
Formerly Utilized Sites
Remedial Action Program
(FUSRAP)

Maywood Chemical Company Superfund Site

ADMINISTRATIVE RECORD

Operable Unit 1 – Soils and Buildings

Document Number

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**US Army Corps
of Engineers®**
New York District

GENERAL ENVIRONMENTAL PROTECTION PLAN

FUSRAP MAYWOOD SUPERFUND SITE MAYWOOD, NEW JERSEY

**SITE-SPECIFIC ENVIRONMENTAL RESTORATION
CONTRACT NO. W912DQ-13-D-3016 TASK ORDER 001**

Prepared for



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RECORD OF REVISIONS

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ABBREVIATIONS AND ACRONYMS

AFR	Air Force Regulation
ALARA	As Low As Reasonably Achievable
APP	Accident Prevention Plan
BCUA	Bergen County Utilities Authority
BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
CAA	Clean Air Act
CB&I	CB&I Federal Services, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liabilities Act of 1980
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
CHP	Certified Health Physicist
cm	centimeters
COC	contaminant of concern
QCP	Contractor Quality Control Plan
CQCSM	Quality Control System Manager
CWA	Clean Water Act
DAR	Design Analysis Report
dB	decibels
DOT	U.S. Department of Transportation
EHS	Environmental Health and Safety
EMP	Environmental Monitoring Program
FFA	Federal Facilities Agreement
FMSS	FUSRAP Maywood Superfund Site
FR	Federal Register
FS	Feasibility Study
ft	feet
FUSRAP	Formerly Utilized Sites Remedial Action Program
gal	gallon
GEPP	General Environmental Protection Plan
ha	hectare
HAZWOPER	Hazardous Waste Operations and Emergency Response
HMTA	Hazardous Materials Transportation Act
HSWA	Hazardous and Solid Waste Amendments of 1984
I-80	Interstate 80
in.	inches
km	kilometers
lb	pound
LEL	Lower Explosive Limit
LUCs	Land Use Controls

ABBREVIATIONS AND ACRONYMS (Continued)

M	meters
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MCW	Maywood Chemical Works
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mg/m ³	milligrams per cubic meter
MHTD	Materials Handling/Transport and Disposal Plan
mi	mile
MISS	Maywood Interim Storage Site
MSDS	Material Safety Data Sheet
MSL	Mean Sea Level
NA	not applicable
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NESHAP	National Emission Standards for Hazardous Air Pollutants
NFPA	National Fire Protection Association
NJ	New Jersey
NJAC	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NJDOT	New Jersey Department of Transportation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
NYS&W	New York, Susquehanna, & Western
O&M	operation and maintenance
OP	Operating Procedure
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PCB	polychlorinated biphenyl
pCi/g	picoCuries per gram
pCi/L	picoCuries per liter
PE	Project Engineer
PM	Project Manager
PPE	Personal Protective Equipment
PSE&G	Public Service Electric & Gas
Ra-226	Radium-226
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation / Feasibility Study
RMA	Radioactive Materials Area
Rn	Radon
ROD	Record of Decision
RPT	Radiation Protection Technician
RQ	Reportable Quantity

ABBREVIATIONS AND ACRONYMS (Continued)

RSO	Radiological Safety Officer
Rt	Route
SARA	Superfund Amendments and Reauthorization Act
SERC	State Emergency Response Commission
SPCC	Spill Prevention, Control and Countermeasure
SS	Site Superintendent
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
T&D	Transportation and Disposal
TAL	Target Analyte List
TCL	Target Compound List
TDC	Transportation and Disposal Coordinator
TDS	Total Dissolved Solids
TETLD	Tissue-Equivalent Thermo-Luminescent Dosimeter
Th-232	Thorium-232
TSCA	Toxic Substances Control Act
TSD	Treatment, Storage and Disposal
TSS	Total Suspended Solids
U-238	Uranium-238
UFP-QAPP	Uniform Federal Policy-Quality Assurance Project Plan
USACE	U. S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDOE	U.S. Department of Energy
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WMP	Water Management Plan
yd	yard
yd ³	cubic yards

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1.0 INTRODUCTION

This *General Environmental Protection Plan (GEPP)* addresses the controls designed to prevent environmental contamination from soil, water, and air emissions resulting from the remedial actions planned for the Formerly Utilized Sites Remedial Action Program (FUSRAP) Maywood Superfund Site. This document has been prepared in accordance with the requirements set forth under United States Army Corps of Engineers (USACE) Kansas City District Contract No. D912DQ-13-D-3016. Consistent with contract requirements, work shall be performed “in such a manner as to minimize the pollution of air, water, or land and to control noise and dust within reasonable limits or limits established by applicable Federal, State, and local laws and regulations.”

This *GEPP* has been prepared as a project-wide document for the FUSRAP Maywood Superfund Site (FMSS). Due to the diverse land use of the properties within the FMSS, site-specific (i.e., location or property) addenda are prepared under Remedial Design and Remediation phases of the project to address environmental contamination controls. Design Analysis Reports (DARs) have been prepared to identify appropriate materials and installation requirements to meet the appropriate engineering and construction requirements for remediation, such as calculations for slope stability and management of impacted water. Construction Work Plans were generated prior to any construction or remedial activities. Each Construction Work Plan includes specifications that address site-specific environmental concerns, such as: mobilization / site preparation; environmental monitoring; pre-remedial action survey; contaminated soil staging; equipment decontamination; soil erosion / sediment control; storm water and dewatering management; dust control; protection of wetlands, land areas, and trees and shrubs; noise control; traffic control; site lighting; and restoration / aesthetic issues.

Design and implementation of environmental pollution controls, hence execution of this *GEPP* and the site-specific addenda will be critical to ensure protection to the public and employees of the active businesses within and surrounding the FMSS, as well as to the environment. This *GEPP* also is responsive to project concerns, such as community relations and obligations of the stakeholders (i.e., property owners, community officials, residents, USACE, and regulatory agencies).

1.1 SITE LOCATION AND DESCRIPTION

The FMSS is located in a highly developed area of Bergen County in northeastern New Jersey. It is located in the Boroughs of Maywood, approximately 12 miles (mi) (20 kilometers [km]) north-northwest of New York City and 13 mi (21 km) northeast of Newark, New Jersey. The population density of this area is approximately 7,000 people per square mile (mi²).

The FMSS consists of 88 designated residential, commercial, municipal, and government-owned properties in the Boroughs of Maywood and Lodi, and the Township of Rochelle Park. The majority of the remediation activities will be conducted at the Maywood Interim Storage Site (MISS). The MISS is an 11.7-acre lot that previously was part of a 30-acre property owned by the Stepan Company. Remediation activities also will take place to a lesser degree on properties located within a few miles of the MISS. These off-site locations are known as Vicinity Properties. The U.S. Department of Energy (USDOE) began investigating the FMSS and surrounding areas in 1983, and subsequently acquired the MISS from the Stepan Company in 1985. As of 2003, the USACE published the *Final Record of Decision for Soils and Buildings at the FUSRAP Maywood Superfund Site (ROD)* (USACE, 2003a) to address soil and building contamination on the remaining 24 commercial and governmental FMSS properties. Contaminated groundwater is being addressed under a separate ROD (USACE, 2012b). **Figure 1-1** shows the location of the properties comprising the FMSS.

Remedial and removal actions at the FMSS are being conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA). The site is listed on the National Priorities List (NPL) as the Maywood Chemical Company. Residential properties have been remediated under a recent CERCLA removal action (USDOE, 1995). **Table 1-1** lists all 88 designated properties included in the FMSS grouped by property unit (including residential properties) and indicates the 85 residential properties that have been remediated by previous actions. As of the date of this revision to the *GEPP* (November 2013), remedial excavation and restoration is only required for the following three properties and the MISS: 149-151 Maywood Avenue, New York, Susquehanna, & Western (NYS&W) Railroad, and 100 West Hunter Avenue. The remaining properties have been completed or have inaccessible contamination present. However, inaccessible soils may be remediated in the future on the completed properties if and when the landowner makes these soils accessible. This revision to the *GEPP* focuses on the procedures developed to protect the public and the environment from any potential impacts associated with remedial excavation activities for the remaining properties. **Figure 1-2** shows the status of excavation activities for each property that comprises the FMSS. Additional information regarding site history; site description; physical characteristics; remedial alternatives; soil volume estimates proposed for excavation, removal, and off-site disposal; and remediation of currently inaccessible soil beneath buildings and roadways can be referenced in the *Feasibility Study for Soils and Buildings at the FUSRAP Maywood Superfund Site* (FS) (USACE, 2002a), *Proposed Plan for Soils and Buildings at the FUSRAP Maywood Superfund Site* (PP) (USACE, 2002b), and the ROD (USACE, 2003a).

1.1.1 MISS

MISS is an 11.7-acre [4.7-hectare (ha)] fenced lot that was previously part of a 30-acre (12.1 ha) property owned by the Stepan Company. The Federal government acquired MISS from the Stepan Company in 1985 for use as an interim storage facility for materials that were to be removed from Vicinity Properties. The MISS contains two buildings (Building No. 76 and a Pump House), temporary office trailers, a water reservoir, a retention pond, and a railroad spur. The water reservoir and Pump House are still in use by Stepan Company. It is bounded on the west by New Jersey State Route 17 (NJ State Rt. 17); on the north by a NYS&W line; and on the south and east by the Stepan Company property. Residential properties are located north of the railroad line and within 300 yards (yd) (274.3 meters, m) to the north of MISS. The topography of MISS ranges in elevation from approximately 51 to 67 feet (ft) (15.5 to 20.4 m) above mean sea level (MSL). The highest elevations are in the northeastern portion of the property. Small mounds and ditches are the result of process waste that was stored during by the former owner Maywood Chemical Works (MCW). A chain-link fence encloses the property. Access is restricted within the fenced area (USACE, 2002a). A chronology of events that occurred at the property formerly owned by the MCW and Stepan Company is described in detail in the *Feasibility Study for Soils and Building at the FUSRAP Maywood Superfund Site* (USACE, 2002a).

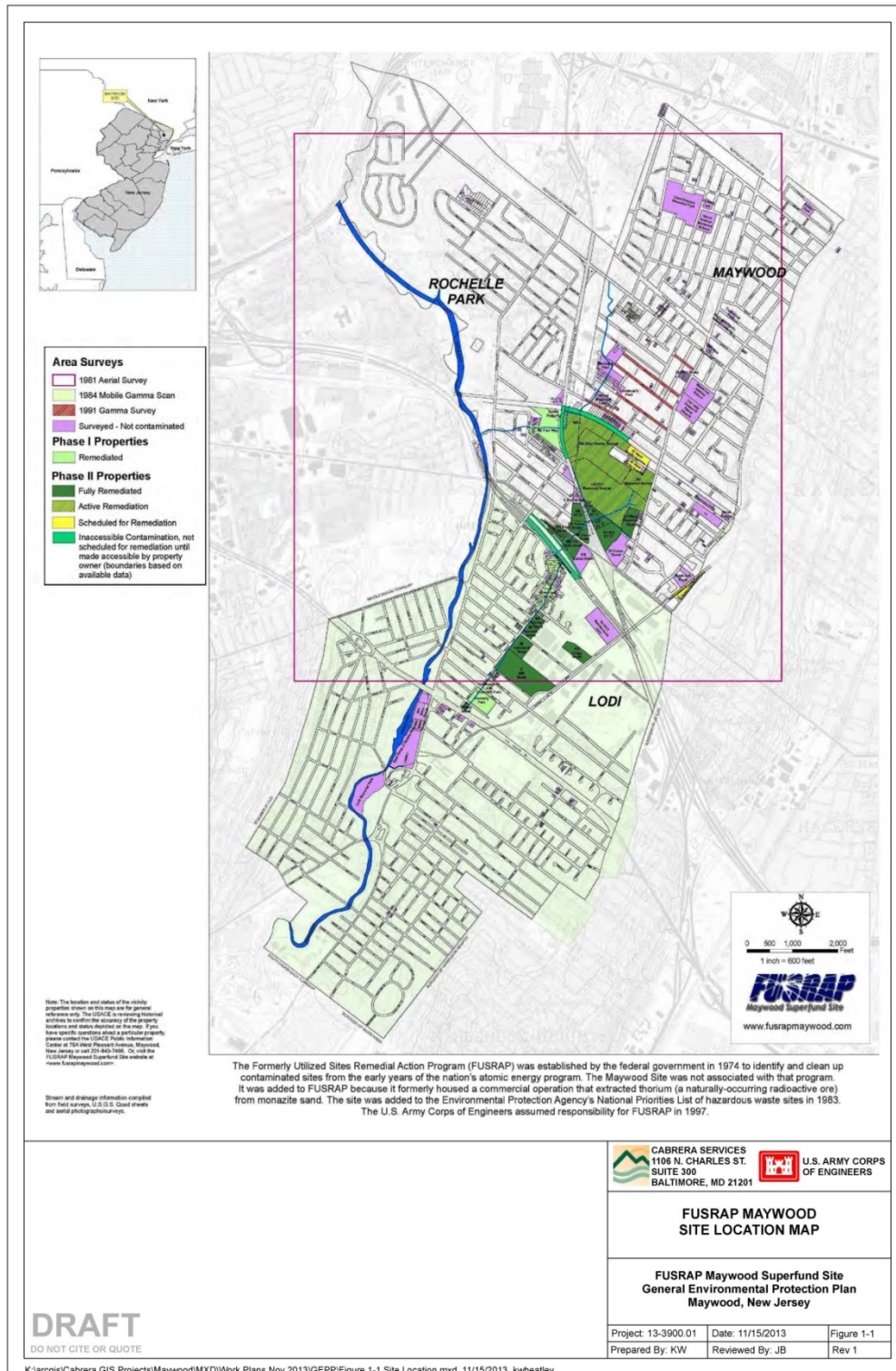


Figure 1-1 Site Location



Figure 1-2 Status of Remedial Activities at the Triangle Properties

Table 1-1 – FMSS Properties (Grouped by Property Unit)

Property Unit	Property Address	Type of Property	
MISS	100 W. Hunter Avenue, Maywood and Rochelle Park	Federal	
Stepan Company	100 W. Hunter Avenue, Maywood	Commercial	
Commercial / Government	149-151 Maywood Avenue, Maywood	Commercial	
	Interstate 80 (I-80), Lodi: (1) east right-of-way (2) beneath road and west right-of-way	State	
	NJ State Route (Rt.) 17, Maywood and Rochelle Park	State	
	167 NJ State Rt. 17, Maywood	Commercial	
	239 NJ State Rt. 17, Maywood	Commercial	
	111 Essex Street, Maywood	Commercial	
	Lodi Industrial Railroad, Maywood	Commercial	
	88 Money Street, Lodi	Commercial	
	8 Mill Street, Lodi	State	
	80 Industrial Road, Lodi	Commercial	
	80 Hancock Street, Lodi	Commercial	
	100 Hancock Street, Lodi	Commercial	
	170 Gregg Street, Lodi	Commercial	
	150*, 160/174 Essex Street, Lodi	Commercial	
	99 Essex Street, Maywood	Commercial	
	113 Essex Street, Maywood	Commercial	
	200 NJ State Rt. 17, Maywood	Commercial	
	New York, Susquehanna and Western Railway	Commercial	
	85, 87, 99-101 NJ State Rt. 17, Maywood	Commercial	
	137 NJ State Rt. 17, Maywood	Commercial	
	23 W. Howcroft Road, Maywood	Commercial	
	50 and 61 West Hunter Avenue, and 205 Maywood Avenue, Maywood	Commercial	
	96 Park Way, Rochelle Park	Commercial	
	Lodi Municipal Park, Lodi	Municipal	
	Fire Station No. 2, Lodi	Municipal	
	Fireman's Memorial Park, Lodi	Municipal	
	John F. Kennedy Municipal Park, Lodi	Municipal	
	Residential	136, 142* W. Central Avenue, Maywood	Residential
		200 Brookdale SE, Maywood	Residential
		454, 459, 460, 464, 468 Davison Avenue, Maywood	Residential
459, 461, 467 Latham Street, Maywood		Residential	
10, 22, 26, 30, 34, 38, 42 Grove Avenue, Rochelle Park		Residential	
86, 90 Park Way, Rochelle Park		Residential	
59 Avenue C, Lodi		Residential	
58, 59, 61, 64 Trudy Drive, Lodi		Residential	
60, 62 Trudy Drive, Lodi		Residential	
121, 123 Avenue F, Lodi		Residential	
3, 4, 5, 6, 7, 8, 9*, 10 Hancock Street, Lodi		Residential	
2, 4, 6, 7, 11 Branca Court, Lodi		Residential	
14, 28*, 46* Long Valley Road, Lodi		Residential	
16, 18, 20, 22, 24, 26, 34 Long Valley Road, Lodi		Residential	
11 Redstone Lane, Lodi		Residential	
17, 19* Redstone Lane, Lodi		Residential	
106 Columbia Lane, Lodi		Residential	
99 Garibaldi Avenue, Lodi	Residential		

Table 1-1 – FMSS Properties (Grouped by Property Unit) (Continued)

Property Unit	Property Address	Type of Property
Residential (continued)	90 Avenue C, Lodi	Residential
	108, 112, 113 Avenue E, Lodi	Residential
	79 Avenue B, Lodi	Residential
	5, 7 Shady Lane	Residential

Notes:

* = Identifies property addresses that were not originally designated, but where contamination was remediated during other cleanup activities. These properties are in addition to the 88 originally designated properties at the FMSS.

1.3 WASTE DESCRIPTION

The waste to be managed at the FMSS is identified as “FUSRAP Waste.” In accordance with the USDOE and the U.S. Environmental Protection Agency (USEPA), “FUSRAP Waste” is defined in the ROD (USACE, 2003a) as follows:

- All contamination, both radiological and chemical, whether mixed or not, on the MISS.
- All radiological contamination above cleanup levels related to past thorium processing from the MCW occurring on any of the Vicinity Properties.
- Any chemical or non-radiological contamination on Vicinity Properties that would satisfy either of the following requirements:
 - The chemical or non-radiological contaminants that are mixed or commingled with radiological contamination above cleanup levels.
 - The chemical or non-radiological contaminants that originated at the MISS or were associated with the specific thorium manufacturing or processing activities at the MCW that resulted in the radiological contamination.

1.4 PROJECT DESCRIPTION / SCOPE OF WORK

The project is the performance of investigation, design, construction, operation and maintenance (O&M), and related work necessary to remediate the FMSS. It concerns air, soil, and waters of the State of New Jersey, as well as structures located within the FMSS. The scope of work includes:

- Preparation of plans / instructions, including: an environmental protection plan; a site safety and health plan; a construction work plan; a chemical data quality management plan; a materials handling, transportation and disposal plan; and a quality control plan.
- Preparation of appropriate decontamination facilities to clean equipment and tools used in excavation and transport activities.
- Installation and maintenance of sediment and erosion controls.
- Delineation of approximate boundaries of contamination to be excavated at each property, and establishment of control areas surrounding excavation sites to meet safety and health requirements.
- Excavation of contaminated materials (including buried drums) exceeding site-specific cleanup or disposal criteria from the affected vicinity properties.

- Management and treatment of dewatered liquids (groundwater, precipitation, and storm water runoff), as required to meet regulatory requirements.
- Analysis of samples of the excavated materials to confirm compliance with regulatory requirements and waste acceptance criteria of the disposal facility.
- Loading of excavated materials into trucks, containers, etc. for local transport to the soil stockpile area at the MISS.
- Transfer of excavated materials into gondola lined railcars at the MISS rail spur.
- Rail transport to one of two off-site USACE-approved disposal facilities for permanent disposal.
- Final Status Survey in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) of remediated areas to verify that site-specific cleanup criteria have been achieved (Nuclear Regulatory Commission [NRC], 2000).
- Restoration of excavated areas with clean soil, revegetation, asphalt pavement, etc.
- Environmental monitoring to ensure compliance with all pertinent requirements.

