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PROPOSED PLAN OPERABLE UNIT 1 SITES 4 AND 5 NWS EARLE NJ
3/1/1997
BROWN & ROOT ENVIRONMENTAL

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Proposed Plan
Operable Unit 1 (OU-1)
Sites 4 and 5

Naval Weapons Station Earle
Colts Neck, New Jersey

Northern Division
Naval Facilities Engineering Command

March 1997

Brown & Root Environmental
A Division of Halliburton NUS Corporation

Department of the Navy

Proposed Remedial Action Plan for OU-1

Naval Weapons Station (NWS) Earle
Colts Neck, New Jersey

March 1997

NAVY ANNOUNCES PROPOSED REMEDIAL ACTION PLAN

This Proposed Plan summarizes the findings of the Operable Unit One (OU-1) **feasibility study** (FS) report, identifies the clean-up alternative preferred by the Navy and the United States Environmental Protection Agency (EPA), and explains the reasons for this preference. In addition, this Proposed Plan explains how the public can participate in the decision-making process and provides addresses for the appropriate Navy contacts.

The Department of the Navy has completed an FS for OU-1 addressing contamination associated with Sites 4 and 5 at Naval Weapons Station (NWS) Earle in Colts Neck, New Jersey. The OU-1 sites were grouped together based on similarities of waste volumes, types of contaminants, and the potential for contaminants to migrate to human and/or environmental receptors. The FS also includes OU-2 (Site 19) and OU-3 (Site 26); however, separate Proposed Plans address the remediation of each Operable Unit.

The FS was completed as part of the Navy's Installation Restoration Program (IRP) and the Superfund Remedial Program. The purpose of the FS was to evaluate the clean-up alternatives available for Sites 4, 5, 19, and 26.

PUBLIC PARTICIPATION IS ENCOURAGED

This Proposed Plan is issued by the Navy, the lead agency for the IRP and Superfund activities at the NWS Earle facility, and by EPA, the support agency for Superfund activities. The public is encouraged to comment on this Proposed Plan; procedures for public comment are discussed at the end of this Plan. After the public comment period has ended and after any comments have been reviewed and considered, the Navy and EPA will select a remedy for Sites 4 and 5.

NOTE: A glossary of relevant technical and regulatory terms is provided at the end of this Proposed Plan. These terms are initially indicated in **boldface** within the Proposed Plan.

NAVY'S RESPONSIBILITY

The Navy is issuing this Proposed Plan as part of its public participation responsibilities under the Superfund law and, in particular, Sections 113(k), 117(a), and 121(f) of the **Comprehensive Environmental Response, Compensation, and Liability Act** (CERCLA, commonly referred to as Superfund) as amended by the Superfund Amendments and Reauthorization Act (SARA).

This document summarizes information that can be found in greater detail in the FS report for OU-1 and **remedial investigation** (RI) report for NWS Earle, as well as other site documents contained in the **Administrative Record** file for this site. The Navy invites the public to review the available materials and to comment on this Proposed Plan during the public comment period.

The Administrative Record file is available at the

Monmouth County Library, Eastern Branch
Route 35, Shrewsbury, NJ

PUBLIC MEETING

A public meeting to discuss this Proposed Plan will be held on April 24, 1997 at 7:00 PM at the Colts Neck Courthouse. The meeting date will also be published in the *Asbury Park Press.*

The Navy, with EPA, may modify the preferred alternative or select another remedy presented in this Proposed Plan for OU-1 based on new information from the public comments. **The public is encouraged to review and comment on all the alternatives identified here.**

SITE BACKGROUND

NWS Earle is located in Monmouth County, New Jersey, approximately 47 miles south of New York City. The station consists of two areas, the 10,248-acre Main Base (Mainside area), located inland, and the 706-acre Waterfront area (see Figure 1). The two areas are connected by a Navy-controlled right-of-way.

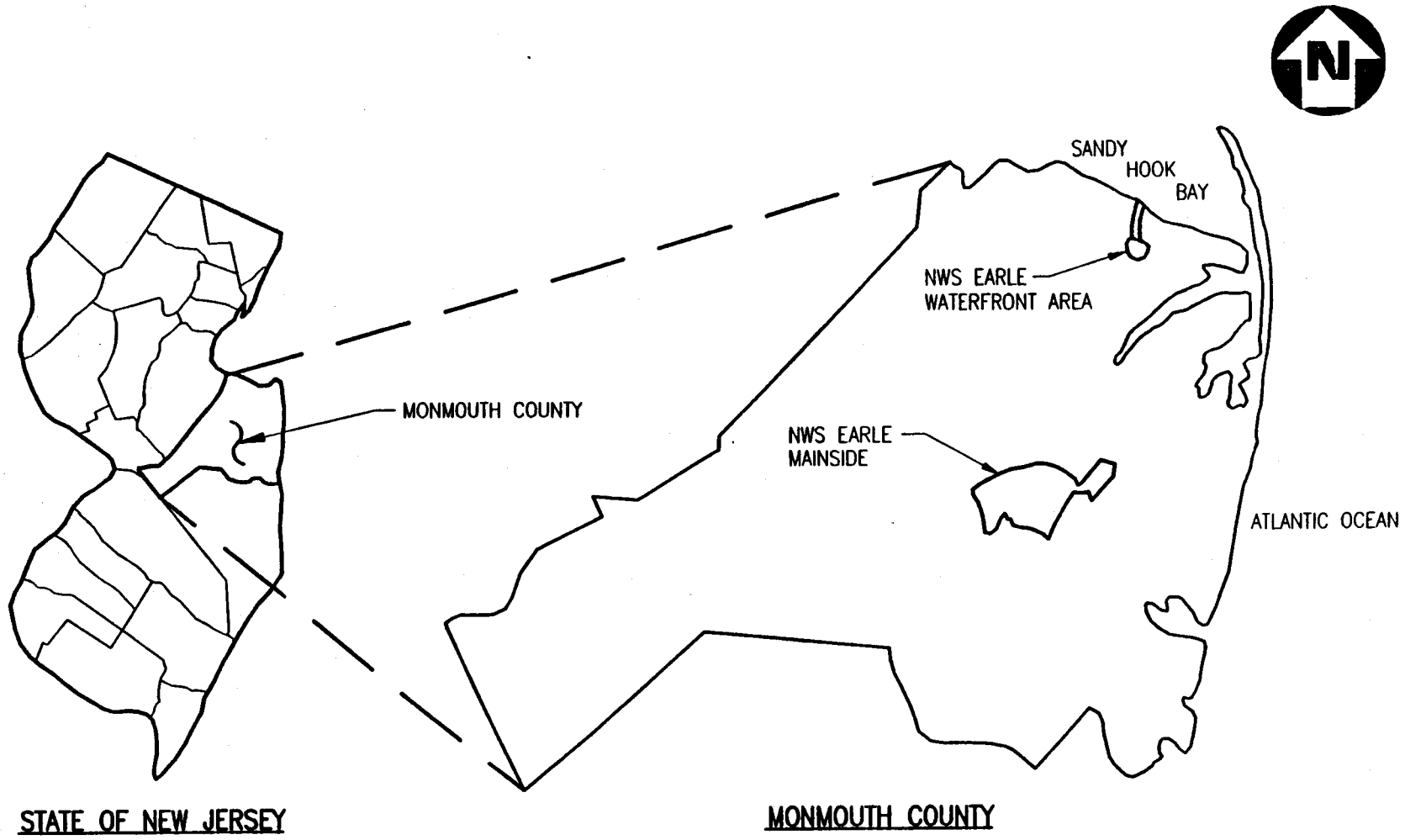
Commissioned in 1943, the facility's primary mission is to supply ammunition to the naval fleet. An estimated 2,500 people either work or live at the NWS Earle station.

