

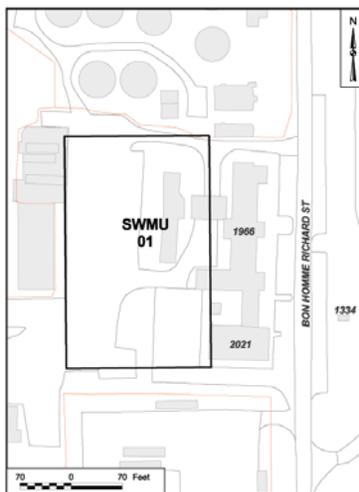
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FINAL STATEMENT OF BASIS FOR SOLID WASTE MANAGEMENT UNIT 1 LANDFILL A NS
MAYPORT FL
8/8/2008
NAVAL STATION MAYPORT

STATEMENT OF BASIS
SWMU 1 – Landfill A
Naval Station Mayport
Mayport, Florida

USEPA ID #FL9 170 024 260

August 8, 2008



Facility/Unit Type: Naval Station

Contaminants: Soil – Polycyclic Aromatic Hydrocarbons; Groundwater – Antimony, Arsenic, Silver and Zinc

Media: Soil and Groundwater

Corrective Action: Soil and Groundwater – Land Use Controls

SUMMARY

The proposed **corrective measure** at **Solid Waste Management Unit (SWMU) 1** at the Naval Station (NAVSTA) Mayport is **Land Use Controls (LUCs)**. SWMU 1, the former Landfill A, is located in the vicinity of the former Jacksonville Shipyard Inc., Administrative Building near Bon Homme Richard Avenue. The landfill is approximately 600 feet south of the entrance to the Mayport Turning Basin. SWMU 1 has been impacted by polycyclic aromatic hydrocarbon (PAH) compounds in **surface soil**. The **groundwater** for SWMUs 1, 23, 24, and 25 were grouped together and assessed collectively during the **Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)**. The **chemicals of concern (COCs)** in groundwater at the SWMUs are the metals antimony, arsenic, silver, and zinc. LUCs will restrict the site to non-residential land use only and will prohibit any unauthorized surface and subsurface soil disturbance unless prior written approval is obtained from the NAVSTA Mayport Environmental Department in accordance with the NAVSTA Mayport excavation permit process. There are no COCs for **subsurface soil** at SWMU 1. No surface water exists at SWMU 1.

Non-residential land use restrictions prohibit residential or residential-like uses including, but not limited to, any form of housing; childcare facilities; any kind of school including pre-schools, elementary schools, and secondary schools; playgrounds; and adult convalescent and nursing care facilities.

LUCs for groundwater will prohibit groundwater use/extraction and will also prohibit any interference with groundwater monitoring systems at SWMU 1. The imposition of LUCs would serve to protect human health by prohibiting the use of groundwater for drinking water until contaminant concentrations allow for unrestricted use and unlimited exposure. Additionally, sampling and analysis of downgradient wells will be implemented to assess COC attenuation in groundwater.

The public is invited to comment on this proposed corrective action or any other corrective measure alternative including those not previously studied. More information on how the public may participate in this decision-making process is provided in the Public Participation section of this document.

INTRODUCTION

Pursuant to RCRA, as amended by the 1984 **Hazardous and Solid Waste Amendments (HSWA)**, the **Florida Department of Environmental Protection (FDEP)** issued the current HSWA **permit** to NAVSTA Mayport on August 30, 2005.

This **Statement of Basis (SB)** identifies the proposed corrective action for SWMU 1, explains the related rationale, describes alternatives evaluated as part of the **Corrective Measures Study (CMS)** and CMS Addendum, solicits public review and comment on alternatives, and provides information as to how the public can be involved in the corrective action selection process. Additional details regarding the facility, environmental investigations, and the evaluation of the corrective measure alternatives may be found in the RFI, CMS, and CMS Addendum Reports. These documents are kept as part of the Administrative Record at the **Information Repository**. Refer to the Public Participation section of this document for their location. A glossary, which defines some of the technical terms contained herein, is included at the end of this document.

The corrective measures reflected in this SB are those proposed by the United States Navy (Navy) and FDEP for implementation at SWMU 1. Changes to the proposed corrective action or a change from the proposed corrective action to another appropriate solution will require public participation.