1.5 OBJECTIVES OF THIS PLAN

This *GEPP* describes selected aspects of environmental protection to be implemented at the FMSS. The following paragraphs summarize the control objectives identified by the USACE.

1.5.1 Control and Treatment of Impacted Water

Water may become impacted as a result of surface or groundwater contact with contaminated soil during excavation. The impacted water will be transported to the construction water treatment system at the MISS for treatment and discharge in accordance with the Bergen County Utilities Authority (BCUA) treated groundwater discharge permit. Additional information regarding water treatment procedures at the FMSS can be referenced in **Section 3.0** of this document and the *Water Management Plan* (WMP) (USACE, 2014a).

1.5.2 Dust Control

Air drying and vehicular traffic could make contaminated dust airborne during excavation, transportation, storage, mixing, and loading of railcars. Dust emissions will be minimized and monitored during remedial activities at the FMSS. Dust will be controlled by suppression with potable water and an aqueous calcium chloride solution. Air monitoring for dust also will be conducted at the site of excavation and along the perimeter of the MISS. Dust control is further discussed in **Section 4.0**.

1.5.3 Erosion Control

Erosion of contaminated and uncontaminated soil could occur from open excavations, or from unprotected soil stockpiles and waterways, such as brooks adjacent to contaminated areas. Erosion control is further discussed in **Section 5.0** of this document.

1.5.4 Control of Surface Water and Storm Water Runoff

Run-on, uncontaminated and contaminated incident rainfall run-off from undisturbed areas, and contaminated run-off from disturbed areas will be produced when precipitation occurs while the remedial action is in progress. The contractor will adhere to the substantive requirements of the Clean Water Act (CWA) and New Jersey Department of Environmental Protection (NJDEP) regulations to ensure that best management practices (BMPs) and engineering and operational controls are implemented to control surface run-off during construction activities. Adherence to these regulations will prevent the pollution or degradation of drainage ways, particularly Westerly Brook, Lodi Brook, the Saddle River, and the surrounding environment. Containment systems (e.g., sediment traps, silt fences, berms, etc.) will be constructed to minimize soil and sediment releases and to separate contaminated water from uncontaminated water. Control of surface water and storm water runoff is further discussed in **Section 5.0** of this document.

1.5.5 Spill Control

Oil from machinery, chemicals used in construction activities, and soil lost in load-out activities could be sources of spills requiring remediation. A spill control plan encompassing the requirements of a Spill Prevention, Control, and Countermeasures (SPCC) Plan per 40 Code of Federal Regulations (CFR) 110 and 112, is included in **Section 8.0** of this document to ensure that preventive measures and necessary actions are taken to limit and/or prevent release of hazardous material or hazardous substances into storm water run-off.

1.5.6 Other Environmental and Remediation Controls

Excavation and related remediation factors (i.e., traffic, noise, odors, vibrations, etc.) could impact environmentally and sociologically sensitive areas (wetlands, archeological, historical), as well as cause structural damage to affected areas.

1.6 OTHER PROTECTIVE CONTROLS

Other FMSS project plans incorporate significant aspects related to environmental protection. This section summarizes the environmental controls designed into other FMSS planning documents produced for this project.

1.6.1 Accident Prevention Plan

The *Accident Prevention Plan (APP)* (USACE, 2013a) is the primary management document for establishing site-specific safety and health procedures, practices, and equipment to be implemented and used to protect personnel, as well as the local community and the environment, from potential occupational safety and health hazards during execution of the project. As a working document, the *APP* may be modified during fieldwork based upon review of additional information regarding unexpected site conditions and/or implementation issues. The *APP* outlines the employee roles and responsibilities and lines of authority, subcontractor and supplier requirements, environmental hazard training and certification, emergency response procedures, and inspection and reporting requirements. The *Site Safety and Health Plan (SSHP)* including the *Radiation Protection Plan (RPP)* is included in the *APP* as Appendix A. Health physics aspects, including the use of detection instrumentation for field measurements of radiation, are included. Contact lists for reporting will be updated before each new activity occurs. Material Safety Data Sheets (MSDSs) also are addressed in this plan.

1.6.2 Sampling and Analysis Plan

The *Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP)* (USACE, 2014b) describes the methods to be used for collection and analysis of soil, water, and air. The *UFP-QAPP* also provides procedures for field screening of chemical and radiological contaminants. The results of sampling and analysis activities will be used to produce data for making decisions. The data will be used for developing designs, performing remediation, verification of cleanup, limiting exposure of workers, waste classification and certification, and evaluating compliance standards for ultimate disposal.

1.6.3 Materials Handling, Transportation, and Disposal Plan

The *Materials Handling/Transport and Disposal Plan (MHTD)* (USACE, 2014c) provides the major remedial processes for FMSS soil. Transportation and off-site disposal requirements for radioactive and mixed waste and other remediation byproducts are identified in this plan. The plan provides for waste analyses and field screening related to waste profiles, excavation, sorting / washing, drying, and waste certification for contaminated soils. The plan provides for replacing excavated soil with fill that has been demonstrated to be clean. It also provides for compliance of the waste shipments of soil with the U. S. Department of Transportation (DOT) and the NRC requirements that are protective of the environment and public.

1.6.4 Construction Load-Out, Transportation & Disposal Plan

The *Construction Load-out, Transportation & Disposal Plan* (USACE, 2014d) describes the soil load-out, transportation, and disposal operations at the FMSS. The plan details the procedures how contaminated soil and other potentially impacted materials will be loaded into lined gondola railcars and transported by railroad subcontractors to a USACE-approved disposal facility. Additionally, the plan further describes how railcars will be classified and labeled based on analytical results and the shipping paperwork required for each railcar.

1.6.5 Quality Control Plan

The *Quality Control Plan (QCP)* (USACE, 2013b) establishes the methods for ensuring that the requirements of the contract are met and, as a result, ensures that environmental protection measures in the contract are carried out.

1.7 PROCEDURES

This section discusses significant procedures relative to the feasibility of environmental controls at the FMSS. The following assumptions have been used for the development of this plan:

1. Radioactive isotopes are primarily associated with soil particles rather than water in contact with soil.
2. Existing roadways / railways will be used for transportation.
3. Decontamination - Vehicles and equipment leaving the site work areas will be screened for contamination and appropriately decontaminated, if necessary, to control the transport of contamination from the site work areas.
4. Air emissions control - Work areas, including the excavations, embankments, and affected soils will be maintained to minimize the generation of dust. Dust suppressants including wetting soil

during excavation or storage, covering soil stockpiles, street cleaning, and construction of a fabric structure for soil storage at the MISS will be used for dust control.

5. Railcar containers will be received clean and will not require decontamination. Railcars that are not clean will be returned.
6. Clean material will be required to backfill the open excavations. The clean material will be off-site borrow material. The material will be tested to ensure that it meets backfill requirements.
7. Soil spillage at the MISS and within exclusion zones at remediation sites will be a normal, realistic part of the work process and will be carefully managed to avoid spreading contamination.
8. Impacted water generated during remedial activities will be collected and transported to the MISS for treatment. Effluent samples will be collected monthly for radiological and chemical parameters to ensure BCUA discharge criteria are being met.
9. Groundwater production rates from excavations will be managed with respect to treatment capacity at the construction water treatment system using storage tanks and dewatering systems, if necessary.
10. The scope of work constitutes no major immediate threats to the lives of the workers or the public as a result of the contaminants of concern (COCs). Excavation hazards are the major potential risk to workers.
- 11 Key elements of the Environmental Monitoring Program (EMP) at the FMSS will include continuous monitoring for measurement of external gamma radiation, measurement of Rn gas concentrations in air (from Rn-220 and Rn-222), and measurement of Rn flux for soil stockpile at MISS - as required; groundwater level measurements of monitoring wells, as well as annual monitoring and sampling and analysis of surface water and streambed sediment for radioactive constituents and groundwater for radioactive constituents. The elements of the EMP are reviewed annually and revised based on the analytical results of the previous event to ensure that the program is protective of site workers, residents, and the environment.

1.8 STRATIGRAPHY / HYDROLOGY

The stratigraphy at the FMSS yields two distinct layers: bedrock composed of the Triassic- to Jurassic-age Passaic Formation; and, overburden of unconsolidated glacial till. The Passaic Formation is part of a sequence of sediments deposited in the Newark Basin during the Triassic and Jurassic time periods. The Formation consists of interlayered dark to moderate red-brown, fine-grained sandstones and siltstones. At the FMSS, beds of the Passaic Formation exhibit extensive weathering, and horizontal jointing in this formation is probably related to weathering. Unconsolidated material overlying the weathered bedrock consists of sands, silts, and clays. The thickness of unconsolidated sediments varies over the FMSS. Bedrock is within 6 inches (in.) (15 centimeters [cm]) of the surface near the northern end of the Stepan Company property where there is a pronounced bedrock high. The overburden reaches a maximum thickness of over 25 ft (7.6 m) in a downcut channel on the MISS property. Unconsolidated deposits are loosely divided into three groups at the FMSS: a lower unit of fine grained sands and silts with occasional coarse gravels and sands; a middle unit of clays and silts with occasional organic-rich soil horizons; and, an upper unit of undifferentiated sands and silts that is much disturbed by urban development. Historically, the glacial deposits of the Maywood area were capped with a well-developed deciduous forest soil. Extensive agricultural and urban development has destroyed or disturbed much of the original soil and most of the current soil cover is classified as urban fill. Additional information on site geology / soils is provided in the RI (USDOE, 1992).

The FMSS lies within the Saddle River drainage basin. **Figure 1-3** shows the Maywood area waterways, including drainage basins of Westerly Brook and Lodi Brook and the location of the Saddle River. MISS is located approximately 0.5 mi (0.8 km) east of the Saddle River, which is a tributary of the Passaic River, and approximately 1 mi (1.6 km) west of the drainage divide of the Hackensack River basin. Rainwater run-off from most of MISS empties into the Saddle River through Westerly Brook, which flows under the property, under State Route 17 through a concrete culvert, and eventually empties into the Saddle River. Neither the Saddle River nor Westerly Brook is used as a source of potable water.

Another perennial stream on the FMSS, Lodi Brook, begins as two branches on the 149-151 Maywood Avenue property. Most of the original stream channel has been replaced by an enclosed storm drain system. The former channel matches the distribution of contaminated materials in the Borough of Lodi. The western branch of Lodi Brook has been covered by a warehouse and parking lot. The eastern branch drains the surface area outside the fence at 149-151 Maywood Avenue and then flows underground for most of its route to the Saddle River. Some surface run-off from MISS may flow parallel to State Route 17 and drain into Lodi Brook. Surface water flow studies at MISS, however, have observed no measurable surface run-off from the MISS property (USDOE, 1995). Lodi Brook empties into the Saddle River downstream of Westerly Brook's confluence with the Saddle River. Some of the vicinity properties at the south end of Lodi Brook are located within the 100-year floodplain of the Saddle River.

1.9 ENVIRONMENTAL REQUIREMENTS

This section describes the environmental protection requirements and conditions to be implemented during construction, and restoration activities. The purpose of this section is to ensure the work performed will comply with all applicable environmental laws and regulations.

1.9.1 Applicable Laws and Regulations

The remedial action at the FMSS is being implemented under CERCLA Section 104, with regulatory requirements mandated under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR 300.415. CERCLA requires that actions taken under the remedial process must comply with both State and Federal laws to the extent practicable.

The FMSS remedial action will be carried out according to all environmental laws and requirements to the maximum extent practicable. This includes applicable Federal laws as well as more stringent State and local standards. The identification of regulatory requirements for the proposed remedial activities is based on the nature of the contamination [primarily soil contaminated with Radium-226 (Ra-226), Thorium-232 (Th-232), and Uranium-238 (U-238)], the nature of the proposed remediation, and the location of the site. **Table 1-2** presents the COCs and their cleanup levels.

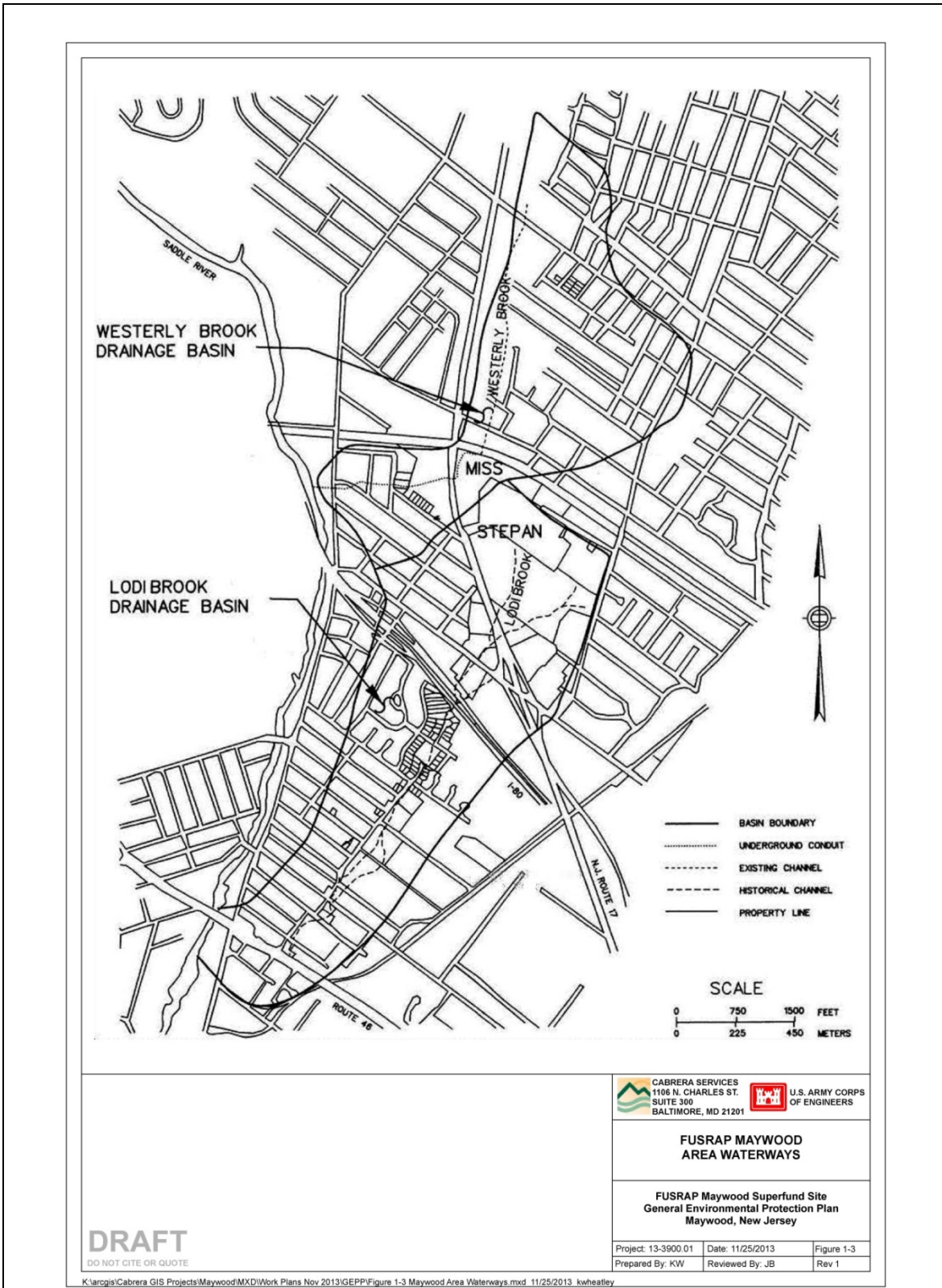


Figure 1-3 FUSRAP Maywood Area Water ways

USACE will comply with all pertinent environmental requirements to ensure the protection of human health and the environment during implementation of the proposed action. Appropriate standards from the Occupational Safety and Health Administration (OSHA) and other employee protection laws and guidelines also will be followed to protect workers during implementation.

Table 1-2 – COCs for Soil and Soil Cleanup Levels at the FMSS

FMSS Contaminant of Concern		Proposed Cleanup Level	Source of Cleanup Level
Radionuclides in Soil	Radium-226 Thorium-232	Commercial/Restricted Use: An average 15picocuries per gram (pCi/g) combined Radium-226 and Thorium-232 above background in subsurface soils with an as low as reasonably achievable (ALARA) goal of 5 pCi/g Residential/Unrestricted Use: An average 5 pCi/g combined Radium-226 and Thorium-232 above background for soils	USEPA/USDOE Dispute Resolution on Site-Specific Cleanup Criteria for the FMSS.
	Uranium-238	100 pCi/g of total uranium; 50 pCi/g of U-238	Site-specific uranium guideline (USDOE, 1994b).
Buildings and Building Surface Contamination	Radionuclides	Maintain an exposure dose limit of 15 mrem/yr.	N.J.A.C 7:28-12.8(a)1
Radon in Structures	Radon	Prevent Rn-222 concentrations in buildings from exceeding 3.0 pCi/L above background.	N.J.A.C 7:28-12.8(a)2.

1.9.2 Permit Terms and Conditions

Under CERCLA, the USACE is exempt from obtaining permits for on-site actions. However, the USACE will follow the substantive requirements of the permit process, including the application process. Accordingly, the environmental permit requirements / approvals will be reviewed and will incorporate the substantive terms and conditions from these permits into their remedial activities (investigation, design, construction, and O&M) at the FMSS. Section XVIII of the Federal Facilities Agreement (FFA) requires that USEPA be notified when a permit is not being obtained for a response action that will be conducted entirely on-site, which in the absence of Section 121(e) (1) of CERCLA and the NCP would require a Federal or State permit (USDOE/USEPA, 1991). Information to be supplied to USEPA includes the following.

- 1 Identification of each permit which would otherwise be required;
- 2 Identification of the standards, requirements, criteria, or limitations which would have had to have been met to obtain each such permit; and
- 3 Explanation of how the response action proposed will meet the standards, requirements, criteria or limitations identified in (2) above.

1.9.2.1 FMSS Treated Groundwater Discharge Permit

A permit equivalency is required to discharge treated water to BCUA. The BCUA has issued a treated groundwater discharge permit for the construction water treatment system at the FMSS. The water treatment system will treat raw construction water to meet the permit limits. The treatment effluent limitations established for the system at the FMSS are provided in **Table 3-1** in **Section 3.0**. A copy of treated groundwater discharge permit #1050 is included in **Appendix A**. Additional information regarding the construction water treatment system can be found in **Section 3.0** of this document and in the *WMP* (USACE, 2014a).

1.9.3 Environmental Monitoring Program

The USACE is committed to minimizing risks to the public and the environment, and addressing potential environmental impacts before they pose a threat to public welfare or environmental quality. To engender this commitment, an EMP will be conducted annually to determine the effects of site activities on human health and the environment and to ensure compliance with regulatory requirements. The EMP will include sampling networks for radon and thoron concentrations in air, external gamma radiation exposure, and radiological concentrations in surface water, sediment and groundwater.

The EMP will be conducted to achieve the following objectives:

- To ensure that the public and the environment are adequately protected from contaminants present at the FMSS.
- To verify compliance with applicable Federal, State and, local laws and regulations.
- To characterize and evaluate trends in the physical and chemical condition of environmental media.
- To provide an assessment of the effectiveness of remediation activities.
- To immediately identify and quantify new environmental quality problems.

The EMP encompasses the following:

- Perimeter monitoring for external gamma radiation.
- Perimeter monitoring for radioactive gasses (e.g., radon and thoron concentrations).
- Upstream and downstream surface water and sediment monitoring for site-specific radionuclides.
- Upgradient and downgradient groundwater monitoring for site-specific radionuclides.
- Radon-flux measurements of the soil stockpile located at the MISS.
- Site-specific permit monitoring requirements, such as National Emission Standards for Hazardous Air Pollutants (NESHAP), National Pollutant Discharge Elimination System (NPDES), and others, as appropriate.