The Mainside area is located in Colts Neck Township, which has a population of approximately 6,500 people. The surrounding area includes agricultural land, vacant land, and low-density housing. The Mainside area consists of a large, undeveloped portion associated with ordnance operations, production, and storage; this portion is encumbered by explosive safety quantity distance arcs. Other land use in the Mainside area consists of residences, offices, workshops, warehouses, recreational space, open space, and undeveloped land. Sites 4 and 5 are both located in the Mainside area (Figure 2). A brief description of each of these sites follows.

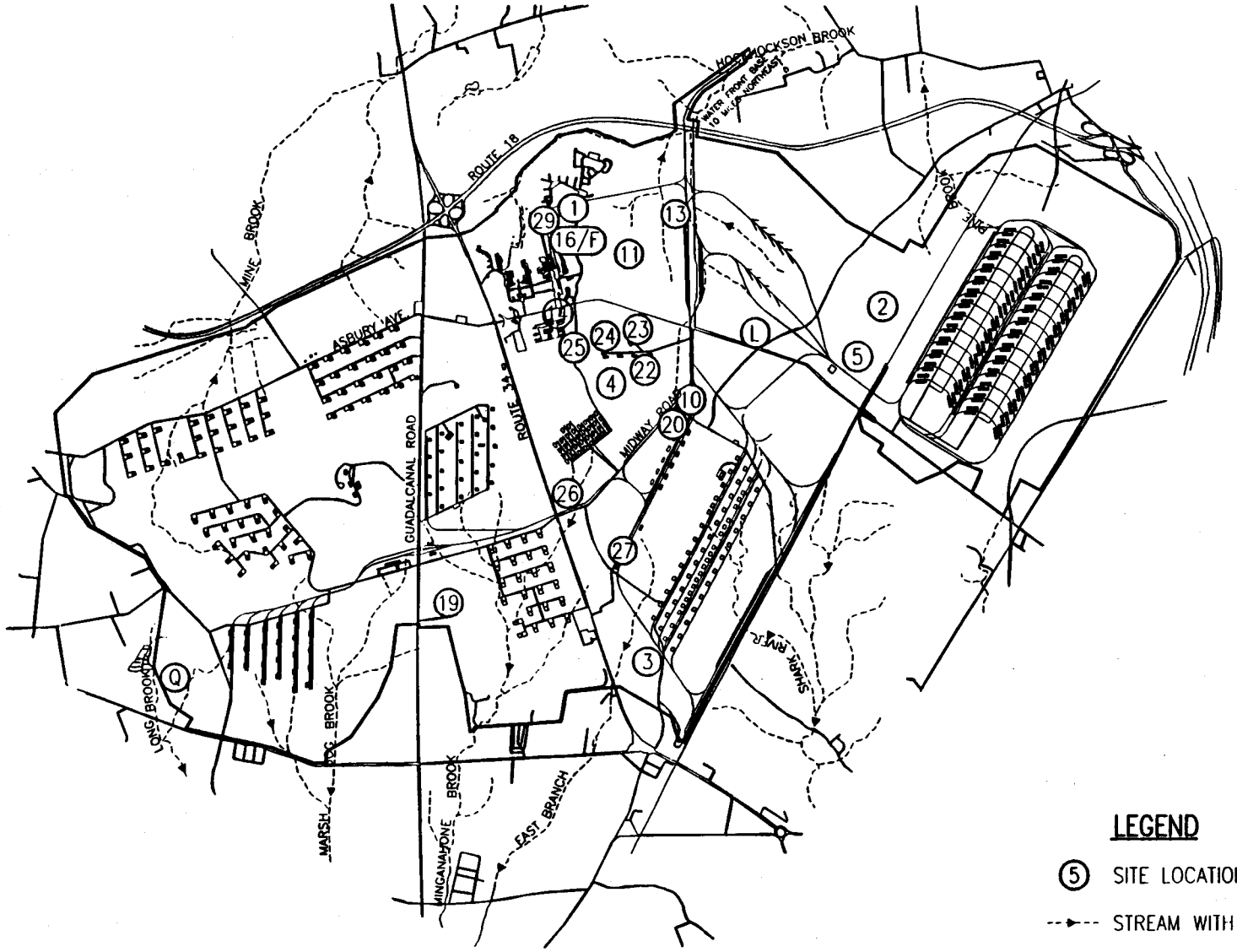
The Waterfront area is located in Middletown Township, which has a population of approximately 68,200 people.

Site 4: Landfill West of "D" Group

Site 4 is a 5-acre landfill that received approximately 10,200 tons of mixed domestic and industrial wastes from 1943 until 1960 (Figure 3). Materials disposed of include metal scrap, construction debris, pesticide and herbicide containers, paint residues, and rinsewaters. It has been reported that containers of paint, paint thinners, varnishes, shellacs, acids, alcohols, caustics, and asbestos may have been disposed of. The landfilled materials are currently covered by a thin layer of sandy soil.



DRAWN BY MRM DATE 1/7/97	Brown & Root Environmental	CONTRACT NO. / OWNER NO.
CHECKED BY RET DATE 1/7/97	REGIONAL SITE MAP NAVAL WEAPONS STATION EARLE COLTS NECK, NEW JERSEY	APPROVED BY / DATE
COST/SCHED.-AREA		APPROVED BY / DATE
SCALE NOT TO SCALE		DRAWING NO. FIGURE 1 / REV.



0 5,000 10,000

SCALE IN FEET

DRAWN BY MRM	DATE 1/7/97	Brown & Root Environmental	CONTRACT NO. / OWNER NO.
CHECKED BY RET	DATE 1/7/97	MAINSIDE SITE LOCATIONS NAVAL WEAPONS STATION EARLE COLTS NECK, NEW JERSEY	APPROVED BY / DATE
COST/SCHED.-AREA			APPROVED BY / DATE
SCALE 1"=5000'			DRAWING NO. FIGURE 2 / REV.

SAMPLE LOCATIONS
SITE 4 - LANDFILL WEST OF "D" GROUP

200 0 200 400 Feet

FIGURE 3

Brown & Root Environmental

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Site 5: Landfill West of Army Barricades

This landfill received approximately 6,600 tons of mixed domestic and industrial wastes between 1968 and 1978 (Figure 4). Wastes included paper, glass, plastics, construction debris, pesticide and herbicide containers, containers of paint, paint thinners, varnishes, shellacs, acids, alcohols, caustics, and small amounts of asbestos. The landfilled materials are currently covered by a sand and vegetated soil layer ranging in depth from 1 to 3 feet. Approximately 1 acre of the site is used as a skeet shooting range.

STUDIES and RESULTS

Potential hazardous substance releases at NWS Earle were addressed in an **Initial Assessment Study** (IAS) in 1982, a **Site Inspection Study** (SI) in 1986, and a Phase I RI in 1993. These were preliminary investigations to determine the number of sources, compile histories of waste-handling and disposal practices at the sites, and acquire data on the types of contaminants present and potential human health and/or environmental receptors. The RI investigation at Sites 4 and 5 included the installation and sampling of monitoring wells, collection of surface water and sediment samples, and excavation of test pits to observe wastes and sample subsurface soils.