PROPOSED CORRECTIVE ACTION

The proposed corrective measure for surface and subsurface soil includes imposing LUCs to restrict the site to non-residential use only, and it would also prohibit any unauthorized surface and subsurface soil disturbance. The total present worth cost of the proposed soil corrective measure is \$84,000, which includes a \$24,000 capital cost and an operation and maintenance cost of \$60,000 over a 30-year period.

The proposed corrective measure for groundwater is LUCs. LUCs for groundwater will prohibit groundwater use/extraction and any interference with groundwater monitoring systems at SWMU 1. The imposition of LUCs would serve to protect human health by prohibiting the use of the groundwater for drinking water until contaminant concentrations allow for unrestricted use and unlimited exposure. Additionally, sampling and analysis of downgradient wells will be implemented to assess COC attenuation in groundwater. The total present worth cost of the proposed groundwater corrective measure is \$259,000, which includes a

\$47,000 capital cost and an operation and maintenance cost of \$212,000 over a 30-year period.

As required by NAVSTA Mayport's RCRA permit, the Navy will develop a **Corrective Measures Implementation Plan (CMIP)**, with FDEP concurrence, for this SWMU following selection of the final corrective measure. The CMIP will specify procedures for the future long-term oversight and maintenance of the LUCs to be imposed at SWMU 1. The facility will ensure that these or similar instructions, processes, and requirements are complied with for all activities at SWMU 1 under the NAVSTA Mayport site approval process and/or the excavation permit process. NAVSTA Mayport will also conduct periodic inspections to confirm that the LUCs are complied with and report the results of those inspections to the FDEP. All processes, site inspections, and reporting activities will be conducted pursuant to specific requirements to be set forth in an approved CMIP for the site. The proposed LUC corrective action at SWMU 1 will ensure future protection of human health and the environment.

FACILITY BACKGROUND

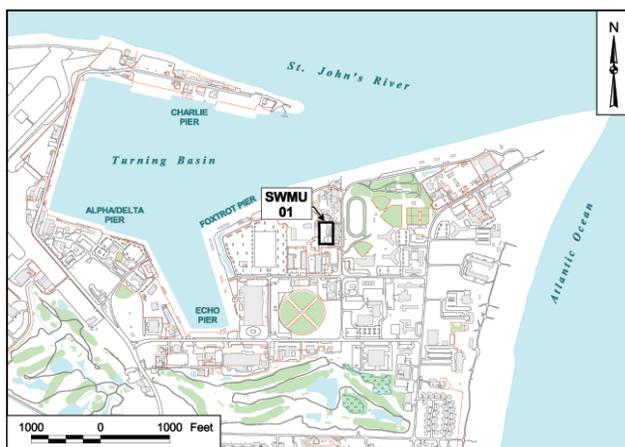
NAVSTA Mayport is located near the town of Mayport within the city limits of Jacksonville, Florida, in northeastern Duval County on the southern shore of the confluence of the St. Johns River and the Atlantic Ocean (see Figure 1).

Figure 1. Naval Station Mayport Location Map



SWMU 1 (see Figure 2) is former Landfill A that was operated by the Navy from 1942 to 1960. The landfill is reported to have covered a 4-acre area where a series of trenches approximately 15 feet wide, 400 feet long, and 8 feet deep were excavated, filled with waste materials, and covered with soil. Industrial and sanitary wastes were disposed in the landfill and included waste oils, paints, solvents, sanitary garbage, and construction

Figure 2. SWMU 1 Location Map



rubble. Burning of the wastes was conducted on a weekly schedule.

The RFI field activities were conducted from March through October 1995, and the RFI report was submitted in 1996. Field activities consisted of the collection and analysis of surface soil and subsurface soil samples, sediment, and the installation and sampling of groundwater monitoring wells.

SUMMARY OF FACILITY RISKS

A **Human Health Baseline Risk Assessment** and an **Ecological Risk Assessment** were performed as part of the RFI. In addition, human health risks were considered further in the CMS and CMS Addendum. An exceedance of an FDEP or **United States Environmental Protection Agency (USEPA)** risk level indicates a potential concern for the SWMU. Recommendations made based on human health and ecological receptor risks due to exposure to soil and groundwater were based on the collective assessment of samples from SWMUs 1, 23, 24, and 25.

Human Health Risk Assessment

Preliminary risk characterizations for SWMUs 1, 23, 24, and 25 were conducted for potential exposures to surface soil, subsurface soil, and groundwater under current and future land-use scenarios.