In addition, meteorological data will be obtained for wind speed and direction, temperature (two levels), solar isolation, precipitation and barometric pressure.

The monitoring program will focus on the MISS. This site encompasses the original MCW site, which is the source of the FMSS contamination. This site is also the destination for contaminated materials removed from other sites. Thus, radiological monitoring will focus on MISS to ensure protection of the public and the environment. Radiological monitoring also will be conducted at other locations with the potential for exposure of the public to contaminants.

The EMP continually will be evaluated and revised, as necessary, if it is determined that the program does not adequately protect site workers, the general public, or the environment. Additional monitoring locations may be utilized as the program develops, and data are collected and evaluated. In particular, wells developed for the groundwater remedial investigation program also may be utilized for the EMP.

Sampling and analysis methods for groundwater, surface water, and sediment are provided in the *UFP-QAPP* (USACE, 2014b). Results of the environmental monitoring will be reported in an annual monitoring report. Additional information regarding the FMSS EMP can be found in the most recently

issued report, *Annual Environmental Monitoring Report, 2012* (USACE, 2013c). Specific objectives for each of the monitoring parameters are described below.

1.9.3.1 External Gamma Radiation

External gamma radiation will be monitored to:

- Determine the external gamma radiation exposure rates expected to occur in the FMSS vicinity.
- Determine the representative, effective doses to members of the public.
- Provide information required to evaluate compliance with NESHAP (40 CFR, subpart H).
- Quantify maximum perimeter and on-site exposure rates and total maximum exposure.
- Predict potential exposure to the public to determine whether near-term response actions are required.

The external gamma radiation program must provide timely information on exposures to potential maximally exposed members of the public from both stable site conditions and unexpected releases. The information obtained must be adequate to estimate the potential doses to the hypothetical maximally exposed individual and to site workers and the public, in case of an accident release.

Gamma radiation exposure rates are determined using dosimeters that provide cumulative measurements. A Tissue-Equivalent Thermo-Luminescent Dosimeter (TETLD) provides the total exposure at one location for a given time interval when corrected for shelter / absorption and background. The TETLDs are positioned at on-site, perimeter and off-site locations, based on the following rationale:

- On-site - to determine the maximum exposure to on-site personnel and to monitor known areas of elevated external gamma radiation;
- Perimeter - to determine external gamma radiation exposure to potentially maximally exposed members of the public, and
- Off-site - to determine background external gamma radiation exposure rates and maximum background exposures.

A total of four TETLDs (two preliminary and two contingency) are placed at each sampling station at the beginning of an annual sampling period. Contingency TETLDs are required to maintain continuous surveillance in the event of a faulty or damaged TETLD, or in the event of an unexpected release that would require the removal of a TETLD for immediate analysis. Two of these (one primary and one contingency), are retrieved and analyzed after 6 months. The 6-month results will be used to provide an early estimate of the annual gamma radiation exposure levels to be expected. The remaining TETLDs will be retrieved and analyzed after 1 year, for use in assessing the annual radiological exposure to the public.

1.9.3.2 Radon Gas

The monitoring program for radon gas includes evaluation of Ra-222 and Ra-220. These two isotopes will be reported together as radon gas.

Radon monitoring will be conducted to:

- Assess radon concentrations on-site and at the perimeter.
- Assess background radon concentrations.
- Provide site-specific radon data to the public.

The radon detectors are positioned at on-site, perimeter and off-site locations, based on the following rationale:

- On-site - to determine short- and long-term exposure levels for on-site workers,
- Perimeter - to evaluate potential exposure levels to the public, and
- Off-site - to determine background levels.

Site-specific radon gas data will be provided to the public annually. Sampling and analysis methods for radon gas are provided in the *UFP-QAPP* (USACE, 2014b).

1.9.3.3 Groundwater

Groundwater monitoring will be conducted to:

- Assess baseline conditions for groundwater quality and quantity,
- Permit the early detection of groundwater contamination.
- Identify groundwater contamination sources and to monitor these sources.
- Provide an evaluation of site releases and their potential impact on the environment.

Groundwater will be analyzed for radionuclides and water quality parameters. However, the list of parameters to be analyzed will be reviewed annually prior to the next round of monitoring. Groundwater conditions (water level, flow velocities, estimated contaminant transport, and flow directions) will be determined to aid in the evaluation of potential environmental impacts. Sampling and analysis methods for groundwater are provided in the *UFP-QAPP* (USACE, 2014b).

Groundwater monitoring wells will be inspected annually to ensure their integrity. Any damage or deterioration will be repaired.

1.9.3.4 Surface Water and Sediment

Surface water courses and drainage near the MISS include Westerly and Lodi Brooks. Westerly Brook flows through a culvert after it enters the northwestern corner of the MISS. The subsurface culvert redirects Westerly Brook to the west, south, and then to the west again, along the northern and western property boundaries. After leaving the MISS, the culvert remains below grade for approximately 1100 ft (335 m) before it terminates. At this point, Westerly Brook reemerges and resumes its westward course. Ultimately, Westerly Brook discharges into the Saddle River. Lodi Brook begins on the Sears property in a low marshy area that collects run-off from the Sears and Stepan Company properties; from there it flows southward under NJ State Rt. 17 remaining underground most of its course. Exceptions to this are small sections on both sides of I-80 and a small section along NJ State Rt. 17. From this area, the Lodi Brook flows approximately 1.8 mi (2.9 km) downstream of the confluence of Westerly Brook and the Saddle River before joining the Saddle River (USACE, 2003b).

Surface water and sediment monitoring will be conducted to:

- Establish baseline surface water quality and sediment data.
- Evaluate trends in the physical, chemical and radiological conditions of surface waters.
- Identify water quality problems and potential health impacts to the public.
- Detect and characterize unplanned releases and their effects on water quality.

Surface water samples will be collected at sampling points located upstream and downstream of MISS, and will be analyzed for radiological and water quality parameters. However, the list of parameters to be analyzed will be reviewed annually before the next round of monitoring. Sampling and analysis methods for surface water and sediment are provided in the *UFP-QAPP* (USACE, 20134b).

1.9.4 Pre-Remedial Action Survey

A pre-remedial action survey will be performed prior to the start of any on-site remedial activities to confirm that environmental measures included in the site work plan are appropriate. A survey will be made to review the existing site conditions, locations of underground utility and communication lines, condition of trees, shrubs and grassed areas immediately adjacent to the site of the work and adjacent to the assigned storage area and access route(s), as applicable. During this survey, the existence and location of any wetlands, endangered species, special habitat or other protected areas also will be confirmed. **Appendix B** includes the mobilization and pre-excavation checklists.

1.9.5 Protection of Wetlands

The presence of wetlands has been identified on the MISS and on properties in the immediate vicinity of MISS. Some loss of wetland functions are anticipated for a period of time during remediation activities. The NJDEP issued a Freshwater Wetlands Statewide General Permit for select areas of the FMSS.

Radiological contamination in wetlands may require remedial excavation of wetland soils, alteration of the flow of water reaching the wetlands (dewatering), or displacement of wetlands by the siting of remediation related facilities. Remedial action also may impact wetlands by destroying wetland habitat directly during access activities (e.g., road, railroad spur, conveyor routing, fencing, etc.), excavation and dewatering, or indirectly by siltation from an increase in erosion and turbidity. Potential adverse environmental impacts are expected to be short-term and mitigated by site restoration and natural recolonization.

1.9.6 Protection of Floodplains

The 100-year floodplain for the Saddle River includes the southern end of Lodi Brook and the western end of Westerly Brook. The floodplains associated with the open channel portion of Westerly Brook north of MISS and Coles Brook are outside the 100-yr floodplain but within the 500-yr floodplain of the Saddle River. Based upon the small size (up to several hundred square feet) and isolated nature of contaminated areas within the floodplains of Lodi Brook and Coles Brook that are designated for remediation, excavation and construction activities in the floodplains are not expected to cause a significant impact. No permanent structures would be constructed in the floodplain of either brook. Neither stream would be obstructed by remediation activities, and both streams would be returned to their original contour and would retain their original capacity for retention of floodwater. Remedial activities will be designed so as not to increase stream flow, impede flow, or cause upstream or downstream flooding. Restoration of the drainage ways and adjacent wetlands will include a return to original contours and original channel profiles to maintain the flood protection benefits of wetlands and floodplains.

1.9.7 Protection of Land Areas

Except for any storage areas and access routes specifically required for site remediation activities, land areas outside the limits of the permanent work to be performed will be preserved in their existing condition. Site activities will be confined to areas defined for the remediation work or specifically assigned as storage areas and access routes required temporarily for the performance of the work. No other areas will be used.

1.9.8 Protection of Trees and Shrubs

All necessary actions will be taken to protect and prevent damage to trees, shrubs and vegetation not identified for removal. No ropes, cables, or guys will be fastened to or attached to any nearby trees for anchorage. Where there is the potential that trees may be defaced, bruised, injured or otherwise damaged during remediation activities, protection of such trees will be provided by placing boards, planks, poles or fencing around them. Any trees scarred or damaged will be restored as nearly as possible to their original condition. All scars made on trees not designated for removal will be coated as soon as possible with an appropriate tree dressing. Trees that are to remain, either within or outside established clearing limits, that are damaged so as to be beyond saving will be removed and replaced with a nursery-grown tree of the same species and size.

1.9.9 Abandoning Existing Monitoring Wells

The local U.S. Geological Survey (USGS) office and the NJDEP must be notified of well abandonment activities. The filling and sealing of wells to be abandoned in New Jersey are required to meet specifications provided in New Jersey Administrative Code (NJAC) 7:9-1. A well may not be sealed by a method not in accordance with the specifications unless first approved, in writing, by the Bureau of Water Supply Planning and Management of the NJDEP Division of Water Resources. The regulations address rock wells, sand and gravel wells, and test wells.

Drilling equipment will be decontaminated before entering the site, before transferring between each monitoring well, and upon demobilizing from the site (see Operating Procedure (OP) 373, Field Equipment Decontamination, in Appendix A of the *UFP-QAPP*, (USACE, 2014b).

During the process of monitoring well abandonment, potentially contaminated wastes will be generated, including drill cuttings, groundwater, monitoring well components, personal protective equipment (PPE), and decontamination liquids. Guidelines on handling and disposal of investigation derived waste are provided in OP 336, Investigation Derived Waste Management, in Appendix A of the *UFP-QAPP*, (USACE, 2014b). Disposable PPE will be disposed of as specified in **Section 9.5** of this document.

Monitoring well abandonment equipment will be decontaminated at a designated area in the MISS.

1.9.10 Control of Nuisance Odors

Air monitoring will be performed at the site of excavation, at the soil stockpile located at the MISS, and at property line of the MISS. Odors may be observed depending upon the type of soil that is being excavated. Soils contaminated with volatile organic compounds (VOCs) may produce an odor similar to petroleum during soil excavation and handling. Concentrations of VOCs in soil at the FMSS have been identified below cleanup criteria, and petroleum odors have a tendency to dissipate quickly. In order to ensure that the odors encountered during excavation and handling are truly nuisance odors and to protect the safety of the workers and nearby residents, air monitoring will be performed using a photoionization detector.

1.9.11 Noise Control

Remedial activities will be conducted in accordance with NJDEP noise control regulations, the Bergen County Pollution Control Code, and the local noise code for the Borough of Maywood. The NJDEP and local noise control regulations are codified in NJAC 7:29-1. NJDEP and local regulations are as follows:

- (a) No person shall cause, suffer, allow, or permit sound from any industrial, commercial, public service or community service facility that, when measured at any residential property line, is in excess of any of the following:
1. From 7:00 AM to 10:00 PM:
Continuous airborne sound, which has a sound level in excess of 65 decibels (dBA); or impulsive sound in air that has a peak sound pressure level in excess of 80 decibels.
 11. From 10:00 PM to 7:00 AM:
Continuous airborne sound, which has a sound level in excess of 50 dBA; or impulsive sound in air that has a peak sound pressure level in excess of 80 decibels.
- (b) No person shall cause, suffer, allow, or permit sound from any industrial, commercial, public service, or community service facility that, when measured at the property line of any other commercial facility is in excess of any of the following:

Continuous airborne sound, which has a sound level in excess of 65 dBA; or impulsive sound in air that has a peak sound pressure level in excess of 80 dBA.

1.9.11.1 Noise Control at the MISS

Load-out operations and excavation activities are performed on the MISS at the FMSS. Because the Load-out Spur is located on the northeastern side of the MISS, load-out operations are performed in close proximity to the residents that live along Central Avenue in Maywood. All heavy equipment used to perform load-out operations will be retrofitted with new broadband backup alarms in order to reduce the amount of construction noise. The broadband alarms use white noise as an alert to construction personnel, which is less invasive and loud as the single high-pitch tone alarm. These alarms make sounds similar to a “swishing” noise while still being able to alert construction personnel on-site. The broadband alarms are used in major cities to reduce the amount of construction noise (OSHA, 2004).

1.9.12 Traffic Control

Transportation routes will be established in conjunction with local officials for truck and rail traffic transporting contaminated materials from the affected vicinity properties to the MISS rail spur. Flagmen will be stationed at appropriate locations as necessary to assure trucks enter and leave the remediation area safely.

The exterior of all vehicles will be surveyed for radioactive contamination in accordance with the methods outlined in the *RPP* (Attachment B of Appendix A, *APP* [USACE, 2013a]). Any vehicles exceeding applicable contamination criteria will be decontaminated before going onto public roads. Any vehicles exceeding applicable contamination criteria will be decontaminated before going onto public roads. Decontamination criteria are defined in EM385-1-80, Table 6-4. Transportation routes will be established, and an emergency response plan will be developed and coordinated with appropriate local fire and police departments. Phone numbers for police and fire departments, as well as other local assistance numbers, are provided in **Table 8-3**, and will be posted in all office and construction trailers at the FMSS. During all truck travel on public roads, truck beds will be covered by tarpaulins and sealed appropriately to contain contaminated materials and to avoid dust generation and soil / water spillage. Federal (49CFR100-185) and New Jersey Department of Transportation regulations (NJAC 16:49) will be followed during transport activities.

1.9.13 Lighting

Artificial lighting will be required during construction activities conducted at night. Although nighttime construction activities will be minimized, there may be conditions that require such work. Artificial lighting utilized during nighttime construction activities will be directed and positioned so as to minimize disturbance to homeowners and area roadways. Any lighting that must be positioned towards residences or roadways because of the nature of the work will be shielded so that the light does not impinge directly on such properties.

1.9.14 Infrastructure Support

Utility and other infrastructure organizations may have to perform work at the FMSS. This work could include emergency, as well as scheduled, routine activities. In order to prevent the inadvertent spread of contaminated materials during the conduct of such activities, high-level officials of these organizations will be contacted directly and advised of the FMSS remediation project and the location of contaminated materials, including inaccessible materials. Town planning / zoning boards, and local engineering departments and health departments, as appropriate, will be similarly contacted and advised.

The contacted entities will be given information on how to contact appropriate project personnel when they have to work (including emergency work) at the FMSS. Project personnel will be made available to support and provide guidance to the utilities, as appropriate.

Utilities and infrastructure organizations to be contacted include:

- Public Service Electric & Gas [(PSE&G), electric and gas services]
- Transcontinental Gas Pipeline Company (gas supply),
- Bergen County Department of Public Works
- United Water of New Jersey (water supply services for Maywood)
- BCUA (sanitary wastewater services for Maywood)
- Verizon and MCI (telephone services)
- Cablevision (cable television services)

Other entities will be contacted, as appropriate.

The One Call Center of New Jersey (1.800.272.1000) will be contacted to coordinate and report excavation activities at the FMSS. Such notification typically requires 4 days advance notification prior to the start of excavation activities.

2.0 RESPONSIBILITIES

This section describes the project assignments for environmental protection. The personnel listed in the subsections below have the ultimate responsibility for environmental protection as it relates to construction activities and for ensuring that all actions meet applicable regulatory requirements.

2.1 PROGRAM MANAGER

The Program Manager (PGM) is the focal point of contact with the USACE for the project. The PGM will maintain functional lines of communication with the New York District and contractual communication with the Kansas City District. The PGM has ultimate authority and responsibility for the establishment and maintenance of program administration control programs and procedures. The PGM is responsible for the overall management of the contract including cost, schedule and technical quality.

2.2 PROJECT MANAGER

The Project Manager (PM) will maintain functional lines of communication with the New York District and work closely with the PGM to establish and maintain program administration control programs and procedures. The PM issues communications to the PRG on the overall program status, including cost, schedule and technical quality. The PM also is the primary safety official on the project.

2.3 SITE SUPERINTENDENT

The Site Superintendent (SS) coordinates and supervises all daily site operations at the FMSS including field personnel and subcontractors. The SS is responsible for regulatory compliance and the safety and health of all personnel working at the FMSS and off-site properties during remedial action activities. The SS is responsible for ensuring that site operations comply with the SSHP (Appendix A, APP [USACE, 2013a]).

2.4 PROJECT ENGINEER

The Project Engineer (PE) has the primary responsibility for environmental compliance of the remedial action and environmental protection. The PE's responsibilities include:

- Ensuring all remediation related goals of the Task Orders are attained.
- Ensuring all activities are planned and executed in accordance with applicable environmental protection requirements.
- Ensuring the availability of necessary oversight, personnel, equipment, subcontractors, and services.
- Responsible for overseeing and mentoring the field engineers on the project (in conjunction with the SS).

The PE reports to the PM.

2.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) ensures that contract personnel performing work are knowledgeable of the *APP* and the requirements of this plan. The SSHO is responsible for implementing the *APP* and addressing site hazards and controls necessary to safeguard construction personnel and visitors. The SSHO also is responsible for air monitoring, sampling, training, and coordination of medical surveillance and radiological protection for all site personnel. The SSHO also has “stop work” authority if unsafe conditions arise. The roles and responsibilities of the SSHO are further defined in the contract.

The SSHO reports to the Corporate Occupational Health & Safety Manager and the PM.

2.5 RADIATION SAFETY OFFICER

The Radiation Safety Officer (RSO) directs all radiological safety activities on the project and approves the Radiation Protection Program implementing procedures and documents. The RSO also is responsible for the following activities:

- Ensures that radiation health and safety procedures designed to protect personnel and the public is maintained throughout the project;
- Oversees the establishment of radiological areas;
- Monitors radiation exposure levels; and
- Supervises and approves the inspection of all material/equipment entering or leaving the FMSS for compliance with the *SSHP* (Appendix A, *APP*, USACE, 2013a) and other applicable regulations.
- The RSO will receive off-site support from the Certified Health Physicist (CHP), and will consult with the CHP on an as needed basis concerning radiation issues.

2.6 CERTIFIED HEALTH PHYSICIST

The CHP is responsible for reviewing and approving the radiation protection portions of the *APP*, Appendix A, Attachment B. The CHP will report to and provide guidance to the Corporate Occupational Health and Safety Manager, as required. The CHP will review Activity Hazard Analyses (Attachment A of Appendix A, *APP* (USACE, 2013b) for matters related to radiation protection. Internal intake, dose assessment, and applicable monitoring will be evaluated by the CHP.

The CHP shall be certified by the American Board of Health Physics and shall have a minimum of two (2) years experience in radioactive waste handling and disposal operations.

2.7 CONTRACTOR QUALITY CONTROL SYSTEM MANAGER

The Contractor Quality Control System Manager (CQCSM) is responsible for the overall management of the quality control program, including field construction activities and consulting engineering activities for the project. The CQCSM is responsible for daily interactions as applicable with the SS for construction activities. Duties of the CQCSM include, but are not limited to, the following:

- Implementing the project QCP.

- Initiating or recommending corrective actions, and verifying the corrective actions were implemented.
- Monitoring operation, sampling, laboratory testing, and subcontractor activities for compliance with contract requirements.
- Inspecting railcars prior to shipment, and reviewing all shipping documents prior to being submitted to the USACE for approval and signature.
- Identifying and reporting nonconforming items, conditions, or activities.
- Preparing QC reports as required by the contract.