In 1990, NWS Earle was placed on the **National Priorities List** (NPL), which is a list of sites where uncontrolled hazardous substance releases may potentially present serious threats to human health and the environment. The sites at NWS Earle were subsequently addressed by Phase II RI activities to determine the nature and extent of contamination at these sites. Activities included installation and sampling of groundwater monitoring wells, surface water and sediment sampling, and surface and subsurface soil sampling. The Phase II RI was initiated in 1995 and completed in July 1996, when the final RI report was released. Results of all the investigations for each site are discussed below.

Site 4: Landfill West of "D" Group

IAS and SI Results

The IAS determined that hazardous materials were potentially present and could impact groundwater. The SI detected low levels of **volatile organic compounds** (VOCs), **semivolatile organic compounds** (SVOCs), polychlorinated biphenyl (PCB), and metals in sediment samples receiving drainage from the site.

Phase I Remedial Investigation

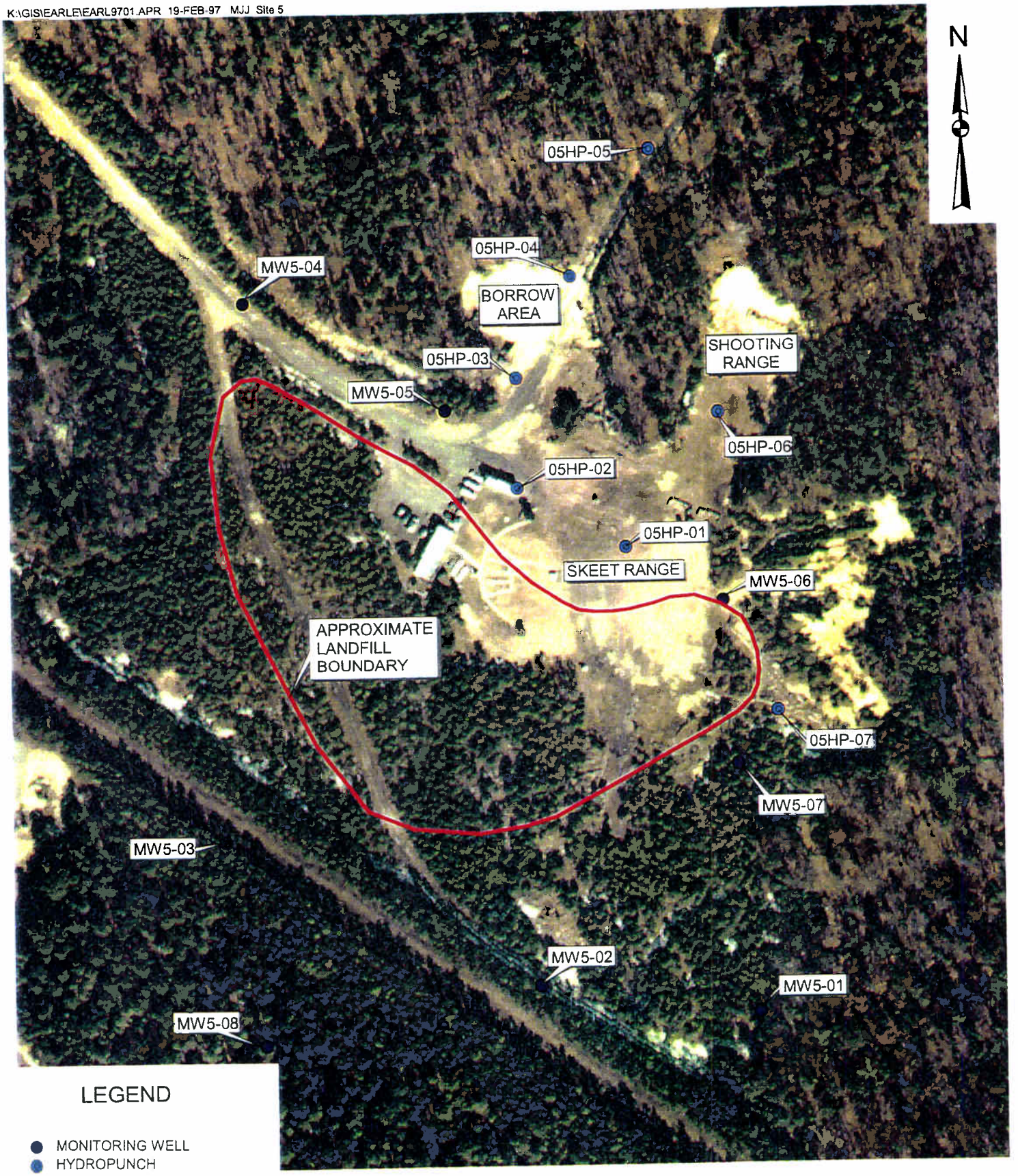
During the Phase I RI, groundwater samples showed VOCs, and subsurface soils showed elevated levels of a single pesticide and total petroleum hydrocarbons (TPH).

Six test pits were excavated to characterize the waste materials in the landfill. The waste consisted primarily of metal scrap such as steel banding, pipes, and empty metal trash barrels. Lumber, concrete, brick, and other construction debris were also encountered. No anomalous organic vapor readings were detected in any of the test pits.

Phase II Remedial Investigation

Results of the Phase II RI showed the presence of VOCs, including *1,2-dichloroethene (1,2-DCE)* and trichloroethene (TCE), vinyl chloride (VC), and elevated levels of metals, including

K:\GIS\EARLE\EARL9701.APR 19-FEB-97 MJJ Site 5



SAMPLE LOCATIONS
SITE 5 - LANDFILL WEST OF ARMY BARRICADES

150 0 150 300 Feet

FIGURE 4

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aluminum, iron, lead, and manganese in groundwater. Elevated levels of metals, including aluminum, iron, lead, and manganese, and trace levels of pesticides, including aldrin and dieldrin, were detected in surface water samples. A single SVOC, nitrobenzene, was also detected at an elevated level (66.0 ug/kg) in a sediment sample. Table 1 summarizes the results of samples taken from groundwater compared to applicable standards.

Metals in groundwater were found at concentrations similar to background levels, although iron was detected in a downgradient well sample at a concentration greater than background and upgradient levels. Compounds found in groundwater at concentrations greater than regulatory guidelines included aluminum, iron and manganese. However, there is no promulgated federal regulatory standard for these common groundwater constituents. Also, as discussed in the RI report, some of the metals concentrations found in groundwater samples may be attributable to sample turbidity when the low-flow sampling technique did not achieve the sample collection endpoint turbidity goal. In the case of Site 4, of six monitoring wells samples collected, only one met the sample collection endpoint turbidity goal and another came near the goal. The other four samples collected had relatively high endpoint turbitity values, indicating that metals concentration results may be biased high for groundwater samples collected at Site 4.

Organic compounds found in groundwater at levels above regulatory standards included trichloroethene and vinyl chloride, each in one monitoring well. Vinyl chloride was found at a concentration (3 ug/L) slightly above the federal (and state) standard for human consumption of groundwater (2 ug/L). Vinyl chloride was detected only during the RI Phase II sampling, not during any of the three rounds of RI Phase I sampling. The presence of 1,2-dichloroethene and vinyl chloride, both degradation products of TCE, found slightly above (VC) or below (1,2-DCE) the regulatory standard, indicates that contaminants leaching from the limited source area are degrading with time.

Groundwater Modeling

Computer modeling estimated that Site 4 groundwater metals concentrations would gradually diminish over a long period of time, assuming a source control measure, such as capping, would be implemented to control vertical migration. The model estimated that metals concentrations at the nearest potential discharge point, a stream located approximately 400 feet downgradient of Site 4, would be well below either the state standard or background levels. The maximum distance from Site 4 where metals concentration in groundwater would remain above applicable regulatory standards or background levels, was estimated to be 55 feet by the model.