Soil. Noncancer risks associated with surface soil ingestion, dermal contact, and inhalation of fugitive dust for current and future land use are below USEPA's and FDEP's target Hazard Index of 1.

Because PAH compounds like benzo(a)anthracene, benzo(a)pyrene, chrysene, benzo(b)fluoranthene, and benzo(k)fluoranthene may have cumulative effects, the other PAH compounds detected were also considered

when PAH concentrations were evaluated. In surface soil, the total benzo(a)pyrene equivalent for these PAH compounds was determined to be 0.12 milligrams per kilogram (mg/kg). The FDEP residential direct exposure SCTL for benzo(a)pyrene equivalents is 0.1 mg/kg, and the FDEP industrial direct exposure SCTL for benzo(a)pyrene is 0.7 mg/kg. The benzo(a)pyrene equivalent for PAH compounds at SWMU 1 are in excess of the residential SCTL. However, the benzo(a)pyrene equivalent for PAH compounds at SWMU 1 is within the industrial/commercial range (0.1 to 0.7 mg/kg).

Arsenic was detected in surface soil at a maximum concentration of 3.4 mg/kg, which is below the FDEP Soil Cleanup Target Level (SCTL) for direct industrial/commercial exposure of 12 mg/kg.

A Basewide Arsenic Background Study was completed for surface and subsurface soil at NAVSTA Mayport in December 2007. In June 2008, a statistical analysis was performed on the analytical data associated with soil samples collected as part of this background study. The study concluded that concentrations of arsenic in site surface and subsurface soil samples at NAVSTA Mayport are the same as background surface and subsurface soil samples. Based on the study, FDEP approved the background concentration for soil at NAVSTA Mayport as 13.7 mg/kg. This approval is documented in a letter dated July 30, 2008. As a result, arsenic is no longer a COC in soil at this SWMU.

PAH compounds were determined to be surface soil COCs based upon direct residential exposure. No contaminants were detected at concentrations exceeding FDEP SCTLs for the industrial/commercial scenario.

Groundwater. A comparison to FDEP Groundwater Cleanup Target Levels (GCTLs) concluded that antimony, arsenic, silver, and zinc are COCs for SWMUs 1, 23, 24, and 25. The human health risk assessment concluded that there are cancer and non-cancer risks to human health associated with hypothetical future residents. However, based on the current use of SWMU 1, there is no human health exposure to groundwater, and it is unlikely that there will be any exposure during future use.

Ecological Assessment

Based on the Ecological Risk Assessment (ERA) findings, no risk to terrestrial wildlife populations was determined to be likely due to exposure to surface soil. No pathway for ecological exposure to subsurface soil was identified in the ERA. Additionally, the ERA found

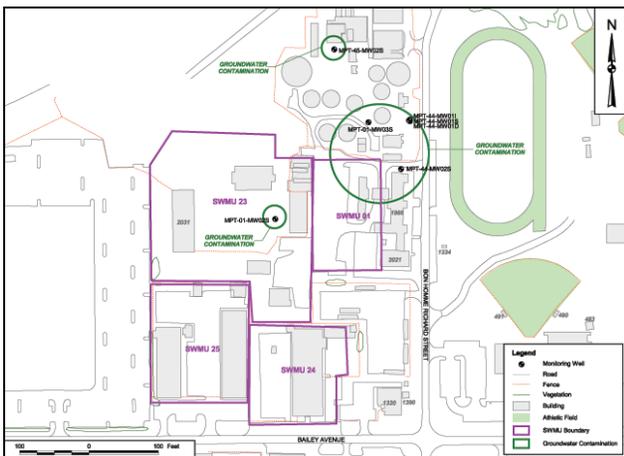
groundwater discharge into the St. Johns River did not pose a risk to aquatic receptors including fish, amphibians, plants, and invertebrates.

SCOPE OF CORRECTIVE ACTION

Contaminants in surface soil that exceed the residential SCTLs in Chapter 62-777 *Florida Administrative Code* (FAC) are PAH compounds [chrysene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene]. Antimony, arsenic, silver, and zinc were designated as COCs for groundwater at the Shipyard Area SWMUs based on concentrations in excess of GCTLs in Chapter 62 777, FAC. LUCs will be required for the SWMU until contaminant concentrations allow for unrestricted use and unlimited exposure.