The CQCSM reports to the PM.

2.8 TRANSPORTATION AND DISPOSAL COORDINATOR

The transportation and disposal coordinator (TDC) is responsible for supervising activities associated with the transportation and disposal (T&D) of waste materials including: waste characterization/classification, profiling, procurement of subcontractors, regulatory compliance (USEPA, DOT, NRC), packaging of waste, preparation of shipping documents, and labeling/placarding of packages and transport vehicles. The TDC coordinates T&D activities with the SS who is responsible for all field activities. The TDC reports to the PM.

2.9 RADIATION PROTECTION TECHNICIANS

The RPTs are assigned by the RSO to provide support to each major field activity for implementation of Radiation Protection Program requirements. The RPTs are responsible for performing gamma scans, monitoring air quality, maintaining the exclusion zones, collecting soil samples from excavations and the soil stockpile (in support of soil load-out activities), and completing the incoming and outgoing radiological surveys on the railcars. Finally, the RPTs perform the soil moisture analysis on the load-out samples. The RPTs have the stop-work authority for radiological safety matters and activities that could result in an unsafe act or condition.

2.10 FIELD CREW

Various types of field personnel will be required in order to complete remedial activities at the FMSS. Personnel working at the FMSS include, but are not limited to the following:

- Laborers
- Equipment Operators
- Teamsters
- Subcontractors

All personnel listed above report to the SS.

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3.0 SOURCE WATER AND TREATMENT OF IMPACTED WATER

As discussed in **Section 1.5.1**, a *WMP* was developed for the FMSS to establish procedures for managing impacted water generated during construction activities at the FMSS. Additional information on the management and treatment of impacted water can be referenced in the *WMP* (USACE, 2014a).

3.1 SOURCE WATER USAGE

Potable water will be used for on-site construction use, including for dust control and equipment decontamination when necessary. Potable water will be obtained for the MISS through Stepan Company potable water lines.

3.2 MANAGEMENT OF IMPACTED WATER

The *WMP* establishes procedures for managing impacted water generated during construction activities at the FMSS. Impacted water will be classified as any water (i.e. groundwater, precipitation, or storm water runoff) that contacts potentially contaminated soil or contaminated equipment in the FMSS and is presumed contaminated. Impacted waters are expected to contain suspended solids contaminated with radionuclides Ra-226, Th-232, and U-238; chemical constituents such as Target Compound List (TCL) VOCs; Total Analyte List (TAL) metals; and other inorganic compounds. The water generated at the FMSS will be transported to the treatment system via vacuum trucks and treated using a four phase treatment process. Water considered “impacted” will be treated, and discharged to the BCUA sanitary sewer under the treated groundwater discharge permit. The quality and quantity of impacted water will vary throughout the FMSS based on the variance in soil and groundwater contamination and overall excavation requirements.

3.3 TREATMENT AND DISCHARGE OF IMPACTED WATER

Impacted water will be pumped from the site of excavation to either a temporary holding tank (frac tank) or directly into a vacuum truck for immediate transport to the MISS. Four stages of treatment will be required to meet BCUA treatment standards. Each phase of treatment utilizes existing, demonstrated technology, and is described as follows:

- Phase I of the treatment process utilizes solids settling in frac tanks and an equalization tank. Small quantities of flocculant will be added to the equalization to aid with solids settling.
- Phase II targets elevated levels of arsenic in water. This is the arsenic pre-treatment system. If field testing reveals arsenic levels are below applicable levels, this phase of the construction water treatment system will be bypassed.
- Phase III will include a joint physical and chemical process to remove any remaining solids not previously removed during Phases I and II and adjustment for pH. The Phase III treatment process will provide chemical addition for pH adjustment, if necessary. Solids and fine materials will continue to be removed from the treatment process through a series of two bag filters and six cartridge filters (housed in one cartridge canister). Granular activated carbon will aid in the removal of VOC concentrations, and an ion exchange process will remove concentrations of dissolved radiological contaminants radium and uranium.

- Phase IV consists of the arsenic post-treatment trailer. If treatment for arsenic is required, the water will be directed into a series of two granular ferric hydroxide resin vessels for final treatment and polishing. If arsenic treatment is not required, the effluent will pass through the flow meter and discharged directly to the sanitary sewer at the MISS.

Treated effluent will be sampled and analyzed monthly in accordance with the BCUA treated groundwater discharge permit. Influent samples also will be collected from the equalization tank monthly for informational purposes. Sampling and analysis methods for water are provided in the *UFP-QAPP* (USACE, 20134b).

3.4 DISCHARGE PERMIT CRITERIA

A permit equivalency is required to discharge treated water to BCUA. The BCUA has issued a treated groundwater discharge permit for the construction water treatment system at the FMSS. The treatment effluent limitations established for the system at the FMSS are provided in **Table 3-1**. A copy of treated groundwater discharge permit #1050 is included in **Appendix A**.

Table 3-1 – Bergen County Utilities Authority Discharge Permit Limits¹

Contaminant	BCUA Permit Limit (mg/L) ²
Acrolein	0.30
Acrylonitrile	8.40
Aluminum, Total	NA
Arsenic, Total	NA
Barium, Total	NA
Benzene	0.85
Beryllium, Total	NA
Boron, Total	NA
Bromoform	1.00
Cadmium, Total	NA
Calcium, Total	NA
Carbon Tetrachloride	0.15
Chloride	NA
Chlorobenzene	10.60
Chloroethane	21.50
Chloroform	1.75
Chromium, Total	NA
Cobalt, Total	NA
Copper, Total	1.0 (daily max)
1,2-Dichlorobenzene	21.60
1,4-Dichlorobenzene	26.30
1,1-Dichloroethane	19.40

Table 3-1 – Bergen County Utilities Authority Discharge Permit Limits¹ (Continued)

Contaminant	BCUA Permit Limit (mg/L)²
1,2-Dichloroethane	4.50
1,1-Dichloroethylene	0.14
1,2-trans-Dichloroethylene	17.00
1,2-Dichloropropane	21.20
Ethyl Benzene	9.30
Iron, Total	NA
Lead, Total	NA
Magnesium, Total	NA
Manganese, Total	NA
Mercury, Total	NA
Methylene Chloride	17.00
Nickel, Total	NA
Nitrate	NA
Potassium, Total	NA
Selenium, Total	NA
Silicon, Total	NA
Silver, Total	NA
Sodium, Total	NA
Sulfate	NA
Sulfide	NA
1,1,2,2-Tetrachloroethane	3.85
Tetrachloroethylene	1.80
Thallium, Total	NA
Toluene	8.10
1,1,1-Trichloroethane	65.00
1,1,2-Trichloroethane	8.60
Trichloroethylene	3.30
Trichlorofluoromethane	6.25
Vanadium, Total	NA
Vinyl Chloride	0.005 (det. limit of 0.005)
Zinc, Total	NA
Cyanide	0.50 (daily max)
Oil and Grease (petroleum origin)	100 (monthly avg) 150 (single sample)
Oil and Grease (non-petroleum origin)	200 (daily max)

Table 3-1 – Bergen County Utilities Authority Discharge Permit Limits¹ (Continued)

Contaminant	BCUA Permit Limit (mg/L) ²
Explosivity	5% LEL on 2 successive readings 10% LEL on any 1 reading
Biochemical Oxygen Demand (BOD)	BCUA must be notified > 350
Total Organic Carbon (TOC)	NA
Total Dissolved Solids (TDS)	NA
Total Suspended Solids (TSS)	BCUA must be notified > 350
pH	5.5-9.5 standard units (daily range)
Gross Alpha (including Radium-226 but excluding Uranium and Radon) ³	15 pCi/L (min. det. limit of 3 pCi/L)
Gross Beta	50 pCi/L (min. det. limit of 4 pCi/L)
Radium-226 plus Radium-228	5 pCi/L (min. det. limit of 1 pCi/L)
Thorium-228	15 pCi/L ⁴
Thorium-230	15 pCi/L ⁴
Thorium-232	15 pCi/L ⁴
Uranium-234	~9.5 pCi/L ⁵
Uranium-235	~1.1 pCi/L ⁵
Uranium-238	~9.5 pCi/L ⁵ min. det. limit of 0.5 pCi/L
Uranium, total	0.03 (min. det. limit of 0.001)

Note(s):

¹ Permit limits based on BCUA Permit # 1050 dated 09/01/2011-08/31/2014.

² Unless otherwise noted.

³ As stated in N.J.A.C. 7:10-5.2(a)10 by reference to 40 CFR 141.66(c)

⁴ If an alternative analysis method is used, i.e. radiochemistry, then these limits apply as alpha emitters.

⁵ If an alternative analysis method is used, i.e. radiochemistry, then these limits apply by apportioning the 30 ug/L limit for Total Uranium to the natural isotopes assuming U-total specific activity of 0.67 pCi/g and uranium activity fractions of 0.473 for U-234 and U-238 and 0.054 for U-235.

mg/L denotes milligrams per liter.

pCi/L = picocuries per liter

ug/L denotes micrograms per liter.

NA denotes not applicable.

LEL = lower explosive limit

3.5 DEWATERING SYSTEM

A dewatering system may be required for some remedial action areas. Excavating below the water table will require the lowering of the water table to promote stability; prevent sloughing of the excavation slopes; and to create a dry, firm working condition. Liquids removed from the excavation using a dewatering system will be managed and treated in accordance with the WMP (USACE, 2014a).

3.6 TRUCK AND HEAVY EQUIPMENT DECONTAMINATION

Dump trucks and heavy equipment will be decontaminated at the MISS, if the RSO deems decontamination is required. No tracking of soil/water will be permitted. Excess soil will be mechanically removed from tires using shovels or brushes and then the equipment will be steam cleaned or pressure washed. Decontamination water will be collected and treated, if necessary. Decontamination of equipment is addressed in the *SSHP* (Appendix A, *APP*, [USACE, 2013a]).

3.7 STORM WATER CONTROL

Potential surface water run-on from areas outside of the construction limits will be diverted using ditches, berms, hay bales, grading, sandbags, or plastic sheeting. Storm water generated as a result of rainfall on undisturbed ground will be managed in accordance with the site-specific remedial design. Additional information regarding storm water control is located in **Section 5.0** of this document.

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4.0 DUST CONTROL

4.1 POTENTIAL RELEASES

The generation of dust and fugitive emissions will be prevented when possible and controlled when necessary. Dust control is necessary to prevent the release of dust from excavations, soil stockpiles, and access roads. Although excavated soil may initially be saturated, it will eventually become dry and subject to wind dispersion. The most likely source for dust release is the scraping of dry, shallow soil. Additionally, dust can be generated during warmer, drier months on access haul roads, which are continuously traveled by dump trucks throughout the day. Of particular concern is contaminated dust that may expose workers and the public to airborne radioactive and toxic particulates. The release of uncontaminated dust must be controlled in order to comply with the Clean Air Act (CAA).

4.2 DUST CONTROL

Where work activities have created the potential for dust generation, dust will be suppressed by moistening the area with the use of potable water or a 32% by weight aqueous calcium chloride solution. Generally, calcium chloride solution will be used on the access roads during the winter months to prevent surface freezing and will be applied to the soil stockpile in the MISS to prevent wind and rain erosion. Potable water will be used to suppress dust during the warmer months in excavations, on the access roads, and in the area of the soil stockpile. A water truck with a spray bar will be used to moisten these areas, and the minimum amount of water needed to suppress dust will be used in order to avoid creating run-off. The water truck also will be used to spray potable water on revegetation areas.

Work practices at the FMSS will be adjusted in a manner to minimize dust generation. This will include, but is not limited to the following:

- Lower excavation rates and prevent free-fall of soils from equipment buckets.
- Maintain the speed limit on access haul roads.
- Precondition shallow soils (that are to be scraped) with potable water to keep them moist to a depth of at least 6 in. (15 cm).
- Cover dump trucks with a conveyor before traveling to the MISS. Conveyor systems will be enclosed, to the maximum extent practical, to prevent dust release.
- If necessary, decontaminate transport equipment, including trucks, truck tires, and heavy equipment leaving the area. This will ensure that dust is not dispersed from the site or tracked onto streets.
- Wet backfilled areas with potable water immediately after backfilling.
- Hydroseed or sod backfilled areas soon as practical to retain moisture and to minimize evaporation and dispersion by wind.
- Personnel will position themselves upwind of intrusive activities or demolition/concrete crushing activities to avoid working in potentially dusty conditions.

The MISS presents the greatest potential for dust generation due to its acreage, concentrations of radiologicals, estimated soil excavation volume, soil storage and handling location, and areas of nonvegetated soil. Additional dust control measures will be implemented at the MISS to minimize dust generation. The stockpile will be maintained daily, and sprayed with a calcium chloride solution daily if soil load-out activities are being performed. The pile will be sprayed at the end of each day to prevent wind and rain erosion. Additionally, potable water will be used to minimize dust in the area of the soil stockpile.

Perimeter dust monitoring will be used as an indicator that the engineering controls discussed above are adequate for protection of the public on a real-time and continuous basis.

4.3 DUST MONITORING

Intermittent air monitoring for dust will be conducted using a Dust Trak or equivalent aerosol monitor during work activities that may result in hazardous particulates becoming airborne. Monitoring locations will be designated both at the site of excavation and along the perimeter of the MISS. This will allow for radiological data to be collected near active excavation activities, as well as, in perimeter areas distant from construction activities. Exact locations will be selected based upon the anticipated tasks as well as wind and weather conditions. Perimeter monitors will be placed in the MISS along the northern, southern, eastern, and western property boundaries. The action level for dust concentration at the perimeter is 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) ($0.05 \text{ mg}/\text{m}^3$). Additional information on the action levels and equipment for dust perimeter monitoring is included in Section 4.3 and Table 4-3 in the *SSHP* (Appendix A, *APP* [USACE, 2013b]).

Monitoring for dust also will be performed visually by each on-site worker. It will be the responsibility of each worker to observe his or her work area for the potential and actual generation of dust. Areas that show potential release of dust will be reported to the SS or SSHO, who will ensure that potable water or calcium chloride will be sprayed onto the area to eliminate the potential. If necessary, work will be stopped until the dust can be controlled.

Additional information regarding dust monitoring is referenced in the *APP* (USACE, 2013a).

5.0 EROSION CONTROL AND DRAINAGE PATTERNS AT THE FMSS

To control and divert sediments from reaching Westerly Brook, Lodi Brook or the Saddle River, a variety of surface water and storm water controls will be deployed during construction and removal of contaminated soil from the FMSS. Control systems will be monitored during all phases of the remediation to prevent the pollution of surface waters.

5.1 EROSION CONTROL

The layout of the MISS has been designed to divert storm water away from the Central Radioactive Materials Area (RMA). The Central RMA is where soil load-out operations are performed, and where the soil stockpile is located on the MISS. Storm water will be diverted around the MISS using erosion and sediment control devices consisting of swales, berms, grading, straw hay bales, rock check dams, and silt fences. **Figure 5-1** identifies erosion and sediment control devices to be used, as appropriate, at the FMSS. BMPs to control run-off from construction sites will be implemented to prevent pollution of the environment (**Appendix C**). The purpose of the swales/berms is to restrict the flow of water into the Central RMA, thereby reducing the overall volume of water requiring handling as potentially contaminated. Currently, there is a drainage swale around the asphalt pad of the former load-out area and a drainage swale running along the northeast side of the load-out spur, which diverts storm water to the Westerly Brook Culvert. The O&M of all control devices will occur on a daily basis to ensure that all control devices and preventive systems are in operation to prevent pollution of the environment.

During the remedial activities in which contaminated soil is excavated from the FMSS, the excavated areas will be backfilled with clean burrow soil as soon as practical. The final grade of the clean soil will be vegetated or covered with asphalt pavement (if required) to minimize the potential for surface erosion.

5.2 DRAINAGE PATTERNS AT THE MISS

Storm water and surface water runoff, potentially impacted with radiological contaminants, ultimately flows into an existing retention basin, Pond A. Pond A is located in the southwest corner of the MISS. The basin captures sediment and potentially contaminated liquid from the former asphalt loading pad, as well as from other non-point sources. Sedimentation Pond A offers primary settling before the water discharges through holes in a vertical outfall pipe to a 24-inch diameter culvert. The culvert discharges to the ground near the former load-out spur. There are 8-2.5 inch diameter holes near the bottom of the vertical pipe and a 12-inch diameter hole about 2 feet above the bottom of the retention basin. The varying hole sizes and elevation allow the collected runoff to exit the retention pond after a retention period. Additionally, the water from the retention pond will be pumped out periodically using a vacuum truck, and the water will be processed for treatment at the construction water treatment system.

A second retention basin, Pond B, is proposed for installation at the MISS. Potentially contaminated runoff will be diverted through a 6-inch PVC drain located underneath the concrete load-out pad. The underdrains are located approximately 3-feet below the 12-inch concrete pad and backfill, and sit upon an impermeable liner. Drain cleanouts will be located at the end of each underdrain to prevent the pipe from becoming clogged and backing up. From the underdrains, runoff will be diverted to an 8-inch PVC pipe that will direct the runoff through the MISS and around the former asphalt loading pad to sedimentation Pond B. **Figure 5-2** shows the drainage patterns at the MISS as well as the locations of sedimentation Pond A and proposed sedimentation Pond B.

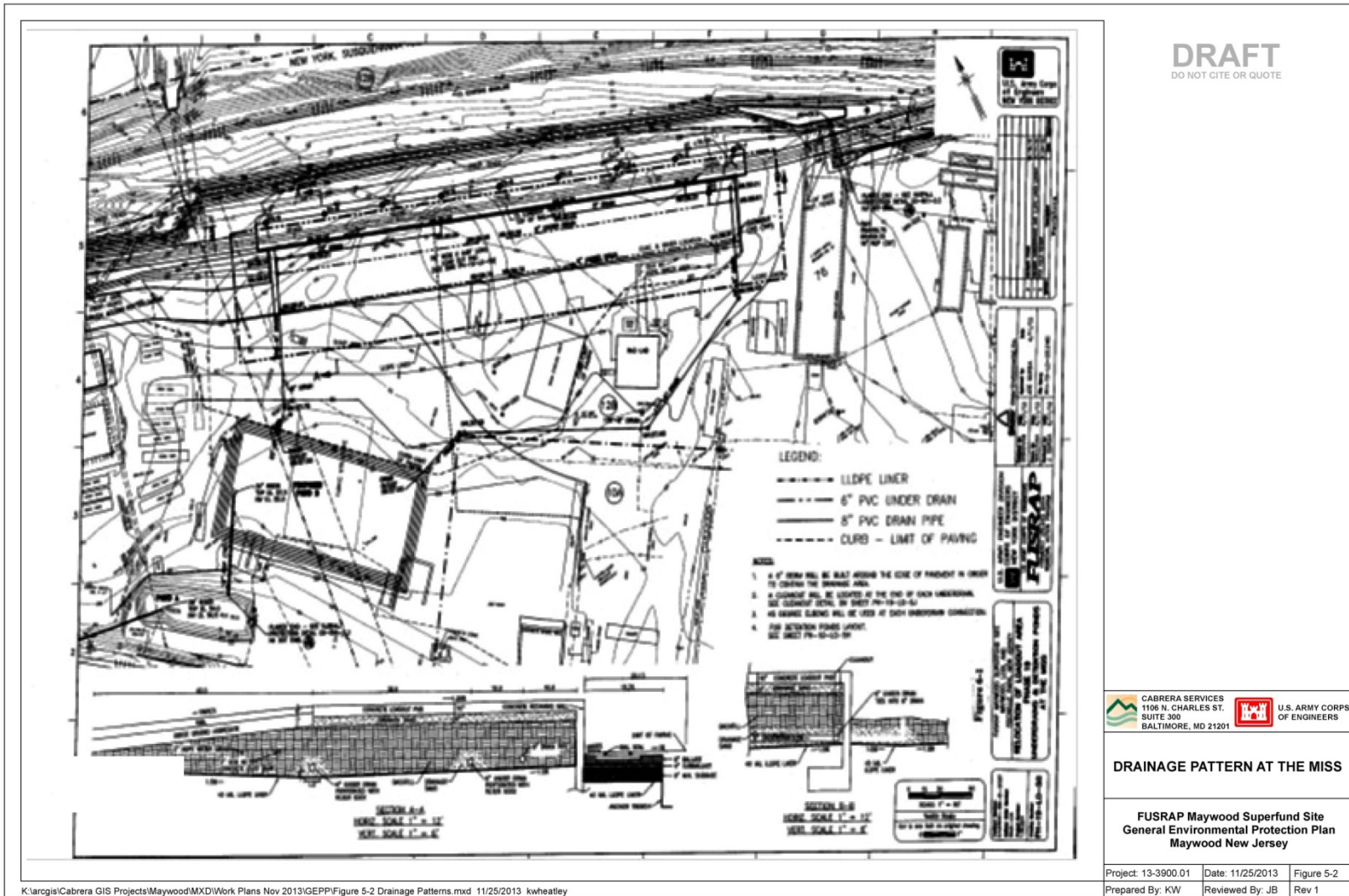


Figure 5-2 Drainage Patterns at the MISS

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6.0 GROUNDWATER CONTAMINATION AT THE FMSS

In order to facilitate cleanup of the FMSS, the site was divided into three Operable Units (OUs). The OUs are as follows:

- OU 1: Soils and buildings at the MISS, Stepan Company, and 22 commercial and government vicinity properties. This OU includes soil, buried bulk wastes (including NRC licensed burial pits) and buildings (all contaminated buildings are located on the Stepan Company property and the MISS).
- OU 2: Groundwater impacted by FUSRAP waste and contaminated groundwater at the MISS.
- OU 3: Non-FUSRAP chemical wastes.