In summary, results of investigations at Site 4 indicate that:

- Metals found in groundwater at concentrations above NJ regulatory standards were limited to aluminum, iron and manganese. There is no promulgated federal regulatory standard for these common groundwater constituents.

- Metals concentration results may be biased high for groundwater samples collected at Site 4 because of high sample endpoint turbidity values in four of the six samples taken.

- Modeling estimated that metals in groundwater will migrate only very little, and

TABLE 1
SITE 4 GROUNDWATER

	Maximum Exceedance	Frequency of Exceedance	ARARs and TBCs			Data Exceeding ARARs					
			Maximum Contaminant Level (MCL) (ug/L)	Drinking Water Health Advisory (Lowest Criterion Shown)	NJDEP Groundwater Quality Standard (ug/L)	04GW01 1995 RI 7/25/95	04GW02 1995 RI 7/26/95	04GW04 1995 RI 7/25/95	04GW05 1995 RI 7/25/95	04GW06 1995 RI 7/25/95	04GW07 1995 RI 8/22/95
INORGANICS (UG/L)											
ALUMINUM	2690	5 / 6	-	-	200	1590 J	923 J	1490 J	2690 J	578 J	
IRON	20900	4 / 6	-	-	300	554	20900		7680	647	
MANGANESE	306	1 / 6	-	-	50		306				
VOLATILES (UG/L)											
TRICHLOROETHENE	55	1 / 6	5	-	1				55		
VINYL CHLORIDE	3	1 / 6	2	10 e	5		3 J				

J = Value is estimated because the concentration is below the laboratory contract quantitation limit or because of data validation quality control criteria.
e = The listed health advisory criterion, long term child, is equal to the most stringent of the EPA health advisories for this chemical.

concentrations will diminish slowly with time.

- TCE found in one monitoring well at a concentration greater than the EPA and NJ standard, and its degradation products found approximately at (VC) or below (1,2-DCE) the regulatory standard, indicate that contaminants leaching from the limited source area are degrading with time, and are not widely spread.

Site 5: Landfill West of Army Barricades

IAS and SI Results

The IAS and SI concluded that a potential threat to groundwater existed at the site.

Phase I Remedial Investigation

The results of the Phase I RI showed metals and VOCs in subsurface soil and groundwater samples.

Four test pits were excavated to characterize the wastes that had been disposed of at the landfill. A layer of trash, ranging in thickness from 6 to 13 feet, was encountered in all four test pits. The trash consisted of foam rubber, glass, paper, plastic, metal scrap materials, lumber, concrete, bricks, and other construction debris.

Phase II Remedial Investigation

The Phase II RI indicated the presence of metals (*e.g.,* aluminum, arsenic, cadmium, cobalt, iron) and VOCs (1,2-dichloroethane (1,2-DCA), 1,2-DCE, TCE, benzene, ethylbenzene, xylene, vinyl chloride) in groundwater samples, generally confirming previous findings. Table 2 summarizes the results of samples taken from groundwater compared to applicable standards.

Metals, including aluminum, cadmium, cobalt, chromium, iron, manganese and nickel were found in groundwater at concentrations generally 1 to 1.5 times the corresponding background levels. Aluminum in one monitoring well was found at a concentration approximately six times the highest concentration found in a background groundwater sample. Beryllium was detected at a concentration greater than background but near the instrument detection limit in one monitoring well, and thallium was found in two upgradient well samples at low levels although it was not found in background.

Metals found in groundwater at concentrations greater than regulatory guidelines included aluminum, cadmium, iron, manganese, nickel and thallium. In the case of Site 5, of eight monitoring well samples collected, four met the sample collection endpoint turbidity goal and the other four had reasonably low endpoint turbidity values, indicating no probable general correlation between turbidity and groundwater samples metals concentrations above regulatory standards or background.

Organic compounds found in groundwater at levels above regulatory standards included 1,2-DCA, benzene, chloroform and TCE. All four compounds were found at concentrations below the federal standard for human consumption for potable water supplies, but slightly above the NJ standard. TCE and benzene were each found in two monitoring wells downgradient of the landfill. Chloroform was found in one monitoring well upgradient of the landfill at a concentration above the NJ standard.

Groundwater Modeling

Computer modeling estimated that Site 5 groundwater metal concentrations would gradually diminish over a long period of time, assuming a source control measure, such as

TABLE 2
SITE 5 GROUNDWATER

			ARARs and TBCs			Data Exceeding ARARs					
	Maximum Exceedance	Frequency of Exceedance	Maximum Contaminant Level (MCL) (ug/L)	Drinking Water Health Advisory (Lowest Criterion Shown)	NJDEP Groundwater Quality Standard (ug/L)	05GW01 1995 RI 7/21/95	05GW02 1995 RI 7/7/95	05GW04 1995 RI 7/21/95	05GW05 1995 RI 7/5/95	05GW06 1995 RI 7/13/95	05GW07 1995 RI 7/23/95
INORGANICS (UG/L)											
ALUMINUM	42000	8 / 8	-	-	200	2150 J	4310	7870 J	2740	2600	497
CADMIUM	8	2 / 8	5	5 e	4					7	
IRON	59200	8 / 8	-	-	300	2670	453	1450 J	2310	59200	331
MANGANESE	302	4 / 8	-	-	50		65		171	156	
NICKEL	102	1 / 8	100	100 a	100						
THALLIUM	6	3 / 8	2	0.4 a	10	4	5		6 J		
VOLATILES (UG/L)											
1,2-DICHLOROETHANE	3	1 / 8	5	700 e	2					3 J	
BENZENE	3	2 / 8	5	200 d	1					2 J	
CHLOROFORM	22	1 / 8	100	100 e	6	22					
TRICHLOROETHENE	4	2 / 8	5	-	1				55	4 J	

J = Value is estimated because the concentration is below the laboratory contract quantitation limit or because of data validation quality control criteria.
a = The listed health advisory criterion, lifetime adult, is equal to the most stringent of the EPA health advisories for this chemical
d = The listed health advisory criterion, ten-day child, is equal to the most stringent of the EPA health advisories for this chemical.
e = The listed health advisory criterion, long term child, is equal to the most stringent of the EPA health advisories for this chemical.

capping, would be implemented to control vertical migration. The model estimated that metals concentration at the nearest potential discharge point, a stream located approximately 3500 feet downgradient of Site 5, would be well below either the state standard or background levels.

In summary, results of investigations at Site 5 indicate that:

- Metals concentrations in groundwater were found to be slightly higher than background or the corresponding NJ standard (generally at 1 or 1.5 times the corresponding background concentration).

- Modeling estimates that metals in groundwater will migrate only very little, and concentrations will diminish slowly with time.

- Thallium found at low concentrations in groundwater upgradient of the landfill does not appear to be leaching from the landfill.

- Source control (e.g., covering the landfill) would inhibit infiltration of water through the landfill, preclude the leaching of additional metals and volatiles and promote natural attenuation. Long-term monitoring would be required to evaluate the effectiveness of source control.

- The low levels of 1,2-DCA and TCE found in groundwater downgradient of the landfill are indicative of contaminants leaching from a limited source area, which are degrading with time, and are not widely spread.

- The low level of chloroform found in one upgradient monitoring well does not appear to be the result of a concentrated source in the area of the landfill.

- After significant investigation over more than a decade, no concentrated source of VOCs has been found at Site 5. It is unlikely that a concentrated source of VOC contamination exists in the landfilled material.