The estimated volume of groundwater contamination is approximately 1,900,000 gallons (estimated area of 73,500 square feet) of contaminated groundwater (see Figure 3).

Figure 3. SWMU 1 Groundwater Contamination



SUMMARY OF ALTERNATIVES

An evaluation of the following corrective measure alternatives for SWMU 1 was conducted in accordance with the Final RCRA Corrective Action Plan Guidance [USEPA, May 31, 1994, Office of Solid Waste and Emergency Response (OSWER) Directive 9902.3-2A].

Soil Alternatives

Soil Alternative 1: No Action. The **No Action** alternative serves as a baseline consideration or addresses SWMUs that do not require remediation.

Soil Alternative 2: LUCs. This alternative would implement LUCs to restrict the site to non-residential

use only, and it would also prohibit any unauthorized surface and subsurface soil disturbance. Once implemented, procedures would be set in place to ensure that the LUCs continue to be maintained via preparation of a SWMU-specific CMIP, as required by NAVSTA Mayport's RCRA permit.

Groundwater Alternatives

Groundwater Alternative 1: No Action. The No Action alternative serves as a baseline consideration or addresses SWMUs that do not require remediation.

Groundwater Alternative 2: LUCs. This alternative would impose LUCs in the form of a groundwater use or extraction prohibition and any interference with groundwater monitoring systems at the SWMUs. The imposition of groundwater LUCs would serve to protect human health by prohibiting the use of groundwater for drinking water until contaminant concentrations allow for unrestricted use and unlimited exposure. Additionally, sampling and analysis of downgradient wells will be implemented to assess COC attenuation in groundwater. Details for putting procedures in place to ensure LUCs continue to be maintained are discussed under Soil Alternative 2.

Groundwater Alternative 3: Extraction, Ex Situ Treatment, and Discharge. This alternative would consist of installing a separate collection system and the collected groundwater would be transported to a centralized location wherein the water would be treated. A groundwater extraction system would be installed to address the contaminated water through ex situ treatment using precipitation, filtration, and granular activated carbon, and adsorption for metals removal. LUCs would be identical to those discussed under Groundwater Alternative 2.

An estimated 5.7 million gallons of groundwater would be extracted, passed through a liquid-phase treatment system, and discharged to NAVSTA Mayport's sewage treatment plant under a National Pollutant Discharge Elimination System discharge permit.

EVALUATION OF THE PROPOSED CORRECTIVE ACTION AND ALTERNATIVES

The identified corrective measure alternatives were evaluated using the criteria contained in the Final RCRA Corrective Action Plan Guidance (USEPA, May 31, 1994, OSWER Directive 9902.3-2A). Four criteria and five other factors were used to evaluate the corrective measure alternatives. These criteria and factors are as follows:

Criteria

- Protect Human Health and the Environment
- Attain Media Cleanup Standards
- Source Control
- Waste Management Standards

Other Factors

- Long-Term Reliability and Effectiveness
- Reduction in Toxicity, Mobility, or Volume
- Short-Term Effectiveness
- Implementability
- Cost

Tables 1 and 2 depict the evaluation of the corrective measure alternatives for SWMU 1 as performed in the CMS and CMS Addendum Reports.

RECOMMENDATIONS

Based on the screening of technologies and assessment of various alternatives performed, Soil Alternative 2 is preferred for addressing the surface soil contamination, and Groundwater Alternative 2 is preferred for addressing groundwater contamination.

Soil Alternative 2 would implement LUCs to restrict the site to non-residential land use only, and it would also prohibit any unauthorized surface and subsurface soil disturbance at SWMU 1. No contaminants in surface soil or subsurface soil exceed the SCTLs for industrial use. Without any industrial exceedances, LUCs would provide adequate and cost-effective protection of human health and the environment.

Non-residential land use restrictions prohibit residential or residential-like uses including, but not limited to, any form of housing; childcare facilities; any kind of school including pre-schools, elementary schools, and secondary schools; playgrounds; and adult convalescent and nursing care facilities.

The preferred groundwater corrective measure alternative involves LUCs to address groundwater contamination. LUCs would prohibit the use of the groundwater for drinking water until contaminant concentrations allow for unrestricted use and unlimited exposure. Additionally, sampling and analysis of downgradient wells will be implemented to assess COC attenuation in groundwater.