Groundwater contamination at the FMSS is being addressed as OU 2, and will be remediated under a separate ROD than the soils and buildings under OU 1. The COCs in groundwater are benzene, arsenic, and lithium. The groundwater and soil cleanup levels to attain groundwater cleanup are presented in **Tables 6-1 and 6-2**, respectively.

**Table 6-1
 Groundwater Cleanup Levels at the FMSS**

Constituent	Groundwater Cleanup Level (µg/L)
Arsenic	3 ^a
Benzene	1 ^a
Lithium	730 ^b

Notes:

- The lowest of Federal MCLs or NJGWQC or higher PQL (New Jersey Administrative Code 7:9C).
- Since Applicable or Relevant and Appropriate Regulations are not available for lithium in groundwater, a cleanup level was derived for lithium based on ingestion of groundwater.

**Table 6-2
 Soil Cleanup Levels to Attain Groundwater Cleanup Criteria**

Constituent	MISS Chemical-Specific Soil TBC (mg/kg)	Groundwater Cleanup Level (ug/L)
Arsenic	19 ^a	19 ^a
Benzene	194	194
Lithium	0.005 ^a	0.005 ^a

Notes:

- NJDEP Impact to Groundwater Soil Cleanup Value.
 mg/kg = milligram per kilogram
 µg/L = micrograms per liter

The preferred remedial alternative for groundwater at the FMSS includes:

1. The removal and off-site disposal of non-radiological contaminated soil on the MISS, to include the pond sludge at the MISS.
2. *In-situ* treatment of arsenic in the overburden aquifer using oxidation reduction alteration, if required.
3. Monitored natural attenuation of lithium and benzene in overburden and shallow bedrock groundwater, and arsenic in shallow bedrock groundwater.
4. Long-term groundwater monitoring for TCL VOCs and TAL metals to ensure effectiveness of the remedy and to monitor changes in aquifer conditions and chemical concentrations over the course of the remedial action. Long-term groundwater monitoring will be conducted until compliance with target cleanup goals has been achieved.
5. Groundwater use restrictions including Land Use Controls (LUCs). LUC components will include use restrictions applicable to FMSS groundwater. LUCs will be utilized, as appropriate, to limit potential future on-site and downgradient off-site public and construction worker exposure to benzene, arsenic, and lithium until target cleanup goals are achieved. Downgradient off-site groundwater use within the contaminated plumes will be controlled using well restrictions in a groundwater Classification Exception Area. Additionally, other restrictions will be implemented where contaminated soils or potential impacts to contaminated groundwater may occur (e.g., utilizing a notification system with local utilities, government authorities, and the public, and periodic inspections of properties to determine changes in land use).

Remedial activities in support of this remedy will commence upon execution of the ROD and a subsequent Long-Term Groundwater Monitoring Plan. The remedy will be considered complete once non-radiological source soils that cause groundwater contamination above cleanup levels are removed on the MISS and groundwater monitoring indicates that the COCs are at or below cleanup levels on the MISS and off-site groundwater monitoring well sampling locations, using standard methods of demonstrating achievement of groundwater remediation cleanup levels. The time frame for compliance for the preferred remedy has been estimated at 280 years. It should be noted that the annual EMP for groundwater, surface water, and sediment described in **Section 1.10.3** is being performed in support of the *Final Record of Decision for Soils and Buildings at the FUSRAP Maywood Superfund Site* (USACE, 2003a). One of the main objectives of the EMP is to ensure that the public and the environment are adequately protected from FUSRAP contaminants present at the FMSS (USACE, 2012b).

Additional information concerning groundwater contamination at the FMSS and the preferred remedy can be referenced in the *Final Groundwater Feasibility Study Report* (USACE, 2010) and the *Final Groundwater Record of Decision* (USACE, 2012b).

7.0 MAINTENANCE AND INSPECTION

7.1 MAINTENANCE OF DUST-FREE CONDITIONS

Preventive maintenance and inspection activities occur daily in areas that could be potential sources for the release of dust, such as active excavation sites, stockpiles, loading areas, soil conditioning areas, soil load-out area, and other work areas. Corrective maintenance or repair activities will be conducted whenever damage or disturbance is discovered. Daily inspection and maintenance items include:

- Wetting dry soil in excavations and along access roads with potable water or aqueous calcium chloride solution.
- Applying calcium chloride to the soil stockpile at the MISS.
- Cleanup of routine minor and temporary spills of soil in work areas.

7.2 MAINTENANCE OF EROSION CONTROL AND STORM WATER MANAGEMENT FEATURES

Active excavation locations continually will be monitored to ensure the proper performance of run-on and run-off controls.

Informal weekly and as-needed inspections will be made of inactive, unvegetated, disturbed areas to ensure that the berms and sediment fences are functioning properly. Inspections will be made after each rainfall and on a daily basis during periods of extensive rainfall.

Corrective measures will be required if inspections reveal excessive siltation in storm water conveyances, sedimentation basins, or along silt fences. Also, maintenance of eroded areas may require the removal of loose soil, replacement with clean soil, and regrading and/or reseeding to the original condition. Silt accumulated in erosion control structures will be removed. Silt fences will be inspected and any damaged silt fence will be repaired or replaced. Gullies and rills will be filled and seeded to prevent further erosion.

Sedimentation Pond A located in the southwest corner of the MISS will be maintained to collect and contain runoff or drainage from soil handling areas. The basin will be checked and pumped after each significant rainfall. Dewatered liquids will be processed for treatment at the construction water treatment system. Additionally, the drain cleanouts for the loading pad underdrain at the MISS will be inspected periodically to ensure the pipe is not clogged and backing up.

7.3 MAINTENANCE AND INSPECTION OF THE CONSTRUCTION WATER TREATMENT SYSTEM

Inspection and maintenance of the construction water treatment system will be performed daily when the system is operating. Equipment to be inspected and maintained include the temporary frac tanks, equalization tank, filter bag units and cartridges, granular activated carbon unit, radiological vessels, flow meter, arsenic pre-treatment and post-treatment systems, and the sewer outfall at the MISS. Inspection and regular maintenance of treatment equipment will provide assurance that there are no leaks and all equipment is operating properly. Inspections in inclement weather especially will be necessary to ensure that valves, hoses, and tanks do not freeze or crack in cold weather or systems do not flood during

extreme rain events. Additionally, equipment will be drained and heat protected to prevent damage during cold weather.

Daily inspections of vacuum trucks will be performed for leaks. Trucks with leaks will be repaired or replaced.

Additional information regarding the O&M of the construction water treatment system can be referenced in the *WMP* (USACE, 2014a).

7.4 MANAGEMENT AND INSPECTION OF SOIL LOAD-OUT ACTIVITIES

Soil loading activities will be properly managed to minimize impacts to the community. During the loading process, measures will be employed to assure that this activity meets the appropriate requirements to include perimeter air monitoring, dust control, noise monitoring, and erosion and sediment control. The soil stockpile will be maintained, and sprayed with aqueous calcium chloride solution following soil load-out activities to prevent wind and rain erosion.

The project CQCSM or other quality control staff will inspect all railcars to ensure compliance with all regulatory requirements, including the presence and placement of placards and other required labels. Additionally, the transportation and disposal coordinator will be responsible for assuring that all requirements are met and that specific survey and quality data forms are completed for each transport vehicle loaded. Additional information regarding procedures associated with soil load-out activities can be referenced in the *Construction Load-out, Transportation & Disposal Plan* (USACE, 2014d).

8.0 SPILL PREVENTION, CONTROL AND COUNTERMEASURES PLAN

8.1 GENERAL

This SPCC Plan establishes the general procedures and responsibilities for spill prevention, response activities, and cleanup associated with the construction activities at the FMSS. This plan describes methodologies to

1. Prevent discharge of hazardous substances / waste and petroleum products used in earth-moving equipment,
2. Limit degradation to the environment due to any unforeseen spill, and
3. Protect personnel from exposure or injury.

At present, no on-site fuel oil storage is planned at any of the FMSS that would exceed the capacity thresholds (above or below ground) outlined in 40 CFR 112.1. However, this SPCC Plan will be modified as required to accommodate operations / remediation changes that may alter the guidance required.

This SPCC Plan will be reviewed and approved as an intrinsic part of this *GEPP*. This SPCC Plan will be amended under the substantive requirements of 40 CFR 265.54 whenever:

- The plan fails in an emergency.
- The list of emergency coordinators changes.
- The site requirements change - in design, construction, O&M, or other circumstances - in a way that materially increases the potential for fires, explosions, or release of hazardous waste or hazardous constituents, or changes the response necessary in an emergency.
- The list of emergency equipment changes.

8.2 RESPONSIBILITY AND AUTHORITIES

Responsibilities and actions for spill response will be handled as detailed by this plan. The TDC (as the spill coordinator) will be the primary responsible individual for spill response and spill reporting. **Table 8-1** summarizes the regulatory reporting requirements. The current FFA, between USDOE and USEPA, stipulates USEPA as the primary regulatory agency. All State and local authorities will be contacted per USEPA direction and pursuant to the FFA being negotiated between the USEPA and the USACE.

The location, nature, and quantity of the release determine emergency procedures. Small, unreportable spills (i.e., less than the reportable quantity [RQ]) are handled on a case-by-case basis by the TDC, SS, or the SSHO. The TDC, or his designee, will coordinate larger spills that trigger an RQ level.

Table 8-1 – Regulatory Reporting Requirements

Statute or Regulation	Reporting Requirement	Reportable Quantity / Narrative Threshold	Receiving Authority	Reporting Deadline	Statutory / Regulatory Reference
CAA	Excess emission report	Excess over amount allowed in permit.	USEPA	Written report quarterly	40 CFR 60.7(c)
	Physical or operational changes in facility that may increase emission rate	Change in facility that may increase emissions of air pollutants to which the standard applies.	USEPA	Written report 60 days or as soon as possible (ASAP) before change takes place	40 CFR 60.7(a)
CERCLA	Hazardous substance release above RQ	Varies. Reporting is required when RQ is released in a 24-hour period, - CERCLA listed hazardous substance, - 40 CFR 302.5(a) and Table 302.4, - CERCLA unlisted [i.e., RCRA, and hazardous waste, see 40 CFR 302.5(b)].	National Response Center	Immediately	42 USC 9603(a) 40 CFR 302
CWA	Oil Releases to navigable waters	Release that either (a) causes a film / sheen / discoloration of surface or adjoining shorelines or emulsion deposits or (b) violates applicable water quality standards.	National Response Center	Immediately	33 USC 132 (b)(3) 40 CFR 110.6
	Release of CWA “hazardous substance” to “navigable waters”	Varies: Reporting is required when RQ is released within a 24-hour period.	National Response Center	Immediately	33 USCG 1321(b)(5) 40 CFR 117.21 40 CFR Table 117.3
	Reporting requirement for facilities with SPCC Plan	Reporting required when, within 12 months, (a) discharge of 1,000 gal or more of oil in navigable waters or (b) two spill events reportable under CWA 311(d)(5).	USEPA Regional Administrator	Written report within 60 days	40 CFR 112.4 (a)
	NPDES permit violation	Any noncompliance with permit conditions that may endanger health or environment.	USEPA Regional Administrator	24 hours with written follow-up within 5 days of noncompliance	40 CFR 122.41(1)(6)
HMTA	Hazardous material incidents occurring during transportation	See list of reportable incidents, 49 CFR 171.15 & 171.16.	National Response Center Follow-up report within 30 days	Immediately / written follow-up within 30 days	49 CFR 171.15 and 171.16

Table 8-1 – Regulatory Reporting Requirements (Continued)

Statute or Regulation	Reporting Requirement	Reportable Quantity / Narrative Threshold	Receiving Authority	Reporting Deadline	Statutory / Regulatory Reference
RCRA	Emergency release at Treatment, Storage and Disposal (TSD) facility	40 CFR 264.56(a-c) and 265.56(a-c) for details.	State / local authorities if help is needed	Immediately	40 CFR 264.56(a-c) and 265.56(a-c)
	Possible release due to hazardous waste shipped and lost / unaccounted for	If generator does not receive signed manifest within 35 days, he must contact transporter and/or designated facility. If within 45 days signed manifest is not received, reporting is required.	USEPA Regional Administrator	Within 45 days of date waste was accepted by original transporter written exception report must be filed	40 CFR 262.42(a)
	Releases from solid waste management units to upper aquifer	“Statistically Significant” increases in constituents specified in permit.	USEPA Regional Administrator	7 days	40 CFR 264.98(g)
	Releases from surface impoundments at permitted TSD facilities	When surface impoundments must be removed from service as specified in 40 CFR 264.227(a).	USEPA Regional Administrator	7 days	40 CFR 264.227(b)
	Release from tank system or secondary confinement system at TSD facility (see also UST below)	Releases other than those under 1 lb that are immediately cleaned up.	USEPA Regional Administrator	24 hours / written follow-up within 30 days	40 CFR 264.196(d)(1)
	Releases from TSD facilities with interim status	Significant increases in constituents or significant increase or decrease in pH.	USEPA Regional Administrator	7 days / 15 days for written follow-up	40 CFR 265.93
	USTs: (a) Overfills / spills (b) Release (suspected) (c) Release (confirmed)	25 gal of petroleum or CERCLA RQ of hazardous substance. See list of reportable conditions in 40 CFR 280.50.	Implementing agency, USEPA or State Implementing agency, USEPA or State Implementing agency, USEPA or State	24 hours 24 hours 24 hours / written follow-up within 20 days / second written follow-up within 45 days of release confirmation	40 CFR 280.53 40 CFR 280.50 40 CFR 280.61-63
SARA Title III	Extremely hazardous substance release above reportable quantity	Varies. Reporting is required when RQ is released in a 24-hour period. Immediate reporting is required if there is potential for off-site release.	LEPC SERC	Immediately, if potential of leaving the base	42 USC 11002 & 11004 40 CFR 355.40

- EHS, 40 CFR 355, Appendix A or B.

Table 8-1 – Regulatory Reporting Requirements (Continued)

Statute or Regulation	Reporting Requirement	Reportable Quantity / Narrative Threshold	Receiving Authority	Reporting Deadline	Statutory / Regulatory Reference
TSCA	Emergency Incidents of environmental contamination	Substance or mixture: - Seriously threatens humans with cancer, birth defects, mutation, death or serious or prolonged incapacitation - Seriously threatens nonhuman organism population	USEPA Regional Administrator	Immediately / 15 days for written follow-up	15 USCG 2607(a) 43 FR 11110, 16 March 1978
	Substantial risk information	Information that must be reported: - Any instance of cancer, birth defects, mutagenicity, or death or serious or prolonged incapacitation if one or a few chemicals strongly implicated or - Any pattern of effects or evidence that reasonably supports conclusion that substance or mixture causes cancer, mutation, birth defects, death, or serious or prolonged incapacitation	USEPA Document Processing Center		15 days 43 FR 11110 16 March 1978
	PCBs	Spills, 1 lb or more PCB material in excess of 50 parts per million	National Response Center and USEPA Regional office	Immediately / no later than 24 hours after discovery	40 CFR 761.125(a)(1) or other applicable standards

Notes:

- | | |
|--|---|
| AFR = Air Force Regulation | PCB = Polychlorinated Biphenyl |
| CAA = Clean Air Act | RCRA = Resource Conservation and Recovery Act |
| CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act | RQ = Reportable Quantity |
| CFR = Code of Federal Regulations | SARA = Superfund Amendments and Reauthorization Act |
| CWA = Clean Water Act | SERC = State Emergency Response Commission |
| EHS = Environmental Health and Safety | SPCC = Spill Prevention, Control and Countermeasure |
| USEPA = U.S. Environmental Protection Agency | TSCA = Toxic Substance Control Act |
| FR = Federal Register | TSD = Treatment, Storage, and Disposal |
| gal = gallon | |
| HMTA = Hazardous Materials Transportation Act | USEPA = U.S. Environmental Protection Agency |
| lb = pound | USCG = U.S. Coast Guard |
| LEPC = Local Environmental Planning Committee | UST = Underground Storage Tank |
| NPDES = National Pollutant Discharge Elimination System | |

8.3 SPILL RESPONSE TEAM

If the spill is hazardous but not of serious magnitude, the site response team will clean up the spilled material as directed by the TDC, SS, or SSHO. These individuals will be trained with regard to cleanup criteria and proper response. For all spills regardless of size, the contractor will be responsible for contacting the USACE; however, the level of notification will be based on the type and quantity of material spilled.

8.4 RECORDING AND REPORTING A SPILL

The spill event will be documented on the Spill Incident Log (**TABLE 8-2**) and maintained by the TDC. The Spill Incident Log will be part of the daily operations log, and a copy will be kept by the SSHO. All spills are to be reported to the SS and/or the SSHO, who will in turn notify the USACE.

8.5 NOTIFICATION OF RQ SPILL

In the event a spill of oil or hazardous substance exceeds an RQ, the TDC, SS, or SSHO will provide notification, as described on **Table 8-2**. The contractor will be responsible for notification to the following regulatory agencies:

- USACE
- National Response Center: 1.800.424.8802;
- NJDEP Response Center: 1.877.WARNDEP (1.877.927.6337); and
- Bergen County Health Department: 201.599.6108.

8.6 FEDERAL NOTIFICATION CRITERIA

Spills involving a quantity equal to or greater than the listed RQ for a hazardous substance or an extremely hazardous substance, as specified in 40 CFR 302.4 and the SARA require the proper notification to the appropriate regulatory agency. **Table 8-1** provides a quick reference for applicable Federal regulations and reporting requirements.