SUMMARY OF SITE RISKS

As part of the Phase II RI, a human health risk assessment and ecological risk assessment were performed.

Human Health Risks

The human health risk assessment estimated the potential risks to human health posed by exposure to contaminated groundwater, surface water and sediment, and surface and subsurface soils at the sites. To assess these risks, the exposure scenarios listed below were assumed:

- Ingestion of groundwater as a drinking water source.

- Inhalation of contaminants in groundwater (i.e., volatile compounds emitted during showering).

- Dermal exposure to contaminants in groundwater (i.e., showering, hand washing, bathing).

- Dermal contact from contaminated soils.

- Inhalation of contaminants in soil (i.e., fugitive dusts).

- Incidental ingestion of contaminated soils.

- Incidental ingestion of surface water and sediment.

- Dermal contact with contaminated surface water or sediment.

These scenarios were applied to various site use categories, including current industrial use, future industrial use, future lifetime resident, and future recreational child.

Potential human health risks were categorized as **carcinogenic** or **noncarcinogenic**. A hypothetical carcinogenic risk increase from exposure should ideally fall below a risk range of 1 x 10^{-6} (an increase of one case of cancer for one million people exposed) to 1 x 10^{-4} (an increase of one case of cancer per 10,000 people exposed).

Noncarcinogenic risks were estimated using **Hazard Indices** (HI), where an HI exceeding one is considered an unacceptable health risk.

In addition, results were compared to applicable federal and/or state standards such as federal Maximum Contaminant Levels (MCLs) for drinking water, New Jersey Department of Environmental Protection (NJDEP) **Groundwater Quality Standards (GWQS)**, or other published lists of reference values.

A baseline human health risk assessment was conducted for the OU-1 sites. Results of this assessment are discussed for each site.

Site 4

The cancer risk associated with future residential exposure from groundwater at Site 4 was conservatively estimated at 1 X 10^{-4}, which is the upper end of the acceptable risk range. This value is primarily attributable to vinyl chloride, which was detected in one sample. HIs for the future residential exposure by groundwater exceeded 1.0, primarily due to barium and iron.

Sample results also show that several metals (aluminum, iron, manganese) and VOCs (1,2-DCE and vinyl chloride) exceed applicable groundwater standards.

Site 5

The cancer risk associated with future residential exposure from groundwater at Site 5 was calculated to be approximately 1.3 X 10^{-4} which is the upper end of the acceptable risk range. This value is primarily due to arsenic and vinyl chloride, detected in groundwater samples (although both were only detected in one well at levels at or below EPA and New Jersey Standards). In addition, the noncarcinogenic HI also exceeded the acceptable risk level of 1.0, due to iron.

Contaminants detected in Site 5 groundwater samples that exceeded standards include aluminum, cadmium, iron, manganese, nickel, thallium, 1,2-DCA, benzene, chloroform, and TCE.

Ecological Risks

The ecological risk assessment estimates the risk posed to ecological receptors, such as aquatic and terrestrial biota, from contamination at the NWS Earle sites.

A summary of the results of the ecological risk assessment for the OU-1 sites is presented below:

Site 4

The ecological risk assessment concluded that contaminants do not appear to be significantly migrating to surface water and sediments in the wetlands via overland runoff and/or groundwater to surface water discharge.

Site 5

Off-site migration of contaminants to the surrounding wetland areas, upland areas, and Hockhockson Brook or Pine Brook watersheds via overland runoff and/or groundwater to surface water discharge is limited. Some metals pose moderate risk at the levels present. However, the presence of cover material at the landfill and the fact that the extensive vegetation on the site does not appear to be adversely impacted indicate that the potential for adverse ecological effects is low.

REMEDIAL ACTION OBJECTIVES (RAOs)

The overall objective for the remedy at OU-1 Sites 4 and 5 is to protect human health and the environment. Based on the baseline human health risk assessment, the ecological risk assessment, and the RI results, **RAOs** were developed to address contaminated environmental media (soils, sediments, and groundwater) present at the NWS Earle Operable Unit 1 Sites. These RAOs are presented below.

Site 4 RAOs

Protection of Human Health RAO

To address the potential threats at Site 4, the RAO to protect human health is to prevent human exposure to landfilled materials. The groundwater RAO for protection of human health is to prevent human exposure to VOC and metal contaminants in groundwater in the area immediately downgradient of the landfill.

Protection of the Environment RAO

Because the continued leaching of metals in the landfill may degrade groundwater underlying Site 4, the RAOs for protection of the environment are to minimize contaminant migration into groundwater and restoration of the aquifer to the applicable standards.

Site 5 RAOs

Protection of Human Health RAO

To address the potential threats posed at Site 5, the RAO to protect human health is to prevent human exposure to landfilled materials. The groundwater RAO for protection of human health is to prevent human exposure to VOC and metal contaminants in groundwater in the area immediately downgradient of the landfill.

Protection of the Environment RAO

Because the continued leaching of landfill contaminants may degrade groundwater underlying Site 5, the RAOs for protection of the environment are to minimize contaminant migration into groundwater and restoration of the aquifer to the applicable standards.

Alternatives Development and Screening

The purpose of the alternative development and screening process is to assemble an appropriate range of possible remedial options to achieve the RAOs identified for the sites. In this process, technically feasible technologies are

combined to form remedial alternatives that provide varying levels of risk reduction that comply with federal (EPA) and state (NJDEP) guidelines for site remediation.

The following eight criteria, as established by the **National Contingency Plan** (NCP), were used for the detailed analysis of alternatives:

- Overall protection of human health and the environment.
- Compliance with **ARARs.**
- Long-term effectiveness and permanence.
- Reduction of mobility, toxicity, or volume through treatment.
- Short-term effectiveness.
- Implementability.
- Cost.
- State concurrence.

In the case of former landfill sites, like Site 4 and Site 5, EPA has undertaken the **presumptive remedies** initiative to speed up selection of remedial actions. Based on the expectation that containment would generally be appropriate for municipal landfill waste (such as that found at Sites 4 and 5) and because the volume and heterogeneity of the waste generally make treatment impracticable, EPA established containment as the presumptive remedy. The presumptive remedy process was applied to Sites 4 and 5.

The other evaluation criteria, community acceptance, will be addressed in the **Record of Decision** (ROD) following the receipt of comments during the public comment period, after the Proposed Plan has been presented to the public.

Engineering technologies capable of eliminating the unacceptable risks associated with exposure to site-related soils, sediments, or groundwater were identified, and those alternatives determined to best meet RAOs after screening were evaluated in detail. Tables 3 and 4 present the considered alternatives and the results of screening.

Detailed Summary of Alternatives

Summaries of the remedial alternatives that passed the screening step for OU-1 Sites 4 and 5 are presented in the following sections.

Site 4 Remedial Alternatives

Alternative 1: No Action

The no-action alternative was developed as a baseline to which other alternatives may be compared, as required by the NCP. No remedial actions would be taken to protect human health or the environment under this alternative. The purpose of this alternative is to evaluate the overall human health and environmental protection provided by the site in its present state. Periodic reviews of site conditions and long-term periodic monitoring of groundwater, surface water, and sediments would be conducted under this alternative.

No capital costs are associated with the no-action alternative. The estimated average annual operation and maintenance (O&M) cost for long-term monitoring is $16,200 and 5-year reviews are $15,500 per event. Over a 30-year period, the estimated net present- worth cost is $234,000 (a discount rate of 7 percent was used in all alternative cost calculations).

