seq.).

In April 1990, DOE and USEPA signed a Consent Agreement in accordance with the requirements of Section 120 of CERCLA, which outlined activities and schedules to be performed during remediation of the site. This agreement was subsequently revised in September, 1991. Collectively, these two agreements divided the site into five areas called operable units. These areas were characterized on the basis of physical location and potential use of similar technologies to remediate contamination within each area. Since this time, the site has been actively engaged in the CERCLA process, primarily though the conduct of Remedial Investigations/Feasibility Studies (RI/FS) and preparation of Records of Decision (ROD) for each operable unit. Overall, these documents define the nature and extent of contamination within each operable unit and specify contaminant removal technologies or activities to be used within each operable unit.

As part of the base-line characterization of the site, an on-property wetland delineation was conducted in late 1992 and early 1993 using the methodology prescribed in the 1987 U.S. Army Corps of Engineer's (ACOE) Wetlands Delineation Manual (ACOE, 1987). On-property waters of the United States were also identified during the course of the delineation in accordance with the criteria outlined in 33 CFR Part 328. A wetland delineation report documenting the extent and location of on-property wetlands and waters of the United States was submitted to and subsequently approved by the ACOE - Louisville District Office in August, 1993 (EBASCO, 1993). Since its approval, the delineation has served as the basis for defining Clean Water Act (CWA) Section 404 and 401 (33 U.S.C. §1344 and §1341, respectively) regulated wetland impacts at the site.

The 1993 wetland delineation identified approximately 36 acres of jurisdictional wetlands and 8.9 acres of waters of the United States within the 1050-acre property. Although the FEMP plans to avoid and minimize impacts to these areas to the maximum extent practicable during remediation, some unavoidable impacts requiring mitigation are anticipated. These impacts are potentially subject to compensatory wetland mitigatory requirements under applicable federal and state regulations promulgated to implement the requirements of Sections 404 and 401 of the CWA. In recognition of this fact, a comprehensive site-wide approach is in the process of being developed to integrate CWA Section 404 driven mitigatory requirements into the CERCLA process.

During the development of the approach, several underlying issues have been identified, which have the potential to directly influence the outcome of the FEMP's mitigatory efforts. These issues include the need to define the regulatory mechanism under which CWA Section 404 driven regulatory requirements will be integrated into the CERCLA process at the FEMP and evaluation of the feasibility and timing of the FEMP's mitigatory efforts. The following sections, briefly examine each of these issues and discusses efforts conducted to date to facilitate resolution.

Integration of Section 404 Permitting Under CERCLA

CERCLA Process

CERCLA was initial passed by Congress in 1980 in response to growing public concern about releases of hazardous substances to the environment. The primary purpose of the CERCLA statute is to provide a legal

mechanism for establishing liability, compensation, cleanup, and emergency response for releases of hazardous substances from inactive hazardous waste facilities. Since on-site activities conducted under CERCLA are exempt from the requirement to obtain formal permit approval, CERCLA relies on the substantive requirements of other environmental regulations like the Clean Water Act to define specific criteria that must be met when implementing remedial actions.

Both federal agencies and private entities can be held potentially liable for past releases of hazardous substances under the CERCLA statue. In cases where a specific federal agency is determined to be primarily responsible for contamination at a site, the agency is designated as the lead agency and as such is responsible for conducting remedial activities at the site. In these cases, USEPA oversees cleanup activities to ensure they are conducted in compliance with appropriate environmental regulations and are protective of human health and the environment. When cleanup under CERCLA is required, the lead agency is responsible for conducting the following five step process:

- Remedial Investigation (RI): The RI is conducted by the lead agency to determine the nature and extent of contamination within each operable unit at a specific site. Activities conducted during the RI primarily involve sample collection and data analysis. The RI is typically conducted concurrently with the Feasibility Study.

- Feasibility Study (FS): The lead agency conducts the FS to identify potential options that may be implemented to remediate contamination at a site. Data collected during the RI is used to define removal/remedial actions during the FS phase of a CERCLA cleanup.

- Record of Decision (ROD): Once the RI/FS phase has been completed, the lead agency prepares a ROD for each operable unit. The ROD is submitted to USEPA for approval and identifies the selected remedial alternative that addresses remediation of each operable unit.

- Remedial Design (RD): The RD phase of CERCLA is conducted to identify the specific plans and technical specifications that will be followed during the implementation of remedial activities.

- Remedial action (RA): The RA is the last phase of the CERCLA process, which involves the actual conduct of remedial activities by the lead agency.

During each of these five phases, the lead agency is responsible for identifying standards called applicable, appropriate and relevant requirements (ARARs) that are used to define how particular remedial activities will comply with substantive requirements of other environmental laws. Included in these ARARs are the ACOE's wetland protection regulations described below.

Section 404 of the Clean Water Act

Pursuant to Section 404 of the CWA and 33 CFR §323.3, any activity that results in the discharge of dredged or fill material into a wetland or water of the U.S. requires permit authorization by the ACOE. The ACOE generally uses two types of permits to authorize discharges of dredge and fill material. These include Nationwide Permits (33 CFR Part 330) and individual permits (33 CFR Part 323). When making permit determinations under Section 404 of the CWA, the ACOE is required to follow the policies and procedures established under 33 CFR Parts 320 and 325.