8.7 SPILL INFORMATION ASSISTANCE

In keeping with the substantive requirements of the RCRA, facilities that manage hazardous materials, hazardous waste, or toxic substances are required to make arrangements to familiarize local police, fire department, and emergency response teams with the layout of the facility, properties of waste handled at the site, and any associated hazards. Additionally, a map showing the entrance to the FMSS, the roads inside the site, and possible evacuation routes should be posted in the event of an emergency. The contractor will make these arrangements in coordination with the USACE. The emergency assistance agencies that will be contacted are listed in **Table 8-3**. In addition, the following company also provides spill information assistance and/or emergency information:

A subcontractor such as Chemtrec will be used as a 24-hour live number on manifest forms and other shipping documents in cases of emergency. Shipping papers, emergency procedures, etc. must be supplied to the subcontractor for each shipment.

Chemtrec will serve as a resource for obtaining immediate critical response information for off-site incidents involving chemical, biological, and radiological waste shipments. The emergency number for Chemtrec is 1.800. 424.9300..

Table 8-2 – FMSS Spill Incident Log Sheet

I. Initial Information Required	
Name of Informant:	_____
Phone Number:	_____
Location of Spill:	_____
Name of Injured and Type of Injuries (if applicable):	_____
Substance Spilled:	_____
Amount Spilled (estimated):	_____
Extent of Spill:	_____
Rate Material Currently Spilling (if applicable):	_____
Time Spill Occurred (estimated):	_____
Time of Notifications(s):	_____
Other Information:	
II. Spill Notification Sequence:	
1. SS, SSHO, and TDC or Regulatory Specialist	Time _____
2. Fire Department and Police Department 911 or 201-845-8800 (Maywood)	Time _____
3. Hackensack University Medical Center (if workers injured) 201-996-2000	Time _____ Time _____
4. USACE COR Kam Yin Chan 201.226.6643	
5. National Response Center (if RQ is exceeded) 800-424-8802	Time _____
6. NJDEP Response Center (if RQ is exceeded) 1-877-WARNDEP (1-877-927-6337)	Time _____
7. Emergency Coordinator - LEPC Bergen County 201-599-6108	Time _____

Table 8-3 – FMSS Emergency Contacts and Telephone Numbers

CONTACT NAME	TELEPHONE NUMBER
<i>CABRERA SERVICES AND CB&I FEDERAL SERVICES PERSONNEL</i>	
Program/Project Manager, Bill Lorenz	716.374.0835
Project Manager; Andy Mills	201.226.6601
Site Superintendent; Mike Farrell	201-226-6625
Site Safety and Health Officer; Al Craig	505.231.0814
Radiation Safety Officer; Roy Racino	845.987.6987
Transportation and Disposal Coordinator; Jim Imbornoni	201.226.6625
<i>USACE PERSONNEL</i>	
Programs and Project Site Manager; Jim Moore	201.226.6608
FUSRAP Team Leader/Resident Engineer; Kam Yin Chan	201.226.6643
Project Engineer; Ken Maley	201.226.6635
Health Physicist; Dave Hays	816.585.5110
<i>EMERGENCY RESPONSE CENTERS</i>	
Fire/Police/Rescue Unit	911
Hackensack Medical Center	201.996.2000
Poison Control Center	1.800.764.7661
National Response Center	1.800.424.8802
Garden State Underground Plant Location Service	1.800.272.1600
Bergen County Health Services Department	201.599.6108
PSE&G (Electric and Gas)	1.800.436.7734
United Water (Maywood)	1.800.422.5987
Dr. William Nassetta (CORE Health Networks)	703.734.8561
Preventative Plus	201.444.3060

8.8 POTENTIAL SPILL SOURCES

Potential spill sources include petroleum products, solvents, and other products used in construction activities. Bulk fuel, diesel and/or gasoline, and lubricants spilled will be confined to the support zone or lay-down area for dispensing. See Table 8-4 for a list of potential spill contaminants, their sources, and avoidance measures.

Table 8-4 – Potential Spills, Sources, and Planned Avoidance Measures

Contaminant	Source	Impact Scenario	Avoidance Measures
Radioactive soil particles in groundwater	Tank ruptures (worst case scenario)	Water is released to the sewer system	Provide secondary containment for tanks; use plastic sheeting to make a temporary berm.
Radioactive soil particles in groundwater	Tank valve or hose fails by freezing (worst case scenario)	Water is released to the sewer system	Provide secondary containment for tanks; use plastic sheeting to make a temporary berm. Contractor will consider freezing risks and engineering controls and scheduling to avoid equipment failure.
Radioactive soil particles in groundwater	Tank truck leaks, valve or hose mechanically fails	Less than 3,500 gal (13,250 L) of contaminated water leaks to the ground and sewers	Inspect valves, hoses, couplings, plugs daily. Ensure that loaded truck is emptied each night- this would minimize the extent of unattended spill.
Radioactive soil particles in groundwater	Tank truck leaks, valve or hose freezes	Less than 3,500 gal (13,250 L) of contaminated water leaks to the ground and sewers	Inspect valves, hoses, couplings, plugs daily. Ensure that loaded truck is emptied each night- this would minimize spill extent. Contractor will consider freezing risks and engineering / temperature controls and scheduling to avoid equipment failure.
Radioactive soil particles in groundwater	Truck leaks drained water from saturated soil on the ground.	<30 gal (110 L)	Contractor will pre-drain saturated soil before transportation, when feasible. The tailgates of the dump trucks will have foam pipe insulation wedged into them to prevent water from saturated soils leaking out.
Fuel spill	Fuel spill, related to heavy equipment or trucks	Anticipated: 50 gal (190 L)	Contractor will contract for off-site, on-demand fuel supply using mobile source. On-site fuel storage will not be planned. Contractor will carry fuel tank plugging kit.
Antifreeze spill	Single vehicle radiator or hose failure	Maximum 40 gal (150 L) of diluted antifreeze	Contractor will inspect equipment daily for cracks and leaks and fluid levels. On-site storage of antifreeze will be limited. Machines will be stopped in place when a leak is identified. Limited spill equipment will be available for each vehicle.
Used motor oil	Oil spill	Maximum of 55 gal (210 L) spill from accumulation area	Secondary containment will be provided in the waste accumulation area.

Table 8-4 – Potential Spills, Sources, and Planned Avoidance Measures (Continued)

Contaminant	Source	Impact Scenario	Avoidance Measures
Hydraulic Oil	Hose rupture or overfill	< 10 gal (38 L)	Contractor will inspect equipment daily for cracks and leaks and fluid levels. Machines will be stopped in place when a leak is identified. Limited spill equipment will be available for each vehicle.
Hydraulic Oil	Minor leaks and drips Minor leaks are expected	< 0.5 gal (2 L)	Operators will locate drip pans under machines that are parked when minor dripping is noted. Minor leaks will be reported to service staff for inspection and preventive maintenance.
Contaminated Radioactive Soil Spill	Railcar spill while loading Expected case for repetitive minor spills	Maximum 5 yd ³ (3.8 m ³)	This is expected as a normal part of the work process. The contractor will not plan to count these spills as reportable spills, and will clean up these undocumented spills immediately as part of the work process. Cleanup of these spills will be considered as prudent housekeeping under the work plan. A concrete pad is installed over the soil loading area to facilitate cleanup. Shovels will be on hand for fine cleanup.
Contaminated Radioactive Soil Spill	Truck spill while loading Expected case for repetitive minor spills	< 5 yd ³ (3.8 m ³)	This is expected as a normal part of the work process, and the contractor will not plan to count these spills as reportable spills. Contractor will clean up these undocumented spills immediately as part of the work process. Contractor will consider the cleanup of the spills as prudent housekeeping under the work plan.
Contaminated Radioactive Soil Spill	Cross contamination from other waste locations	Hypothetical case	Railcars that are not clean and free of debris will not be accepted.
Contaminated Radioactive Soil Spill	Truck overturned while cornering	10 cy ³ (7.6 m ³)	Speed limits on the FMSS will be enforced. These spills will be reportable on-site and to the USACE. This case would be reportable to off-site regulators and authorities only if there was a release to the sewers or to off-site air. Safety meetings and orientation training will emphasize defensive driving. Hazardous driving will be cause for discipline and possible expulsion from the site. Rolling a truck because of negligent driving will mandate removal of the driver from the site. Tri-axial trucks will have the third axle down prior to departing the loading site.
Contaminated Radioactive Soil Spill	Soil spill on roadway	< 5 yd ³ (3.8 m ³)	Spills on the roadway will be documented and decontaminated.
Dust Release	6-inch shallow-soil scraping	The driest soil is disturbed by scraping a single shallow lift	Dry surface soils will be preconditioned with potable water and calcium chloride solution until moist to 6 inches (15 cm) below surface level before removal.

8.8.1 Petroleum Products

All fueling and lubrication of equipment at the FMSS will be conducted so as to protect against the release of petroleum products to the environment. No unattended fueling will be performed, and all waste oil and lubricants will be collected in containers and staged in a waste management area as approved by the SSHO. All petroleum, oils, and lubricants spilled will be packaged to meet DOT specifications before transporting the waste for off-site disposal.

8.8.2 Solvents and Other Chemical Products

Aerosols, lubricants, paints, etc., that are flammable materials used in construction activities will be compatibly stored in flammable storage cabinets in accordance with 29 CFR 1910, Subpart H, as well as applicable NJDEP and local regulations.

8.9 SPILL MITIGATION PROCEDURES

Containment booms, dikes, and adsorbent materials may be used to mitigate leaks or spills. Should a spill be discovered or a corrective action required, the TDC will be notified. The SSHO will assess the situation and provide guidance for appropriate action. These incidents will be documented in the Spill Incident Log. Sufficient equipment and resources will be made available on-site to respond to spills. If a hazardous material release is observed at the site, the SS, TDC, and SSHO will be immediately notified. An assessment will be made of the magnitude and potential impact of the release. If it is safe to do so, site personnel will attempt to locate the source of the release, prevent further release, and contain the spilled and/or affected materials as follows:

- The spill or release area will be approached from upwind.
- Hazards will be identified based on available information from witnesses or material identification documents (e.g., placards, MSDSs, logs). The potential hazards will be evaluated to determine the proper personal protection levels, methods, and equipment necessary for response.
- If necessary, the release area will be evacuated, isolated, and secured.
- Work zones, including a Contamination Reduction Zone will be set up.
- If possible, spill containment will initially be made without entering the immediate hazard area.
- Entry to the release area will be made by personnel with the PPE, training, and equipment necessary to perform the work. Hazardous spill containment and collection will be performed in five steps as follows:
 - Contain the spill with absorbent socks, booms, granules, or construction of temporary dikes.
 - Control the spill at the source by plugging leaks, up-righting containers, over-packing containers, or transferring contents of a leaking container.
 - Collect the spilled material with shovels, pumps, or heavy equipment as necessary.
 - Store the spilled material for further treatment or disposal. Treatment and/or disposal options of the material will depend on the amount and type of material.

- The decontamination procedures established in Section 7.0 of the SSHP will be used after the response is complete.

If site personnel cannot safely respond to an environmental release, evacuation of the area may be warranted. The USACE and the Fire Department will be notified in the event of a significant spill (uncontrolled release of toxic, hazardous, flammable, corrosive, or radioactive materials that may pose a threat to the work force, local population or environment). Upon their arrival at the site, the SSO will brief emergency responders of the current status and any potential hazards.

8.9.1 Secondary Containment

The SS will ensure that appropriate secondary containment, diversionary structures, or equipment are used to prevent release of radioactive or hazardous materials at the site. These wastes may include stored groundwater, excavation water or decontamination water, and waste or petroleum products used during construction activities. Earthen dikes, spill diversion devices, hay bales, absorbents, etc., will be used to prevent spill material from entering surface waters, storm sewers, or drainage pathways. The work area-specific drawings will show details of engineered containment structures such as sediment traps, silt fences, etc. These engineered structures will be supplemented by absorbent booms and/or temporary berms around all liquid storage areas.

Solids, such as radioactive soil, will be controlled through dust suppression methods and BMPs for handling. Dump trucks with tailgates traveling over public roads will have tightly sealed tailgates and will be covered with conveyors to completely contain the soil. The tailgates of the dump trucks will have foam pipe insulation wedged into them to prevent water from saturated soils leaking out. All trucks traveling over public roadways will be lined with poly sheeting prior to being loaded with soil. Gondola railcars will be lined with railcar liners in which the waste will be transported. The liners will be closed and secured to contain the contaminated soil during transportation. The liner will meet DOT and disposal requirements and guarantee that soils will be protected from the elements.

Daily inspections of secondary containment structures will be performed. Corrective maintenance or repair activities will be conducted whenever damage or disturbances to structures are discovered.

8.9.2 Petroleum Use

8.9.2.1 Storage of Petroleum Products

Petroleum products, solvents, or other chemicals generated during construction will be placed in drums, labeled, and stored on pallets at the designated storage area or at the 90-day accumulation point. The designated storage area will be contained using berms or dikes to capture accidental releases from the stored containers and to prevent releases to the surrounding area.

8.9.2.2 Preventive Measures for Fueling Equipment

Gasoline and diesel fuels for heavy equipment at the site will be supplied via mobile service truck or bulk containers. As per 49 CFR 392.50, Subpart F, the following precautions will be followed during fueling operations at FMSS. Personnel will not fuel a motor vehicle with the engine running.

- Smoke or permit any open flame within 50 ft (15.2 m) of the fueling operation.
- Fuel a motor vehicle unless the nozzle of the fuel hose is continuously in contact with the intake pipe of the fuel tank.

- Permit, insofar as practicable, any person to engage in such activities that would be likely to result in fire or explosion.

Fueling facilities will be grounded in accordance with 29 CFR 1910.106 and 29 CFR 1926.152 to prevent static buildup.

8.9.3 Excavated Soil

Contaminated soil excavated from the FMSS properties will be transported via dump truck to the MISS. The soil will be stored in a stockpile in the Central RMA. The stockpile will be sprayed with an aqueous calcium chloride solution to prevent wind and rain erosion.

Open excavations will be configured to drain to a sump to collect incident rainfall. Rainfall and other liquids dewatered from the excavation will be managed as described in **Section 3.0**. Temporary berms or ditches will also be constructed around excavations to prevent run-off water from entering the excavation. These controls, along with the engineered controls previously described, will be evaluated during the course of the work to ensure effectiveness. Additional measures will be implemented as necessary.

The unloading of soils only will take place in the Central RMA at the MISS. This area will be adequately equipped with spill control measures, including equipment to catch and contain spillage, and equipment necessary to recover spillage and clean the area. Trucks will be inspected for loose or escaping soil or leaching water before being allowed to leave the area. Tailgates on the trucks will be tight fitting.

Railcars will be lined with railcar liners to hold and cover the contaminated soil. The liner will meet DOT and disposal requirements and guarantee that soils will be protected from the elements. Currently, two railcar liners are approved for use on the FMSS: RCL 313 (Modified Black Stallion Railcar Liner) by IWT/Cargo Guard and Super Load Wrapper (SLW 5310) by Transport Plastics, Inc. (owned by MHF Logistical Solutions). The liners prevent soil from leaking and also prevent water from entering the soil.

8.9.4 Spill Kit Inventory

The appropriate spill kit(s) to mitigate a spill will be maintained. The SSHO will be responsible for ensuring adequate supplies of spill equipment are maintained. The spill kit inventory will include equipment specified in 29 CFR 1910.120, including:

- DOT - 1A2 (removable head steel drums).
- Salvage drums.
- Drum truck.
- Polyethylene sheeting.
- Absorbent blankets.
- Acid / caustic spill materials.
- Booms for the sediment basin(s).
- Fire extinguisher.
- Portable eye wash and shower.
- Safety goggles.
- Caution signs.

- Danger signs.
- Garbage bags.
- Black and yellow tape.
- Communication equipment.
- Chemical resistant gloves.
- Shovels and equipment (such as drip pans and 5-gallon buckets) necessary to isolate and remove spill material.

8.9.5 Inspections

The SS or designee will make weekly inspections of the waste storage area and locations where petroleum products are to be used (e.g., heavy equipment lay-down area). Any nonconformance (e.g., containers not closed, stains on surface) noted during the inspection or normal operations will be reported to the SS. The SS will make the proper notifications and immediately make arrangements to promptly remedy the situation.

8.9.6 Security

The SS will be responsible for maintaining security at the site. In the event of a major spill, the SS, the TDC, or the SSHO will be contacted when such a spill is observed.

8.10 TRAINING

8.10.1 Spill Countermeasures Training

The SSHO will ensure that facility personnel and response team members are trained in spill countermeasures designed to protect the safety of personnel and to prevent contamination to the environment. Training will be documented and maintained by the SSHO.

8.10.2 Hazardous Waste Operations and Emergency Response Training

OSHA published 29 CFR 1910.120, Hazardous Waste and Emergency Response Training (HAZWOPER), regulates the safety and health of employees involved in the cleanup of hazardous waste sites and emergency response incidents involving hazardous substances and requires training for those personnel. All contractor, subcontractor, and USACE personnel performing work will have certification of OSHA training and refresher courses as defined in the *SSHP* (Appendix A, *APP* [USACE, 2013a]).

In addition, spill prevention briefings will be scheduled and conducted frequently by the SSHO to ensure adequate understanding of the SPCC Plan and associated procedures in this *GEPP* and the *SSHP* (Appendix A, *APP* [USACE, 2013a]). Such briefings will cover spill events or failures, where applicable, and precautionary measures pursuant to 40 CFR 112.7(e)(10).

8.11 SPCC PLAN REVIEW AND AMENDMENTS

Whenever there is a change in facility design, construction, or O&M that affects the potential for an oil or hazardous substances spill, the SPCC plan will be amended to reflect such a change. This change could be

either the result of modification to the plan of construction or for implementing new construction at the FMSS. All changes required will be recorded.

A review and evaluation of the SPCC Plan will be performed annually. This review will include an assessment of new technology that has become available for the prevention and control of spills.

9.0 RECYCLING AND WASTE MINIMIZATION PLAN

This section describes the waste minimization program at the FMSS. It has been developed in accordance with the requirements of Section 1003(b) of RCRA as adopted as a National Policy by the Hazardous and Solid Waste Amendments of 1984 (HSWA). Waste minimization opportunities presented in this plan were established by first gaining an understanding of the types of waste generated, investigating waste reduction methods, and reviewing applicable exclusions for recycling, use, and reuse of materials intended for disposal. As a compliance strategy, the HSWA additionally requires generators to document and report activities undertaken to certify waste minimization initiatives and requires generators to describe efforts undertaken during a calendar year to reduce the volume and toxicity of waste generated. The goal of this plan is to limit the generation of hazardous waste and solid waste, by the use, reuse, or recycling of resources where practicable. Additional information on waste disposal and recycling practices at the FMSS can be referenced in the *Materials Handling/Transport and Disposal Plan* (USACE, 2014c).

9.1 HAZARDOUS MATERIALS

All hazardous materials necessary to support construction activities will be controlled, inventoried, and containerized in accordance with the Hazardous Communication Program (as described in the *SSHP*, Appendix A, *APP* [USACE, 2013a) and National Fire Protection Association (NFPA) requirements. All hazardous materials will be labeled in accordance with the NFPA labeling system. Excessive inventories will not be stocked.

9.2 USED OIL AND ANTIFREEZE

If generated during construction activities, used oil and antifreeze will be segregated, containerized, and labeled “Used Oil” and “Used Antifreeze,” respectively. These materials will be stored in compatible DOT containers at the accumulation point. All containers holding liquids will be placed on wood pallets to allow inspection for potential leaks.

9.3 MUNICIPAL SOLID WASTE

Municipal solid waste generated from construction activities will be segregated according to the type of debris that is generated. Dumpsters and roll-offs will be established for general garbage, wood, and concrete debris.

Wood materials and concrete or other debris determined not to be contaminated will be loaded in a roll-off, marked construction debris, and contracted to a local landfill for disposal as solid waste. Contaminated wood and debris materials will be managed as radiologically-contaminated materials and will be stockpiled at the MISS until the material is loaded into railcars with contaminated soil.