Alternative 3: Capping, Institutional Controls, and Long-Term Monitoring

This alternative is a containment option that uses a landfill cover system (capping) and

TABLE 3
SITE 4 - SCREENING OF REMEDIAL ALTERNATIVES
OU-1 FEASIBILITY STUDY
NWS EARLE, COLTS NECK, NEW JERSEY

	ALTERNATIVE	EFFECTIVENESS	IMPLEMENTABILITY	COST	COMMENTS
1	No Action: (Long-Term Periodic Monitoring, 5-year reviews)	Provides no additional protection of human health or the environment. Does not reduce potential for human exposure to landfill or groundwater contaminants. Does not reduce contaminant migration in the environment. No reduction in toxicity, mobility, or volume of contaminants.	Readily implementable. No technical or administrative difficulties.	Capital: none O&M: low	Retained as baseline alternative in accordance with NCP.
2	Limited Action (institutional controls, access restrictions, long-term periodic monitoring, 5-year reviews)	Provides little added protection of human health through fencing and institutional controls. Groundwater use would be restricted. Does not reduce contaminant migration to the environment. No reduction in toxicity, mobility, or volume of contaminants.	Readily implementable. No technical or administrative difficulties.	Capital: low O&M: low	Relative to alternative 1, provides minimal additional protectiveness for additional cost. Eliminated.
3	Capping, Institutional Controls, and Long-Term Periodic Monitoring	Protects human health and the environment. Capping contaminated landfill materials prevents direct contact exposure and minimizes contaminant migration to the environment. Groundwater use would be restricted. Groundwater contaminants will naturally attenuate over time. No reduction of toxicity or volume of contaminants.	Readily implementable. No technical or administrative difficulties. Personnel and materials necessary to implement alternative are widely available.	Capital: moderate O&M: moderate	Retained.

TABLE 4
SITE 5 - SCREENING OF REMEDIAL ALTERNATIVES
FEASIBILITY STUDY
NWS EARLE, COLTS NECK, NEW JERSEY

	ALTERNATIVE	EFFECTIVENESS	IMPLEMENTABILITY	COST	COMMENTS
1	No Action: (long- term periodic monitoring, five-year reviews)	Provides no additional protection of human health or the environment. Does not reduce potential for human exposure to contaminants in the landfill or groundwater. Does not reduce contaminant migration in the environment. No reduction in toxicity, mobility, or volume of contaminants.	Readily implementable. No technical or administrative difficulties.	Capital: none O&M: low	Retained as baseline alternative in accordance with NCP.
2	Limited Action (Institutional controls, access restrictions, long-term periodic monitoring, five-year reviews)	Provides little added protection of human health through fencing and institutional controls. Groundwater use would be restricted. Does not reduce contaminant migration to the environment. No reduction in toxicity, mobility, or volume of contaminants.	Readily implementable. No technical or administrative difficulties.	Capital: low O&M: low	Relative to Alt. 1, provides minimal additional protectiveness for additional cost. Eliminated.
3	Capping, Institutional Controls, and Long-Term Periodic Monitoring	Protects human health and the environment. Capping contaminated landfill materials beneath the skeet and shooting range reduces potential for direct contact exposure and reduces contaminant migration to the environment. Groundwater use would be restricted. Groundwater contaminants will naturally attenuate over time. No reduction of toxicity or volume of contaminants.	Readily implementable. No technical or administrative difficulties. Personnel and materials necessary to implement this alternative are widely available.	Capital: moderate O&M: moderate	Retained.

institutional controls to prevent potential human exposure to contaminated soils and landfilled materials and minimize potential contaminant leaching into groundwater. Over time, the contaminants in groundwater would likely attenuate naturally through chemical and biological degradation (VOCs only) and physical and chemical processes (metals and VOCs). Metals concentrations in groundwater may decrease as a result of reduced infiltration of precipitation through landfill materials.

A low-permeability cover system that complies with federal and state regulatory requirements would be used to prevent potential human and animal contact with contaminants in landfill materials, limit contaminant leaching to groundwater, and minimize contaminant migration via surface runoff and erosion.

After construction, the cap would be maintained as needed. Institutional controls would be enacted to limit future uses of the site that may result in disturbance of the soil cover or direct contact with contaminated media and to prohibit use of untreated contaminated groundwater.

Long-term, periodic monitoring would be conducted to assess contaminant status and potential threats to human health and the environment. Site conditions and risks would be reviewed every 5 years since wastes would be left in place.

Because site groundwater does not meet New Jersey groundwater quality standards, a classification exception area (CEA) pursuant to New Jersey Administrative Code (N.J.A.C.) 7:9-6 would be established to provide the state official notice that the constituent standards would not be met for a specified duration and to ensure that use of groundwater in the affected area (immediately adjacent to the landfill - near wells MW4-02 and MW4-05) is suspended until standards are achieved.

Estimated capital costs for Alternative 3 total $1,983,000. The average annual O&M costs are $29,600, and five-year reviews cost $15,500 per event. Over a 30-year period, the estimated net present- worth cost is $2,400,000.

Site 5 Remedial Alternatives

Alternative 1: No Action

The no-action alternative was developed as a baseline to which other alternatives may be compared, as required by the NCP. No remedial actions would be taken to protect human health or the environment. The purpose of this alternative is to evaluate the overall human health and environmental protection provided by the site in its present state. Periodic reviews of site conditions and long-term periodic monitoring of groundwater would be conducted under this alternative.

No capital costs are associated with the no-action alternative. The estimated average annual O&M cost for long-term periodic monitoring is $10,400, and 5-year reviews are $15,500 per event. Over a 30-year period, the estimated net present-worth cost is $163,000.

Alternative 3: Capping, Institutional Controls, and Long-Term Monitoring

This alternative is a containment option that utilizes capping and institutional controls to prevent potential human exposure to contaminated soils and landfilled materials and minimize further contaminant leaching into groundwater. A low-permeability cover would be constructed over former active landfill areas of the landfill. Over time, the contaminants in groundwater would likely attenuate naturally

through chemical and biological degradation (VOCs only) and physical and chemical processes (metals and VOCs). Concentrations of metals in groundwater might decrease as a result of reduced infiltration of precipitation through landfilled materials.

For the new cap, a simple cover system that complies with federal and state regulatory requirements would be used to prevent potential human and animal contact with contaminants in landfill materials, limit contaminant leaching to groundwater, and minimize contaminant migration via surface runoff and erosion. The new cap would be periodically maintained. Institutional controls would be enacted to limit future uses of the site that might result in disturbance of the new cap or direct contact with contaminated media and to prohibit use of untreated contaminated groundwater.

Long-term, periodic monitoring would be conducted to assess contaminant status and potential threats to human health and the environment. Site conditions and risks would be reviewed every 5 years since wastes would be left in place.

Because site groundwater does not meet New Jersey groundwater quality standards, a CEA pursuant to N.J.A.C 7:9-6 would be established to provide the state official notice that the constituent standards would not be met for a specified duration and to ensure that use of groundwater in the affected area (immediately adjacent to the landfill - near well MW5-06) would be suspended until standards are achieved.

Estimated capital costs for Alternative 3 total $588,000. The average annual O&M costs are $18,600, and 5-year reviews cost $15,500 per event. Over a 30-year period, the estimated net present-worth cost is $852,000.

EVALUATION of ALTERNATIVES

The remedial alternatives were compared to one another based on the seven selection criteria, to identify differences among the alternatives and discuss how site contaminant threats are addressed. Public comments on this Proposed Plan will help address the two remaining criteria, state and community acceptance.

Analysis

Site 4

A glossary of evaluation criteria is provided at the end of this Proposed Plan.