PUBLIC PARTICIPATION

To make a final decision and incorporate corrective measures into the HSWA permit, the FDEP is soliciting public review and comment on this SB for the proposed corrective action for SWMU 1 at NAVSTA Mayport. The 40 *Code of Federal Regulations* (CFR) 124.10(6) requires a 45 day comment period for a permit modification request made by the permittee under RCRA. The FDEP has undertaken the lead role on this request initiated by the Navy (the permittee). The comment period will begin on August 24, 2008, and will be published in the *Florida Times Union* newspaper.

Copies of the RFI and CMS Report and the SB are available for public review at the Information Repository located at the Jacksonville Public Library - Beaches Branch, 600 3rd Street, Neptune Beach, FL, 32266 [Phone (904) 241-1141].

A public hearing will be held if one is requested. To request a public hearing, to obtain more information about this SB, or to submit written comments please contact Diane Racine or John Winters (contact information provided below).

All comments must be postmarked no later than October 7, 2008.

Next Steps

Unless otherwise indicated, the FDEP will modify the HSWA permit to incorporate the final decision on the RCRA permit modification request when the permit is renewed. The final decision will detail the corrective measure chosen for SWMU 1 and will consider comments received during the **public comment period** in a **Response to Comments Summary**.

When the permit is modified, notice will be given to the Navy and to each person who has submitted written comments or who has requested notice of the final decision. The final permit decision shall become effective 30 days after the issuance of the notice of the

TABLE 1. EVALUATION OF SOIL CORRECTIVE MEASURE ALTERNATIVES FOR SWMU 1

Soil Alternative 1: No Action	Soil Alternative 2: LUCs
Protect Human Health and the Environment	
Would not be protective.	LUCs will prevent future residential use of the SWMU.
Attain Media Cleanup Standards	
May attain residential standards over time; however, the SWMU already meets industrial standards.	LUCs would not attain clean-up standards for residential use. LUCs would allow for the management of unacceptable risks.
Source Control	
No new source control would be implemented.	No source of contamination was identified.
Waste Management Standards	
No standards would be applicable.	No standards would be applicable.
Long-Term Reliability and Effectiveness	
Residual contamination and existing risks would remain if the SWMU is used for residential purposes.	LUCs would restrict the use of the SWMU to non-residential purposes.
Reduction in Toxicity, Mobility, or Volume through Treatment	
Reduction of toxicity, mobility, or volume would occur through natural processes, but would not be maintained.	Reduction of toxicity, mobility, or volume would occur through natural processes, but would not be maintained.
Short-Term Effectiveness	
No short-term risks to workers, the community, or the environment.	No short-term risks to workers, the community, or the environment.
Implementability	
Would be readily implementable.	Would be readily implementable.
Cost (Total Present Worth)	
\$0	\$84,000

Shading indicates Proposed Alternative.

TABLE 2. EVALUATION OF GROUNDWATER CORRECTIVE MEASURE ALTERNATIVES FOR SWMUs 1, 23, 24, and 25

Groundwater Alternative 1: No Action	Groundwater Alternative 2: LUCs	Groundwater Alternative 3: Extraction, Ex Situ Treatment, and Discharge
Protect Human Health and the Environment		
Not protective.	Would be protective.	Would be protective.
Attain Media Cleanup Standards		
Would not comply.	LUCs would not attain clean-up standards for residential use. LUCs would allow for management of unacceptable risks.	Groundwater extraction would attain standards in approximately 7 years.
Source Control		
No new source control would be implemented.	No new source control would be implemented.	Groundwater extraction and treatment would eliminate the groundwater contamination.
Waste Management Standards		
No standards applicable.	No applicable standards.	Waste would be disposed of in accordance with applicable State, Federal, and local regulations.
Long-Term Reliability and Effectiveness		
Contamination and existing risks would remain.	LUCs would prohibit the use of the groundwater for drinking water until contaminant concentrations allow for unrestricted use and unlimited exposure.	Would provide long-term reliability and effectiveness.
Reduction in Toxicity, Mobility, or Volume through Treatment		
Natural processes would reduce toxicity, but would not be monitored.	Natural processes would reduce toxicity, but would not be monitored.	Treatment would reduce toxicity, mobility, and volume.
Short-Term Effectiveness		
Would not pose new risk.	Short-term risks would be minimal.	Short-term risks would be controllable.
Implementability		
Would be readily implementable.	Would be readily implementable.	Would be implementable.
Cost (Total Present Worth)		
\$0	\$259,000	\$4,676,000

Shading indicates Proposed Alternative.

decision unless a later date is specified or review is requested under 40 CFR 124.19. If no comments are received requesting a change in the draft permit, the final permit modification shall become effective immediately upon issuance.