9.4 SCRAP METAL

The RSO or designee, will scan scrap metal generated at the FMSS. Clean scrap metal will be recycled as nonhazardous waste (40 CFR 261.6[3][ii]). Scrap metal with radioactivity above background will be disposed of at a hazardous waste facility in accordance with that facility’s Waste Acceptance Criteria.

The USACE also will comply with local requirements that address the reporting of the type of scrap metal, quantity, hauler and disposal destination.

9.5 PERSONAL PROTECTIVE EQUIPMENT

PPE used in support of field operations will be considered contaminated unless field screened by the RSO, or designee, and determined to be clean. Clean PPE will be disposed of as solid waste. Contaminated PPE will be transported to the excavated soil storage area and managed as contaminated debris.

9.6 WASTE ITEMS REQUIRING SPECIAL HANDLING

This section describes waste disposal practices for materials that may require special handling, including oily rags, aerosol cans, batteries, and fluorescent light ballasts. These items will be disposed of as they are generated. A material that has had potential for contact with radiological contamination will require survey and release by the RSO.

9.6.1 Aerosol Cans

Empty, nonpropellant, aerosol cans will be disposed of as municipal waste as they are generated. For disposal in this manner, they must meet the definition of empty prior to disposal (40 CFR 261.7). An aerosol can would be empty if: all wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container (e.g., pouring, pumping, and aspirating) and no more than one in. (2.5 cm) of residue remain on the bottom of the container, or no more than 3 percent by weight of the total capacity of the container remains in the container.

9.6.2 Used Batteries

If automotive or heavy equipment batteries are generated, they will be exchanged through purchase at a local parts service store. Dry cell batteries and alkaline and nickel-cadmium batteries will be collected and managed as universal waste in accordance with 40 CFR 273.13, as well as applicable State (NJAC 7:26A) and local regulations. Spent dry cell batteries will be placed in a closed-tight container, marked, labeled, and stored at the designated accumulation point. No dry cell batteries will be disposed of as municipal waste.

9.6.3 USACE FUSRAP Maywood Laboratory Waste

Waste generated from the USACE FUSRAP Maywood Laboratory may be considered hazardous wastes. It is anticipated that the quantities will be limited and the generation category will be conditionally exempt small quantity generator (CESQG). This waste will be scanned for radiation and handled appropriately in accordance with all state and federal regulations.

10.0 REFERENCES

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- USACE, 2014b. *Uniform Federal Policy-Quality Assurance Project Plan, FUSRAP Maywood Superfund Site, Revision 0.* Prepared for USACE by Cabrera Services, Inc. December.
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APPENDIX A

**PERMIT REQUIREMENTS FOR THE
FMSS REMEDIAL ACTION**

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FACT SHEET

TREATED GROUNDWATER DISCHARGE PERMIT TO DISCHARGE TO THE BERGEN COUNTY UTILITIES AUTHORITY TREATMENT WORKS

NAME AND ADDRESS OF LOCATION WHERE DISCHARGE OCCURS:

US Army Corps of Engineers Formerly Utilized Sites Remedial Action Program (FUSRAP)
Maywood Superfund Site, 100 West Hunter Avenue, Maywood, New Jersey 07607

TYPE OF PERMIT: Significant Industrial User

NAICS CODE: 562910

FLOW CATEGORY: ≥ 25,000 gpd

AVERAGE DAILY FLOW RATE: 250,000 gpd

DESCRIPTION OF PERMITTEE OPERATIONS:

Dewatering operations associated with the remediation of the FUSRAP Maywood Superfund Site.

PRETREATMENT:

Stage I - filtration and sedimentation. Stage II (if needed) - coagulation, flocculation, and sedimentation to remove solids not removed by Stage I. Stage III (if needed) - polishing filtration and/or ion exchange if radiological contaminants are detected. Additional treatment at Site E only: Arsenic Treatment consisting of potassium permanganate/ferric chloride pretreatment and granular ferric hydroxide post treatment. Note: Site C: Treatment at stage I only.

DESCRIPTION OF SAMPLING POINTS:

Effluent: after the final treatment step prior to discharge into the sanitary sewer from the following locations:

- B Scanel & Railroad Property Excavation
- C Scanel & Railroad Property Dewatering Wells
- E West Hunter Avenue (MISS II)*

* Site (A), the original discharge within the MISS has been deleted. Site (E), designated "MISS II" identifies the combined MISS & Burial pit system with arsenic treatment.

SAMPLING PARAMETERS:

Routine compliance monitoring at sites, B and E shall be conducted at a frequency of one sample per 125,000 effluent gallons for Gross Alpha/Gross Beta and one sample per 500,000 effluent gallons for all other parameters listed in the Treated Groundwater Discharge Permit with a minimum sampling frequency of one sample per month from each site from which discharge occurs. Routine compliance monitoring at site C shall be conducted at a frequency of one sample per 1.25 million effluent gallons for Gross Alpha/Gross Beta, one sample per 5 million gallons of treated wastewater for full radionuclide analysis and for all other parameters listed in the Treated Groundwater Discharge Permit with a minimum sampling frequency of one sample per month during each month that discharge occurs.

Additional uranium sampling requirements are listed in the Special Requirements section for the Treated Groundwater Discharge Permit.

STATEMENT OF BASIS:

Local Discharge Limitations and General Conditions of the Treated Groundwater Discharge Permit are in accordance with the General Pretreatment Regulations, 40 CFR 403.6 and the Rules and Regulations for the Direct and Indirect Discharge of Wastewater to the Bergen County Utilities Authority Treatment Works. Additional Discharge Limitations are in accordance with the USEPA 1976 National Interim Primary Drinking Water Regulations and the New Jersey Groundwater Quality Standards at N.J.A.C. 7:9.6.

BERGEN COUNTY UTILITIES AUTHORITY

TREATED GROUNDWATER DISCHARGE PERMIT

Company ID #: Effective Date: Expiration Date:

1050 9/01/11 08/31/14

Name and Address of Permittee: Location of Activity/Facility:

Shaw Environmental, Incorporated
100 West Hunter Avenue
Maywood, New Jersey 07607

FUSRAP Maywood Superfund Site
100 West Hunter Avenue
Maywood, New Jersey 07607


Type of Permit: Significant Industrial User

Flow Category: $\geq 25,000$ gpd Annual Fee: \$4500.00

In accordance with all terms and conditions in the "Rules and Regulations for the Direct and Indirect Discharge of Wastewater to the Bergen County Utilities Authority Treatment Works", the provisions by which are incorporated in this permit, and applicable provisions of Federal and/or State regulation, permission is hereby granted to discharge treated groundwater into the Bergen County Utilities Authority Little Ferry Treatment Plant, via the Maywood sanitary sewer collection system, in accordance with wastewater discharge limitations, monitoring requirements, and other requirements set forth in the following tables hereof.

This permit is granted in accordance with the Application for a Waiver and Permit to Discharge Treated Groundwater and accompanying documentation, filed with the Authority, and are considered part of this permit. The permittee shall apply for permit re-issuance a minimum of one hundred eighty (180) days prior to the expiration of this permit. Treated Groundwater Discharge Permits are issued for a specific operation. The permittee shall promptly notify the Authority in advance of any changes in operation, process, flow, or discharge. A permit shall not be reassigned or transferred, sold to a new owner, new user, different premises or a new or changed operation without prior written approval of the Authority. If, upon application, the Authority decides that the existing permit can be transferred with no modifications, the succeeding owner or user shall comply with the terms and conditions of the existing permit for the balance of the permit's duration.

Be advised that while the permit is in force, additional information may be required to be submitted and/or discharge limitations may be changed to reflect changes in applicable Federal, State and local regulations. The Permittee hereby agrees to the aforementioned.


John Dinice
Industrial Pretreatment Coordinator

Local Discharge Limitations

Hazardous limits:

<u>Parameter</u>	<u>Limitation (mg/l)</u>
Acrolein	0.30
Acrylonitrile	8.40
Benzene	0.85
Bromoform	1.00
Carbon Tetrachloride	0.15
Chlorobenzene	10.60
Chloroethane	21.50
Chloroform	1.75
1,2-Dichlorobenzene	21.60
1,4-Dichlorobenzene	26.30
1,1-Dichloroethane	19.40
1,2-Dichloroethane	4.50
1,1-Dichloroethylene	0.14
1,2-trans-Dichloroethylene	17.00
1,2-Dichloropropane	21.20
Ethyl Benzene	9.30
Methylene Chloride	17.00
1,1,2,2-Tetrachloroethane	3.85
Tetrachloroethylene	1.80
Toluene	8.10
1,1,1-Trichloroethane	65.00
1,1,2-Trichloroethane	8.60
Trichloroethylene	3.30
Trichlorofluoromethane	6.25
*Vinyl Chloride	0.00024

* Limit to be set at current detection limit of 0.005 mg/l.

Copper (total)	1.0 mg/l Daily Maximum
Cyanide	0.50 mg/l Daily Maximum
Oil or Grease	
Petroleum origin	100 mg/l Monthly Average 150 mg/l Single Sample
Explosivity	5% LEL any 2 successive readings 10% LEL any 1 reading

Non-hazardous limits:

Biochemical Oxygen Demand, BOD	BCUA must be notified if over 350 mg/l
Suspended Solids, S.S.	BCUA must be notified if over 350 mg/l
pH	5.5 - 9.5 Daily Range
Oil or Grease	
Non-petroleum origin	200 mg/l Daily Maximum

Additional Discharge Limitations

<u>Parameter</u>	<u>Limitation</u>	<u>Minimum Detectable Level</u>
Gross Alpha (excluding Uranium and Radon)	15 pCi/L	3 pCi/L ^A
Gross Beta	50 pCi/L	4 pCi/L ^B
Radium 226 plus Radium 228	5 pCi/L	1.0 pCi/L each
Uranium	30 ug/L	1.0 ug/L ^C

- A. When the alternative compliance methodology is applied, the Gross Alpha MDL is calculated by summing the reported MDLs for Th-232, Th-230, Th-228 and Ra-226.
- B. When the alternative compliance methodology is applied, the Gross Beta MDL is calculated by summing the reported MDLs for U-238, Th-228, Ra-228 and Ra-226.
- C. If Uranium is measured isotopically divide the Uranium 238 activity values in pCi/L by the specific activity of Uranium 238, 0.3365 pCi/ug. The minimum detectable level for alpha spectroscopy is 0.5 pCi/L

When the alternative compliance methodology for Gross Alpha or Gross Beta is applied, this must be clearly reflected in the monitoring report. The alternative compliance methodology may only be applied when the sample matrix elevates the MDL of the standard analysis above the required MDL.

The above standards are in accordance with the USEPA 1976 National Interim Primary Drinking Water Regulations and the New Jersey Groundwater Quality Standards at N.J.A.C. 7:9.6.

Special Requirements

1. The permittee shall discontinue discharge during wet weather periods in order to minimize the loading to the BCUA treatment works during periods of high demand. For the purposes of this requirement, a wet weather event is defined as rainfall resulting in accumulation of greater than one (1) inch during less than one twenty-four (24) hour period, or rainfall of any amount of a duration greater than one twenty-four (24) hour period.
2. Should the permittee's discharge cause radiological contamination of the Authority's sewage sludge thereby restricting and/or interfering with the Authority's disposal practices, then said sewage sludge shall become the sole property of the permittee, including all transport and removal costs.
3. When processing excavation water from any of the individual areas of concern, identified as the "NRC Licensed Burial Pits 1-3" or "Former Retention Ponds A-E", additional uranium analysis will initially be performed at a frequency of one sample per 125,000 influent gallons. After four consecutive sampling events with results below the uranium discharge limitation, the additional influent sampling frequency may be relaxed to one sample per 500,000 influent gallons with a minimum sampling frequency of one sample per month for all permit specified parameters. If at any time, influent sampling results exceed the uranium discharge limitation, additional ion exchange processing or batch discharge will be initiated. The additional ion exchange processing or batch discharge, triggered by an influent uranium exceedance, may be discontinued when the processing of excavation water from the area of concern ends or, when four consecutive influent sample results indicate concentrations below the uranium discharge limitation. However all exceedances of effluent discharge limitations remain subject to BCUA enforcement response plan including the requirement for six consecutive months of increased monitoring requirements in the case of a serious violation.

Monitoring Schedule

The USACE FUSRAP Maywood Superfund Site shall monitor its effluent wastestream per the following schedule. All sampling and analysis shall be performed in accordance with 40 CFR Part 136 or the approved equivalent method and reported in the same units as the respective discharge limitation.

Monthly Monitoring:

Routine compliance monitoring of Sites B and E shall be conducted at a frequency of one sample per 125,000 effluent gallons for Gross Alpha/Gross Beta and one sample per 500,000 effluent gallons for all other discharge permit specified parameters with a minimum sampling frequency of one sample per month for all permit specified parameters from each sampling location from which discharge occurs. Minimum detectable levels specified above must be achieved for radioactive analysis.

Routine compliance monitoring at site C shall be conducted at a frequency of one sample per 1.25 million effluent gallons for Gross Alpha/Gross Beta, one sample per 5 million gallons of treated wastewater for full radionuclide analysis and for all other parameters listed in the Treated Groundwater Discharge Permit with a minimum sampling frequency of one sample per month for all permit specified parameters during each month that discharge occurs.

Samples taken in compliance with the specified monitoring requirements shall be taken after the final treatment step prior to discharge into the sanitary sewer from each of the following locations from which discharge occurs each month:

- B) Scanel & Railroad Property Excavation
- C) Scanel & Railroad Property Dewatering Wells
- E) West Hunter Avenue (MISS II)*

* Site (A), the original discharge within the MISS has been deleted. Site (E), designated "MISS II" identifies the combined MISS & Burial pit system with arsenic treatment.

Chain of custody must identify the sampling time for grab samples.

Note: The permittee shall discontinue discharge during wet weather periods in order to minimize the loading to the BCUA treatment works during periods of high demand.

Monitoring Requirements

Not later than twenty-five (25) days following each calendar month, the permittee shall submit to Bergen County Utilities Authority a compliance report consisting of, at a minimum, the following items:

1. Any change in permittee ownership, contact person or authorized representative;
2. Average and maximum daily regulated wastewater flow, with an explanation of how obtained (flow meter, volume displacement, etc.);
3. An accounting of each regulated pollutant by analysis in accordance with 40 CFR Part 136 or the approved equivalent method and reported in the same units as respective discharge limitation;
4. Chain of custody identifying the duration of composite samples (start and finish) and sampling time for grab samples;
5. The name, address and identification number of the NJDEP certified laboratory that performed the analysis;
6. A statement of compliance or a compliance schedule in the event of non-compliance; and
7. A certification from an authorized representative of the permittee which states:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations

BY:

Signature

Name and Title (typed)

General Conditions

A. Discharge Prohibitions

1. The permittee shall not discharge, or allow to be discharged, directly or indirectly into the Authority Treatment Works or local sewer system connected thereto any pollutants or wastewater which:
 - a) causes or would cause the influent at the Authority's treatment plant to exceed the following headworks limitations at the Authority's treatment plant:

<u>Pollutant</u>	<u>Headworks Limitation (mg/L)</u>
Arsenic	0.002
Cadmium	0.006
Chromium (T)	0.132
Copper	0.151
Lead	0.189
Mercury	0.002
Nickel	0.138
Silver	0.100
Zinc	0.328
Phenols	0.771

- b) contain prohibited material or substances as specified under the Rules and Regulations for the Direct and Indirect Discharge of Wastewater to the Bergen County Utilities Authority Treatment Works (Rules and Regulations), except upon approval of the Authority, or except as otherwise expressly permitted by Federal or State laws and regulations; or
 - c) are not in conformance with a permit, administrative order, administrative consent agreement, including interim enforcement limits or other approval issued by the Authority; or
 - d) exceed the limitations set forth by EPA pursuant to Section 307 of the Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 466 et seq. or the New Jersey Department of Environmental Protection pursuant to Section 4 of the New Jersey Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq.
2. In no case shall the permittee's discharge have a flow rate or contain concentrations of pollutants that exceed, for any fifteen (15) minute period, more than five (5) times the approved daily maximum concentration, flow or mass discharge during normal operation as stated in the permit.
3. The permittee shall not discharge directly or indirectly into the local sewer system or Authority Treatment Works, any wastes or wastewater which cause, threaten to cause, or are capable of causing either alone or by interaction with other substances:

- a) a fire or explosion hazard, including but not limited to, wastestreams with a closed cup flash point of less than 140 °F or 60 °C using the test methods specified in 40 CFR 261.21;
 - b) obstruction of flow or injury to the local sewer system or the Authority Treatment Works;
 - c) toxic gases, vapors or fumes that may cause acute health or safety problems of personnel operating or maintaining the system or to the public;
 - d) prevention of the effective operation or maintenance of the local sewer system or the Authority Treatment Works;
 - e) a strong offensive odor or air pollution by the release of toxic or malodorous gases or malodorous gas-producing substances;
 - f) interference with the Authority's treatment plant;
 - g) the Authority's effluent or any other product of the treatment process, residues, sludges, or scums, to be unsuitable for reclamation and reuse or disposal or to interfere with the reclamation and/or disposal process;
 - h) a detrimental environmental impact or a nuisance in the waters of the State or a condition unacceptable to any public agency having regulatory jurisdiction over same or the right to withhold funds as a result thereof;
 - i) discoloration or any other condition in the quality of the Authority Treatment Works effluent such that receiving water quality requirements established by law cannot be met;
 - j) conditions at or near the Authority Treatment Works which violate any statute or any rule, regulation, or ordinance of any public agency, federal, state, county or local regulatory body; or
 - k) the Authority Treatment Works to be overloaded or cause excessive Authority collection or treatment costs.
4. The permittee shall not discharge storm water, groundwater, rain water, street drainage, subsurface drainage, floor or yard drainage, or unpolluted water to any new direct or indirect connections to any separate sanitary sewer in the local sewer system or to the Authority Treatment Works.
 5. The permittee shall not discharge storm water, groundwater, rain water, street drainage, subsurface drainage, floor or yard drainage, or unpolluted water through any new direct or indirect connection to any combined sewer system in a local sewer system unless approval is granted by the Authority prior to such discharge. Approval shall be granted when no reasonable alternate method of disposal is available.
 6. The permittee shall not discharge or cause to be discharged, any radioactive material directly or indirectly into the local sewer system or the Authority Treatment Works except:

- a) when the permittee is authorized to use radioactive materials by the New Jersey Department of Environmental Protection, the United States Nuclear Regulatory Commission or other governmental agency empowered to regulate the use of radioactive materials; and
 - b) when the waste is discharged in strict conformity with current New Jersey Department of Environmental Protection and United States Nuclear Regulatory Commission regulations and recommendations for safe disposal, and when the permittee is in compliance with all rules and regulations of all other applicable regulatory agencies.
7. The permittee shall not discharge waste from garbage grinders directly or indirectly to the local sewer system or the Authority Treatment Works through any new connection except:
- a) wastes generated in preparation of food normally consumed on the premises; or
 - b) where the permittee has obtained approval for that specific use from the Authority and agrees to undertake whatever self-monitoring is required to enable the Authority to equitably determine the charges and fees based on the waste constituents and characteristics. An approved access point for monitoring and sampling sewage must be made available by the permittee. Such grinders must shred the waste to a degree that the discharge is shredded so that all particles will be carried freely under normal flow conditions prevailing in the local sewer system or the Authority Treatment Works. Plastic, glass, rags, paper or wood products, inert materials, garden refuse or any other commercial or industrial solid wastes shall not be discharged through a garbage grinder directly or indirectly to the local sewer system or the Authority Treatment Works.
8. The permittee shall not make any new connections to the local sewer system or discharge any wastes directly or indirectly to the local sewer system through any new connection unless such connection has been approved by the Executive Director except indirect 4" residential lateral connections. The permittee shall not discharge any substances directly into a manhole or other opening leading to the local sewer system or the Authority Treatment Works that was not designed or intended to receive such wastes, unless the Authority approves such discharge and the discharge location.
9. The permittee shall not discharge any holding tank wastes directly or indirectly to the local sewer system or the Authority Treatment Works through any connection unless the permittees received prior approval from the Authority.
10. The permittee shall not discharge directly or indirectly to the local sewer system or the Authority Treatment Works any wastes or wastewater having heat in amounts which will inhibit the biological activity at the Authority's Treatment Plant, but in no case shall the wastewater temperature at the Treatment Plant exceed 40 °C (104 °F).
11. Any effluent limitations and other requirements promulgated by the United States Environmental Protection Agency, the New Jersey Department of Environmental Protection, or any other governmental entity having jurisdiction shall apply in any instance where they are more stringent than those set forth in this permit. The Authority may also supplement this permit with more stringent requirements if it determines that this permit:

- a) may not be sufficient to enable the Authority to comply with the standards and limitations specified in the Authority's National or New Jersey Pollutant Discharge Elimination System Permit; or
 - b) may not adequately limit the wastes received into the Authority Treatment Works so as to prevent interference, pass through, or impeding of operations or so as to allow the disposal or sale of solids or sludges or the recovery of by-products or energy therefrom.
12. When the Authority shall prohibit, establish pretreatment standards, or other otherwise limit the discharge of any substance or pollutant, the permittee will be required to modify the discharge of the substances to the sewers to the levels so prescribed.
 13. The permittee shall not increase the use of process or cooling water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in the National Categorical Pretreatment Standards, or any other pollutant-specific limitation developed by the Authority or NJDEP.
 14. Connections to the local sewer system shall be designed and constructed to conform to the requirements and procedures set forth in the Authority's "Standards for Connection to Authority Sewers and Related Requirements" (Appendix A) of the Rules and Regulations, and all applicable State and local building and plumbing codes. All such connections shall be subject to the inspection and approval of the Authority.