Overall Protection

Only Alternative 3 would be protective of human health and the environment. Because no actions are conducted, Alternative 1 would not reduce human health or ecological risk and would not reduce contaminant migration to the environment. Because no actions would be taken under Alternative 1 to contain contaminants or prevent deterioration of the landfill surface, health risks and adverse impacts to the environment would be expected to remain the same or increase over time.

Alternative 3 is protective of human health and the environment. The proposed cover system would reduce human health and ecological risks posed by the potential for contact with landfilled materials and would reduce leaching of contaminants to groundwater, thereby reducing contaminant migration into the environment. Routine maintenance of the landfill cover system would ensure its long-term protectiveness. Institutional controls would provide assurance that untreated contaminated groundwater is not used as a potable water source in the future.

Compliance with ARARs

Because Alternative 1 does not include any remedial actions, it would not comply with state and federal ARARs pertaining to post-closure of municipal landfills. Alternative 3 would comply with these requirements since a cover system would be installed and a long-term maintenance and repair program would be implemented.

Both alternatives would comply with federal and state long-term periodic monitoring requirements through the monitoring and evaluation of groundwater, surface water, and sediments.

Initially, periodic monitoring would be performed on a quarterly basis. If parameters are stable or contaminant concentrations are found to be decreasing, then a reduced frequency of sampling would be warranted.

Alternative 1 would not comply with state ARARs for attainment of groundwater quality standards (GWQS). Alternative 3 would comply by seeking a temporary exemption (CEA) from these requirements until the GWQS are achieved through natural attenuation.

Long-Term Effectiveness and Permanence

Alternative 3 would offer substantial long-term protection of human health and the environment. Under Alternative 1, risks would remain the same or potentially increase over time as the landfill surface continues to erode. Potential future users of site groundwater may be at risk under Alternative 1 because it lacks institutional controls that would prohibit use of untreated contaminated groundwater.

Alternative 3 would reduce human and ecological risks due to direct exposure to landfilled materials by placing a physical barrier to exposure. Long-term risks due to ingestion of site groundwater would be mitigated by reducing contaminant leaching into groundwater by installing the low-permeability cover system and by implementing institutional controls to prohibit use of untreated, contaminated groundwater.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Because neither of the alternatives includes treatment, neither would reduce the toxicity, mobility, or volume through treatment. Alternative 3 would reduce the mobility of landfill contaminants by reducing precipitation infiltration.

Short-Term Effectiveness

The short-term effectiveness of the two alternatives would be similar. Engineering controls and personal protective equipment (PPE) would be expected to minimize potential adverse impacts to Base residents and personnel, the local community, and workers during implementation of Alternative 3.

Long-term monitoring, which would provide little opportunity for short-term impact, is the only on-site action proposed under Alternative 1. Alternative 3 would present a greater opportunity for short-term impact due to site preparation, grading, and constructing the cover system.

Impacts to the environment would be minimized under Alternative 3 by use of erosion and storm water control measures during construction of the cover system.

Alternative 1 would not achieve any of the RAOs. Alternative 3 would achieve the RAO for prevention of direct contact with landfill contents upon completion of the cover system, within approximately 1.5 years. While the RAO for groundwater protection would not be immediately achieved, establishment of a CEA would eliminate

potential use of groundwater in this area. Long-term periodic monitoring and analysis would determine when this RAO would be achieved.

Implementability

Alternative 1 is the most easily implemented since the only activities proposed are long-term monitoring and 5-year reviews. Alternative 3 would be more difficult to implement since it involves the construction of a cover system over several acres of land; however, no difficulties are anticipated, since common construction techniques are required and cover materials are available from several vendors.

If additional actions are warranted, they could be easily implemented under Alternative 1 or 3.

Cost

Alternative 1, No Action, would cost less to implement than Alternative 3.

No capital costs are associated with the no action alternative. The estimated average annual O&M cost for long-term periodic monitoring is $16,200 and 5-year reviews are $15,500 per event. Over a 30-year period, the estimated net present-worth cost is $234,000.

Estimated capital costs for Alternative 3 total $1,983,000. The average annual O&M costs are $29,600, and 5-year reviews cost $15,500 per event. Over a 30-year period, the estimated net present- worth cost is $2,400,000.

Site 5

Overall Protection

Only Alternative 3 would be protective of human health and the environment. Because no actions are conducted, Alternative 1 would not reduce human health or ecological risk and would not reduce contaminant migration to the environment. Health risks and the potential for adverse impacts to the environment are expected to remain the same over time.

Alternative 3 is protective of human health and the environment. The cover system would reduce human health and ecological risks posed by potential contact with landfilled materials and would reduce leaching of contaminants to groundwater, thereby reducing potential contaminant migration into the environment. Routine maintenance of the landfill cover system would ensure its long-term protectiveness. Institutional controls would provide assurance that untreated contaminated groundwater is not used as a potable water source in the future.

Compliance with ARARs

Because Alternative 1 does not include any remedial actions, it would not comply with state and federal ARARs pertaining to post-closure of municipal landfills.

Alternative 3 would comply with these requirements since a cover system would be installed and a long-term maintenance and repair program would be implemented.

Both alternatives would comply with federal and state long-term monitoring requirements through periodic monitoring and evaluation of groundwater. Initially, periodic monitoring would be performed on a quarterly basis. If parameters are stable or contaminant concentrations are found to be decreasing, then a reduced frequency of sampling would be warranted.

Alternative 1 would not comply with state ARARs for attainment of groundwater quality standards. However, Alternative 3 would comply by seeking a temporary exemption (CEA) from these

requirements until the GWQS are achieved through natural attenuation.

Long-Term Effectiveness and Permanence

Alternative 3 offers long-term protection of human health and the environment. Because no additional actions would be taken under Alternative 1 to contain wastes and limit deterioration of the landfill surface, risks could increase over time if the landfill surface erodes or is damaged. Potential future users of site groundwater may be at risk under Alternative 1 because Alternative 1 lacks institutional controls that would prohibit use of untreated contaminated groundwater.

Alternative 3 would reduce human and ecological risks due to potential direct exposure to landfilled materials by placing a barrier to exposure. Long-term risks due to ingestion of site groundwater would be reduced by reducing contaminant leaching into groundwater and by implementing institutional controls to prohibit use of untreated, contaminated groundwater.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Because neither of the alternatives includes treatment, neither would reduce the toxicity, mobility, or volume through treatment. Alternative 3 would reduce the mobility of landfill contaminants by reducing precipitation infiltration into the eastern portion of the landfill.

Short-Term Effectiveness

The short-term effectiveness of the two alternatives would be similar. Engineering controls and PPE would be expected to minimize potential adverse impacts to Base residents and personnel, the local community, and workers during implementation. Long-term monitoring, which would provide little opportunity for short-term impact, is the only on-site activity proposed under Alternative 1. Alternative 3 would present a greater opportunity for adverse short-term impact due to site preparation, grading, and construction of the cover system.

Impacts to the environment are not anticipated under Alternative 1 since minimal activities would be implemented. Impacts to the environment would be minimized by implementing erosion and storm water control measures during cap construction under Alternative 3.

Alternative 1 would not achieve any of the RAOs. Alternative 3 would achieve the RAO for prevention of direct contact with landfill contents upon completion of the cover system, within approximately 1.5 years. While the RAO for groundwater protection would not be immediately achieved, establishment of a CEA would eliminate potential use of groundwater in this area. Long-term periodic monitoring and analysis would determine when this RAO would be achieved.