CONTACT

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KEY WORDS

CFR	Code of Federal Regulations
CMIP	Corrective Measures Implementation Plan
CMS	Corrective Measures Study
COC	Chemical of Concern
ERA	Ecological Risk Assessment
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
GCTL	Groundwater Cleanup Target Level
HSWA	Hazardous and Solid Waste Amendments
LUC	Land Use Control
mg/kg	Milligrams per Kilogram
NAVSTA	Naval Station
Navy	United States Navy
OSWER	Office of Solid Waste and Emergency Response
PAH	Polycyclic Aromatic Hydrocarbon
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SB	Statement of Basis
SCTL	Soil Cleanup Target Level
SWMU	Solid Waste Management Unit
USEPA	United States Environmental Protection Agency

GLOSSARY

Aquifer: An underground layer of permeable rock, sediment, or soil capable of storing and transporting water within cracks and pore spaces or between grains.

Chemical of Concern (COC): A chemical detected in environmental media at a concentration that may adversely affect human health or ecological receptors.

Corrective Measure: Includes corrective action necessary to protect human health and the environment for releases of hazardous constituents from any SWMU at the facility regardless of the time at which waste was placed at the location as required by 40 CFR 264.101. Actions may address releases to air, soils, surface water, or groundwater.

Corrective Measures Implementation Plan (CMIP): A written plan that outlines detailed design, construction, operation, maintenance, and monitoring of a chosen cleanup corrective action.

Corrective Measures Study (CMS): A step in the RCRA corrective action process where the owner and operation identifies and evaluates cleanup alternatives for addressing contamination at a SWMU

Florida Department of Environmental Protection (FDEP): The state agency responsible for implementing Florida environmental laws.

Groundwater: Water found within an aquifer.

Hazardous and Solid Waste Amendments (HSWA): Amendments to RCRA, passed in 1984, which greatly expand the nature and complexity of activities covered under RCRA.

Human Health Baseline Risk Assessment: Study to determine the likelihood that a given exposure or series of exposures may have damaged or will damage human health.

Information Repository: A public file containing technical reports, reference documents, and other materials relevant to the SWMU investigation and clean-up.

Land Use Control (LUC): Is broadly interpreted to mean any restriction or control arising from the need to protect human health and the environment, that limits use of and/or exposure to any portion of a given

GLOSSARY (Continued)

property, including water resources. This term encompasses institutional controls, such as those involving real estate interests, governmental permitting, zoning, public advisories, deed notices, and other legal restrictions. The term may also include restrictions on access, whether achieved by means of engineered barriers such as a fence or concrete pad, or by human means, such as the presence of security guards. Additionally, the term may involve both affirmative measures to achieve the desired restriction (e.g., night lighting of an area) and prohibitive directives (e.g., no drilling of drinking water wells).

No Action: Recommendation or decision indicating no contaminants above regulatory limits.

Permit: A RCRA permit, issued for NAVSTA Mayport, establishes the facility's operating conditions for managing hazardous waste.

Public Comment Period: A legally required opportunity for the community to provide written and oral comments on a proposed environmental action.

RCRA Facility Investigation (RFI): Evaluates the nature and extent of the releases of hazardous waste.

Resource Conservation and Recovery Act (RCRA) of 1976: Requires each hazardous waste treatment, storage, and disposal facility to manage hazardous waste in accordance with a permit issued by the USEPA or a state agency that has a hazardous waste program approved by the USEPA.

Response to Comments Summary: A document summarizing the public comments received and the responses to the comments.

Risk Assessment: A study estimating the potential risk a SWMU poses to human health and the environment.

Solid Waste Management Unit (SWMU): Any discernable unit (to include regulated units) at which RCRA regulated waste has been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste.

Statement of Basis (SB): A public participation document detailing the proposed corrective measure at a SWMU.

Surface Soil: Soil found from 0 to 2 feet below land surface.

Subsurface Soil: Soil found 2 feet below land surface and deeper.

Unauthorized: An act done or made without official permission or consent.

United States Environmental Protection Agency (USEPA): The federal agency responsible for implementing United States environmental laws.

**Comments on the Statement of Basis for
Landfill A (SWMU 1)**

Place
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Here

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