The ACOE is also required to assess the proposed discharge against the CWA 404(b)(1) Guidelines promulgated in 40 CFR Part 230. These guidelines are intended to ensure that applications for discharges of dredge and fill material are reviewed in a consistent manner and do not cause unavoidable adverse impacts to the aquatic environment. Pursuant to 33 CFR §320.4(r), the ACOE may require compensatory wetland mitigation to ensure

compliance with the 404(b)(1) Guidelines described above. As part of the Section 404 permitting process, compensatory wetland mitigation in the form of wetland enhancement, restoration, or construction may be required to off-set impacts sustained under a Section 404 permit.

Section 401 of the CWA and 33 CFR §325.2(b)(1)(ii), also require that a Section 401 State Water Quality Certification be obtained to authorize discharges of dredge and fill material under a Section 404 permit. In Ohio, the Section 401 State Water Quality Certification program is administered by OEPA pursuant to Chapter 3745-32 of the Ohio Administrative Code (OAC).

Under normal circumstances, defining compensatory mitigatory requirements under the permit programs described above is a relatively straight forward process. However, issues associated with mitigation become more complex at sites undergoing CERCLA remediation, because on-site response/remedial actions involving dredged and fill material are not subject to the formal Section 404 permitting process. These actions are conducted in accordance with wetland ARARs that are used to define the substantive requirements of the ACOE's Nationwide and individual permitting programs. Under CERCLA, wetland mitigatory requirements may be required by the CWA 404(b)(1) Guidelines if the lead agency or USEPA determines mitigation is required.

The agency review cycle for CERCLA dredge and fill projects is also a complicated process since USEPA, rather that the ACOE, assumes the lead role in defining mitigatory requirements. The ACOE, U.S. Fish and Wildlife Service (USFWS), OEPA and Ohio Department of Natural Resources (ODNR) provide a supporting role in the review process by consulting with USEPA on technical mitigatory issues.

Feasibility and Timing of Wetland Mitigatory Requirements Under CERCLA

The ACOE normally requires wetland mitigation to be implemented in conjunction with the issuance of the Sections 404 and 401 permits for a project. In these instances, mitigation normally takes the form of wetland enhancement, restoration, or construction. The timing of mitigatory efforts and type of mitigation required to offset impacts under CERCLA is a complex regulatory issue, because impacts associated with remedial activities normally occur over a long period of time and are not conducive to the immediate implementation of mitigatory efforts.

The complexity of balancing mitigation with long-term remediation is further compounded with on-property mitigation considered to be the most beneficial form of mitigation from a regulatory and ecological perspective. This generally presents a problem for CERCLA facilities because sufficient acreage for conducting on-property mitigation is generally not available at the time an impact is sustained and may not become available until sizable portions of the site have been remediated.

Regardless of whether an impact is CERCLA or non-CERCLA related, a comprehensive method for addressing compensatory mitigation in accordance with the regulatory requirements will be required. DOE is in the process of assessing the areal extent of projected wetland impacts as part of the RI/FS process. Because questions remain concerning the timing and location of mitigatory effort, both on-property and off-property mitigation were considered.

CERCLA, the CWA, and the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300.400) designate DOE as a Trustee for natural resources at DOE facilities. These same statutes also appoint other departments, such as the U.S. Department of Interior (DOI) and state representatives as Trustees for natural resources. The State of Ohio has appointed Ohio EPA to act as the State's Trustee representative. The Trustees' role is to act as guardian for natural resources at or near the site. DOE plans to make a formal presentation on wetland mitigation to the Trustees and solicit their input. Negotiations with the trustees are at an early stage, further inclusion of the Trustees will be determined as negotiations progress.

On-Property Wetlands Requiring Potential Mitigatory Efforts

As a result of the on-property wetlands delineation, approximately 36 acres of freshwater wetlands have been identified across the five operable units at the FEMP. These areas include approximately 27 acres of forested wetlands and 9 acres of emergent/scrub wetlands. On-site waters of the United States totaled approximately 9 acres. In the event that off-property remedial actions are conducted, the FEMP will be required to conduct a wetland delineation of these areas using the most currently prescribed ACOE delineation methodology.

Based on an analysis of projected impacts outlined in the RI/FS documents prepared to date, it is anticipated that 9 acres of on-property emergent wetlands will be impacted during remediation. Currently, no impacts to the 27 acres of forested wetlands are projected; however, it is possible that impacts to these areas could occur from future activities. DOE plans to continue to evaluate proposed activities at the FEMP to ensure that any activities which may result in a discharge of dredged or fill material to this area are addressed in accordance with the applicable requirements of Sections 404 and 401 of the CWA. In the event a proposed discharge in this wetland area would require compensatory wetland mitigation, the site's wetland mitigatory approach would be modified accordingly.

The technical requirements associated with the mitigation of on- and off-property wetland systems will vary depending on the soil, hydrologic, and vegetative conditions of the proposed mitigation location. Based on initial evaluations, suitable areas for conducting on-property mitigation may exist within the 1050 acre site boundary.