B. Record-Keeping Requirements

1. Permittee shall maintain records of all information resulting from any monitoring activities required by this permit. Such record shall include for all samples:
 - a) The date, exact place, method, and time of sampling and the names of the person or persons taking the samples;
 - b) The dates analyses were performed;
 - c) The individual(s) who performed the analyses;
 - d) The analytical techniques/methods use; and
 - e) The results of such analyses.
2. Permittee shall be required to retain for a minimum of 5 years any records of monitoring activities and results, whether or not such monitoring activities are required by this permit and shall make such record available for inspection and copying by the Authority and NJDEP. This period of retention shall be extended during the course of any unresolved litigation regarding the permittee or when requested by the Authority or NJDEP.

C. Reporting Requirements

1. Slug Loadings
 - a) Permittee shall notify the Authority immediately of all discharges that could cause problems to the Authority's treatment works including any slug loadings. A slug loading is any discharge of a non-routine episodic nature including, but not limited to an accidental spill or a non-customary batch discharge.

- b) A notice shall be permanently posted on the bulletin board or other prominent place advising all employees of the responsible person to call in the event of an accidental or non-compliance discharge. This person shall be responsible for initiating emergency notification procedures in accordance with this permit. Permittees shall insure that all employees who could cause such an accidental or non-compliance discharge to occur are advised of the emergency notification procedure.

2. Additional Self-Monitoring

- a) If sampling performed by the permittee indicates a violation, the permittee shall notify the BCUA within 24 hours of becoming aware of the violation. The permittee shall also repeat the sampling and analysis and submit the results of the repeat analysis to the BCUA within 30 days after becoming aware of the violation.
- b) The permittee shall be required to file monthly reports if the permittee:
 - (i) in any month commits a serious violation or fails to submit a completed self-monitoring report and such failure to report continues unabated following thirty (30) days notice from the BCUA; or
 - (ii) exceeds an effluent limitation for the same pollutant at the same discharge point source by any amount for four (4) out of six (6) consecutive months, if the permittee files monthly self-monitoring reports; or
 - (iii) reports an effluent value that causes the permittee to be a serious violator for one or more parameters for which the permittee is required to report less frequently than monthly.
 - (iv) The monthly reporting requirement shall apply to those constituents that triggered the violations noted in (b)(i)-(iii) above. The reporting requirements stipulated in the permit shall be restored if the permittee has not committed any of the violations identified in (b)(i)-(iii) above for six (6) consecutive months. The term "Serious Violation" shall be as defined in Article II of the Authority's Rules and Regulations.

3. Non-compliance Reporting

- a) Permittee shall be required to report any exceedance of an effluent limitation that causes injury to persons, or damage to the environment, or poses a threat to human health or the environment, within two (2) hours of its occurrence, or of the permittee becoming aware of its occurrence.
- b) Within twenty-four (24) hours of an event described in (a) above, or of an exceedance, or of becoming aware of an exceedance of an effluent limitation for a toxic pollutant, a permittee shall provide as such additional information on the discharge as may be required by the Authority, including an estimate of the danger posed by the discharge to the environment, whether the discharge is continuing and the measures taken or being taken to remediate the problem and any damage to the environment, and to avoid a repetition of the problem.

- c) Permittee shall report to the Authority any serious violation within thirty (30) days of the violation, together with a statement explaining the nature of the serious violation and the measures taken to remedy the cause or prevent a recurrence of the serious violation.
- d) Permittee shall notify the Authority in advance of any change in the quality or quantity of any pollutant introduced into the Authority's Treatment Works or a local sewer system. The notification shall estimate the effects of the changes on the effluents to be discharged to the Authority.

4. Hazardous Waste Reporting

- a) The permittee shall notify the Authority, the USEPA Regional Waste Management Division Director, and NJDEP in writing of any discharge into the Authority's Treatment Works, Intercepting Sewer or Local Sewer of a substance, which, if otherwise disposed of, would be a hazardous waste under 40 CFR Part 261. Such notification must include the name of the hazardous waste as set forth in 40 CFR Part 261, the USEPA hazardous waste number, and the type of discharge (continuous, batch, or other). If the permittee discharges more than 100 kilograms of such waste per calendar month to the Authority's Treatment Works, Intercepting Sewer or Local Sewers, the notification shall also contain the following information to the extent such information is known and readily available to the permittee: An identification of the hazardous constituents contained in the wastes, an estimation of the mass and concentration of such constituents in the wastestream discharged during that calendar month, and an estimation of the mass of constituents in the wastestream expected to be discharged during the following twelve months. All notification for existing sources must take place within 180 days after the discharges of the listed or characteristic hazardous waste. Any notification under this paragraph need be submitted only once for each hazardous waste discharged. However, notifications of changed discharges must be submitted in accordance with the Authority's Rules and Regulations. The notification requirement in this section does not apply to pollutants already reported under the self-monitoring requirements of Section III – Monitoring Schedule of this permit.
- b) Dischargers are exempt from the requirements of paragraph (a) above during a calendar month in which they discharge no more than fifteen kilograms of hazardous wastes, unless the wastes are acute hazardous wastes as specified in 40 CFR 261.30(d) and 261.33(e). Discharge of more than fifteen kilograms of non-acute hazardous wastes in a calendar month, or of any quantity of acute hazardous wastes as specified in 40 CFR 261.30(d) and 261.33(e) requires a one-time notification. Subsequent months during which the permittee discharge more than such quantities of any hazardous waste do not require additional notification.
- c) In the case of any new regulations under section 3001 of RCRA identifying additional characteristics of hazardous waste or listing any additional substances as a hazardous waste, the permittee must notify the Authority, the EPA Regional Waste Management Waste Division Director, and NJDEP of the discharge of such substance within ninety (90) days of the effective date of such regulations.
- d) In the case of any notification made under paragraphs (a) – (c) above, the permittee shall certify that it has a program in place to reduce the volume and toxicity of hazardous wastes generated to the degree it has determined to be economically practical.

D. Other Requirements

1. The Authority shall have the right of entry to all premises in which a discharge source is or might be located or in which monitoring equipment or records required by a permit are kept, for purposes of inspection, sampling, copying or photographing.
2. The Authority shall have the right to perform an inspection and sample the effluent of a permittee at such times and at such frequencies as the Authority deems necessary to confirm compliance with pretreatment requirements.
3. Discharge permits may be transferred to a new owner or operator only if permittee gives at least thirty (30) days advance notice to Industrial Pretreatment Coordinator and Industrial Pretreatment Coordinator approves the permit transfer. The notice to Industrial Pretreatment Coordinator must include a written certification by the new owner or operator which:
 - a) States that the new owner and/or operator has no immediate intent to change the facility's operations and processes;
 - b) Identifies the specific date on which the transfer is to occur; and
 - c) Acknowledges full responsibility for complying with the existing discharge permit.
4. All permits issued to a particular user by the Authority are void upon the issuance of a new permit to that user.

Statement of Penalties

The Authority may take any and all actions and pursue any and all remedies permitted by federal law and the laws of the State of New Jersey to enforce the provisions of the "Rules and Regulations for the Direct and Indirect Discharge of Wastewater to the Bergen County Utilities Authority Treatment Works."

These actions and remedies shall include, but not necessarily be limited to those set forth in Article VI of the "Rules and Regulations for the Direct and Indirect Discharge of Wastewater to the Bergen County Utilities Authority Treatment Works." Wherever in Article VI reference is made by title to any official or employee of the Authority, it shall be understood that such official or employee shall act as the duly appointed representative of the Executive Director. The Executive Director shall at all times have the right to undertake any action delegated to such official or employee or authorize other authority officials or employees to undertake such delegated duties as well.

Enforcement actions available to the Authority include, but are not necessarily limited to, the following:

- (A) Issue an order to comply in accordance with the provisions of Section 10 of P.L. 1977 c.74 (N.J.S.A. 58:10A-10);
- (B) Bring a civil action in accordance with the provisions of Section 10 of P.L. 1977, c.74 (N.J.S.A. 58:10A-10);
- (C) Issue a summons in accordance with the provisions of Section 1 of P.L. 1991, c.8 (N.J.S.A. 58:10A-10.4);
- (D) Issue a civil administrative penalty in accordance with the provisions of Section 2 of P.L. 1991, c.8 (N.J.S.A. 58:10A-10.5);
- (E) Bring an action for a civil penalty in accordance with the provisions of Section 10 of P.L. 1977, c.74 (N.J.S.A. 58:10A-10);
- (F) Petition for the commencement of a criminal action in accordance with the provisions of Section 10 of P.L. 1977, c.74 (N.J.S.A. 58:10A-10);
- (G) Seek injunctive relief against a violation or threatened violation in accordance with the provisions of Section 7 of P.L. 1972, c.42, as amended by Section 18 of P.L. 1990, c.28 (N.J.S.A. 58:11-55); and
- (H) Seal or close off sewerage connections in accordance with the provisions of Section 8 of P.L. 1972, c.42 (N.J.S.A. 5:11-56).

In the event of a violation of any rule, regulation or pretreatment standard adopted by the Authority, the Authority shall take one of the enforcement actions set forth above or obtain injunctive relief against the violation. If applicable, the Authority shall assess civil administrative penalties in amounts no less than the minimums set forth in P.L. 1990, c.28, section 6 (N.J.S.A. 58:10-10.1). Nothing contained in this section shall be construed to prohibit or otherwise limit the Authority from pursuing any other remedy permitted by federal law and the laws of the State of New Jersey.

APPENDIX B

PRE-REMEDIAL ACTION SURVEY CHECKLISTS

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**FUSRAP MAYWOOD SUPERFUND SITE
REMEDIATION AND RESTORATION OF THE PHASE II VICINITY PROPERTIES**

MOBILIZATION CHECKLIST

Answer each question by checking the appropriate column (yes, no, or NA). This checklist is to be completed by the Field Representative prior to mobilization to the site and reviewed by the CQCSM/PM.

	<u>Yes</u>	<u>No</u>	<u>NA</u>
<u>Procurement</u>			
Is funding in place to complete the tasks at hand?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are all necessary subcontract purchase orders required to complete the work in place?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have all subcontract consent/notification limits been reviewed?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<u>Engineering/Design</u>			
Has the Construction Work Plan Addendum been approved?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has the Final Status Survey Work Plan Addendum been approved?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has the Contractor Quality Control Work Plan Addendum been approved?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has the need for vibration/settlement monitoring near structures been evaluated?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has geophysical survey been completed?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are there any geophysical anomalies to be concerned with?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are all required submittals approved?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<u>Site Access/Notifications</u>			
Has the Notice to Proceed been received from the USACE?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has a signed Right-of-Entry been received from the property owner?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has the proper notification (in accordance with the Right-of-Entry) been given to the property owner?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has the building survey report been completed?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has the Township/Borough been notified of the pending construction?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have abutting property owners been notified of the pending construction?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has New Jersey One Call been notified of the pending construction?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have necessary police details and security been coordinated?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<u>Permits</u>			
Have the necessary traffic permits been obtained?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have the necessary water discharge permits been obtained?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<u>Safety</u>			
Has the Site Safety and Health Plan Addendum been approved?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is there sufficient Personnel Protective Equipment on hand to complete the work?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is all environmental monitoring instrumentation in good working order?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is all radiological monitoring instrumentation in good working order?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are copies of all hazardous waste certifications on file?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**FUSRAP MAYWOOD SUPERFUND SITE
REMEDICATION AND RESTORATION OF THE PHASE II VICINITY PROPERTIES**

MOBILIZATION CHECKLIST

Construction

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| Has the location of soil erosion/sediment control elements (silt fence, berms, etc) been reviewed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Has an initial ground survey (existing conditions) of the property been completed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Has an initial video of the property been completed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Have all soil re-use protocols been reviewed and agreed to? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Has the location(s) of stabilized construction entrances been reviewed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Has the material transport truck route been reviewed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Has the potential impact to underground structures from construction activities been evaluated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Signature: _____

Notes of Meeting

PRE EXCAVATION UNDERGROUND UTILITY LOCATING AND COMMUNICATIONS PROCEDURE

1. Request utility "One-Call" for utility mark outs
2. Request utility companies locate & mark applicable shutoff valves for the property
3. Request utility provide information on the construction materials of the service line and if/when any modification has been made to the line.
4. Property owners will be contacted & as-builds requested to provide additional info for preparing utility drawings.
5. The project superintendent, project engineer, in consultation with the site safety & health officer will determine whether subsurface utility locating will be performed by field engineers using project instruments or by the geophysical subcontractor. The field engineer will provide copies of construction utility drawings for color-coded mark ups of utility locations as determined by geophysical methods (FSS design drawings will not be used as the basis for these surveys).
6. Utility tracing will require tracing from inside a building or shut off valve or other available surface contact. Valve tracing will be performed if interior building trace is not available or provides no information.
7. The full-size color-coded utilities construction drawings showing field mark out locations will be provided to construction field supervisor. Drawings will depict all subsurface utilities and note any discrepancies between One-Call mark outs and locations shown on drawings.
8. All areas to be surveyed must be cleared to the extent possible (i.e., relocate staged materials that may interfere with locating) prior to geophysical survey being performed.
9. Geophysical surveys, any necessary interpretation of EM and GPR data, related mark outs, and red lining of utility drawings (color-coded full-size drawings) will be completed prior to excavation.
10. Field engineer will meet with geophysical survey subcontractor to review survey drawings, data, and any data gaps to determine confidence level of information.
11. The project superintendent / field supervisor will ensure that all subsurface utilities & anomalies are physically demarcated in the field using gps, as needed.
12. Project Superintendent will ensure that subsurface drawings/info are communicated between the field engineer, field supervisor, foreman and operating engineers prior to excavation and daily as part of the safety tailgate meeting.
13. Construction will locate & unearth subsurface utilities that are located within excavation area prior to initiating full excavation activities to confirm actual location of utilities.
14. Construction will use a designated spotter when working near subsurface utilities. The spotter will be responsible for probing with an instrument specifically manufactured for utility probing (i.e., 4 to 6 ft. safety rated soil probe), hand excavating to precisely locate buried utilities, communicating to operating engineer placement of bucket, and hand digging to locate/uncover utility lines. Hand excavation shall be performed within 3 ft. of a marked or suspected location of a subsurface utility/anomaly until the precise location of the utility is known and is acknowledged by the excavating equipment operator. Exception to the 3-foot rule will be whenever there is activities within the Williams-Transco gas pipeline ROW or if there is a utility specific requirement.

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APPENDIX C

**BEST MANAGEMENT PRACTICES FOR
THE FMSS**

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Table C-1 – Best Management Practices for the FMSS

Action	Requirement	Pre-Requisites ^a	Federal Citation	NJDEP Regulation
Surface / Stormwater Controls	<p>Implement good site planning and BMPs to control run-off from construction activities to include the following.</p> <p>Document BMPs in CERCLA remedial design / remedial action work plans.</p> <p>Plan phased activities for large projects.</p> <p>Structural control required to control surface water run-off.</p> <p>Minimal clearing for grading and equipment operations.</p> <p>Implement erosion and sediment control measures (sediment trap, silt fence, berms, etc.).</p> <p>Discharge must not cause erosion.</p> <p>Quality of discharge should be monitored.</p> <p>Permanent soil stabilization required as soon as practicable following construction.</p> <p>Implement BMPs to address each component of a system capable of causing a release of significant amount of hazardous or toxic pollutants to waters of the site.</p>	<p>Applicable to stormwater discharges associated with construction activities at industrial sites that result in a disturbance of 5 acres or great of land surface.</p>	40CFR122.26(b)(14)	N.J.A.C 7:14A-1.2
	<p>Implement BMPs to address each component of a system capable of causing a release of significant amount of hazardous or toxic pollutants to waters of the site.</p>	<p>Applicable to discharges to waters of the state.</p>	40CFR125.104	<p>N.J.A.C 7:14A-6.2B1</p> <p>7:14A-11.2A3</p> <p>7:14A-11.5</p> <p>7:14A-11 (App. A)</p> <p>7:14A-11 (App. B)</p>
Discharge to POTW	<p>Pollutants that pass through the POTW in concentrations that violate the POTW's NPDES permit and pollutants that inhibit or interfere with POTW operation, sludge processes, use, or disposal are prohibited.</p>	<p>Applicable to users of a POTW^b, the same regulation applies regardless of whether the waste is discharged into a sewer or trucked to a POTW.</p> <p>Specific limits must be developed by the control authority (i.e., POTW) for any temporary discharge of waste-waters resulting from the cleanup of a hazardous waste site.</p>	40CFR403.5	<p>N.J.A.C 7:14A-21.2</p> <p>N.J.A.C 7:14A-21.3</p>

Action	Requirement	Pre-Requisites ^a	Federal Citation	NJDEP Regulation
Discharge to POTW (continued)	Discharges of pollutants to POTW are prohibited if they: Create a fire or explosion hazard in the POTW. Are corrosive (pH < 5.0). Obstruct flow, resulting in an interference. Increase the temperature of waste-water entering the treatment plant. Contain oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through to the treatment system.		40CFR304.5	N.J.A.C 7:14A-21.2 7:14A-21.3
	Waste-water discharge must comply with local POTW treatment standards. Owner may discharge radioactive material into a sanitary sewer system, providing the material satisfies the requirements of N.J.A.C 7:28-11.2	Where specific prohibitions or limits on pollutants or pollutant parameters are developed by a POTW, these limits shall be the pre-treatment standards. Gross quantity of radioactive material released by owner into sewage system cannot exceed 1 curie per year	40CFR403.4(d)	Bergen County Utility Authority limits Passaic Valley Sewage Commissioner's limits N.J.A.C 7:28-11.2

Notes:

General: CERCLA 121 exempts on-site remedial actions or removal activities from obtaining a permit. However, the substantive requirements of a law or regulation must be met. In particular, on-site discharge to surface water is exempt from procedural NPDES permit requirements. Off-site discharges will require an application for a permit.

a Pre-requisites are listed to determine the legal applicability of requirements

b Discharge to POTW is considered an off-site activity. Off-site must comply with all legally applicable requirements, both substantive and administrative. The concept of "relevant and/or appropriate" requirements is not available for off-site actions.