Wetland Mitigation

The Council on Environmental Quality has defined mitigation at 40 CFR 1508.20 to include: avoiding impacts, minimizing impacts, reducing impacts over time, and compensating for impacts.

Types of mitigation include:

1) Avoidance - Positioning or eliminating portions of the proposed action so that wetlands are not affected.

2) Minimization - Appropriate and practicable steps to minimize impacts through project modifications. Examples include project reconfiguration, placement of silt fences and straw bales, and use of high flotation tires to prevent damage to wetland soils.

3) Compensatory Mitigation - Compensation for wetlands lost or damaged as a result of the proposed action. Typical forms of compensatory mitigation include wetland restoration, wetland construction, wetland enhancement and mitigation banking.

Assessment of total wetland impacts from remedial activities and determination of appropriate wetland mitigation through consultation with regulatory agencies would be performed every five years in conjunction with CERCLA reviews. This interval time period would be responsive to resultant changes transpiring from the three- year wetland delineation update and allow for adequate preparation to address mitigation concerns.

Wetland Restoration

Restoration is the rehabilitation of a degraded wetland or a hydric soil area that was previously a wetland. The goal of restoration is to return the degraded wetland to its pre-existing physical and botanical conditions. A degraded wetland area(s) can be restored to pre-existing condition(s) by removing unwanted vegetation, re-

vegetating with nursery materials, and reestablishing the hydrologic regime.

Wetland Construction

Wetland construction is the conversion of a non-wetland area into a wetland where a wetland has not existed (within the past 100-200 years). Construction is desirable by regulatory agencies because it replaces lost functional wetlands and is in accordance with the "no net loss" policy established under Executive Order 11990, "Protection of Wetlands."

Three methods of wetland construction could be implemented. Each method is comprised of a system which involves removing upland soils, grading, planting schemes, and water retention to establish anaerobic conditions conducive for hydric soils and hydrophytic vegetation. The three methods are: 1) Surface Water System - this system involves the establishment of a hydrologic connection with an existing surface water body or other surface water sources (runoff or precipitation). This wetland system is primarily dependent upon surface water for hydrologic input; 2) Groundwater System - this system involves the hydrologic connection with the groundwater table. Primary dependence is on groundwater for hydrologic input; and 3) Surface/Groundwater System - this system involves the hydrologic connection with both surface and groundwater. A combination of surface water and groundwater provide hydrologic input. Implementation and establishment of these systems are site specific.

Wetland Enhancement

Enhancement of wetlands refers to the physical and/or botanical alteration of an existing wetland to provide improved and/or new functions such that any concurrent changes to the hydrology from alteration will not negate the enhancement objectives. Enhancement of existing wetlands can involve a variety of techniques from diversification (e.g., using specific plant species to optimize wildlife attraction and placement of wood duck boxes) to erosion control (e.g., placing plant soil-stabilizing species along the face of the bank).

Wetland Banking

Wetland banking provides advanced compensation of unavoidable wetland losses. Banking can be achieved through the construction, restoration, or enhancement of other wetland areas of equivalent value generally located outside the immediate area of wetland loss or alteration.

Wetland banks are blocks of wetlands whose estimated credits can be compared to cash deposits in a checking account. As wetland impacts occur, credits equivalent to the estimated unavoidable wetland losses are withdrawn or debited from the bank to compensate for losses incurred.

The methodology most commonly used for valuation and accounting purposes is one which tabulates credits and debits according to acreage of various wetland types. Using this method, compensatory mitigation is implemented by replacing wetland types lost with wetland types contained in the bank on an acreage basis.

The ratio of acres for compensation to acres of impacted wetlands is project specific and would be negotiated with ACOE, EPA, and OEPA along with timing of mitigation activities.

Conclusion

The recommended approach to mitigation is consideration of both on-property and off-property wetland mitigation. The specific form of wetland mitigation will be determined through consultation with regulatory agencies. These mitigatory efforts will be designed to offset impacts sustained under Section 404 of the CWA during the post-Record of Decision activities.

On-property mitigation would be based on the feasibility of implementation as on-property remedial activities progress. An on-property phased approach to mitigation could be implemented, under which impacts would be mitigated in conjunction with five-year CERCLA reviews. This approach provides increased flexibility by allowing the site to fully integrate wetland mitigatory efforts with the FEMP remedial schedule. On-property mitigation could be feasible as a result of depressional areas resulting from remedial activities, but may not be conducive to near-term (next 2-3 years) implementation as a result of adequate acreage availability to compensate wetland losses at the time an impact is sustained.

Off-property mitigation within the same eco-region could allow ample acreage to compensate for wetland losses and could be implemented in the near-term. An evaluation of soil, hydrologic, and vegetative conditions at the proposed mitigation location would be required to determine the extent to which mitigatory efforts can be conducted on-and off-property. The mitigation process is dependent upon the dynamics of specific wetland ecosystems and will be defined through consultation with EPA, OEPA, ACOE, USFWS, and ODNR.

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