Implementability

Each of the alternatives would be implementable. Alternative 1 is the most easily implemented since the only activities proposed are long-term monitoring and 5-year reviews. Alternative 3 would be more difficult to implement since it involves the construction of a cover system over several acres of land; however, no difficulties are anticipated because covers are a commonly applied technology involving conventional construction methods and cover materials are available from several vendors.

If additional actions are warranted, they could be easily implemented under Alternative 1 or 3.

Cost

Alternative 1, No Action, would cost less to implement than Alternative 3.

No capital costs are associated with the no-action alternative. The estimated average annual O&M cost for long-term periodic monitoring is $10,400 and 5-year reviews are $15,500 per event. Over a 30-year period, the estimated net present-worth cost is $163,000.

Estimated capital costs for Alternative 3 total $588,000. The average annual O&M costs are $18,600, and 5-year reviews cost $15,500 per event. Over a 30-year period, the estimated net present-worth cost is $852,000.

State and Community Acceptance

The state of New Jersey supports the preferred alternative. Community acceptance of the preferred alternatives will be evaluated at the conclusion of the public comment period and will be described in the **Record of Decision** (ROD).

PREFERRED ALTERNATIVE SUMMARY

Site 4

The Navy, with the support of EPA, in consultation with NJDEP has selected Alternative 3: Capping, Institutional Controls, and Long-Term Monitoring as the preferred alternative. This alternative is in compliance with the EPA presumptive remedy and includes a CEA as required by the state groundwater quality protection criteria. The CEA will cover the area immediately adjacent and downgradient of the landfill. Capping the landfill will inhibit infiltration of groundwater through the landfill, thus in time eliminating the groundwater contamination source. This alternative would mitigate the potential exposure scenarios, which are direct exposure to landfill contents and consumption of contaminated groundwater from site, and would be protective of human health and the environment.

By regrading the landfill surface to preclude erosion, placing a cap over the landfill surface to avoid potential direct contact with landfill contents, and establishing a formal CEA to bar the use of site groundwater during the remediation period, the Navy will reduce the unacceptable risks associated with Site 4. The preferred alternative is believed to provide the best balance of protection among the alternatives with respect to response criteria.

While the RAO for groundwater protection would not be immediately achieved, risks would be reduced in relation to background by the elimination of infiltration and continued monitoring to evaluate contaminant trends. Long-term periodic monitoring and analysis would determine when this RAO would be achieved.

Based on available information, the Navy and EPA believe the preferred alternative would be protective of human health and the environment, would be cost effective, and would be in compliance with all statutory requirements of EPA, the state, and the local community.

Site 5

The Navy, with the support of EPA, in consultation with NJDEP has selected Alternative 3: Capping, Institutional Controls, and Long-Term Monitoring as the preferred alternative. This alternative is in compliance with the EPA presumptive remedy and includes a CEA as required by the state groundwater quality protection criteria. The CEA will cover the area immediately adjacent and downgradient of the landfill.

Capping the landfill will inhibit infiltration of groundwater through the landfill, thus in time eliminating the groundwater contamination source. This alternative would mitigate the potential exposure scenarios, which are direct exposure to landfill contents and consumption of contaminated groundwater from the site, and would be protective of human health and the environment.

By regrading the landfill surface where necessary to preclude erosion, placing a cap over the landfill surface to avoid potential direct contact with landfill contents, and establishing a formal CEA to bar the use of site groundwater during the remediation period, the Navy will reduce the unacceptable risks associated with Site 5. The preferred alternative is believed to provide the best balance of protection among the alternatives with respect to response criteria.

While the RAO for groundwater protection would not be immediately achieved, risks would be reduced in relation to background by the elimination of infiltration and continued monitoring to evaluate contaminant trends. Long-term periodic monitoring and analysis would determine when this RAO would be achieved.

Based on available information, the Navy and EPA believe the preferred alternative would be protective of human health and the environment, would be cost effective, and would be in compliance with all statutory requirements of EPA, the state, and the local community.

THE COMMUNITY ROLE IN THE SELECTION PROCESS

The Navy solicits written comments from the community on the preferred alternative for OU-1 sites and the other alternatives for OU-1 sites identified in this Proposed Plan. The Navy has set a public comment period from March 21, 1997 through April 30, 1997, to encourage public participation in the remedy selection process for OU-1 sites.

The Navy will hold a public meeting during the comment period. At the public meeting, the Navy, along with EPA, will present the RI/FS report and the Proposed Plan, answer questions, and solicit both oral and written questions. **The public meeting is scheduled for 7:00 p.m. on April 24, 1997 and will be held at the Colts Neck Courthouse.**

Comments received during the public comment period will be summarized and responses will be provided in the Responsiveness Summary section of the ROD. The ROD is the document that will present the Navy's selection of the remedy for OU-1 sites.

To send written comments, or to obtain further information, contact

Commanding Officer
Naval Weapons Station Earle
Code 043
201 Highway 34 South
Colts Neck, New Jersey 07722-5014

For further information, contact John Kolicius, Remedial Project Manager

Phone: (610) 595-0567 ext. 157

Please note that all comments must be submitted and postmarked on or before April 30, 1997.

GLOSSARY OF EVALUATION CRITERIA

Overall Protection addresses whether remedies are protective of human health and the environment. A remedy is protective if it adequately eliminates, reduces, or controls all current and potential site risks posed through each exposure pathway at the site.

Compliance with ARARs is one of the statutory requirements for remedy selection. However, CERCLA allows selecting a remedy that will not attain ARARs if certain conditions exist. One condition is if the remedy is an interim measure and the final remedy will attain ARARs upon completion.

Long-Term Effectiveness and Permanence refers to the magnitude of residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time.

Reduction of Toxicity, Mobility, or Volume addresses remedies that employ treatment as a principal element by ensuring that the relative performance of the treatment technologies will be assessed. This criterion examines the magnitude, significance, and irreversibility of reductions.

Cost includes capital costs and annual operation and maintenance costs incurred over the life of the remedial action.

Short-Term Effectiveness refers to the short-term impacts of the remedy on the neighboring community, workers, or surrounding environment. This includes potential threats to human health and the environment associated with the removal, treatment, and transportation of hazardous substances.

Implementability is the technical and administrative feasibility of a remedy, as well as the availability of materials and services needed to implement the selected solution.

State Acceptance indicates whether the state concurs with, opposes, or has no comment on the preferred remedy. Formal state comments usually will not be received until the state has reviewed the FS report and draft Proposed Plan.

Community Acceptance will be addressed in the ROD following a review of community comments received on the RI/FS reports and the Proposed Plan.

TERMS USED IN THE PROPOSED PLAN

1,2-Dichloroethene (1,2-DCE): Common volatile organic solvent formerly used for cleaning, degreasing or other uses in commerce and industry.

Applicable or Relevant and Appropriate Requirements (ARARs): The federal and state requirements that a selected remedy must attain. These requirements may vary among sites and remedial activities.

Administrative Record: An official compilation of site-related documents, data, reports, and other information that are considered important to the status of and decisions made relative to a Superfund site. The public has access to this material.

Carcinogenic: A type of risk resulting from exposure to chemicals that may cause cancer in one or more organs.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The Act created a trust fund, known as Superfund, to investigate and clean up abandoned or uncontrolled hazardous substance facilities.

Feasibility Study (FS): Report identifying and evaluating alternatives for addressing the contamination present at a site or group of sites.

Groundwater Quality Standards (GWQS): New Jersey promulgated groundwater quality requirements, N.J.A.C. 7:9-6.

Hazard Index (HI): The sum of chemical-specific Hazard Quotients. A Hazard Index of greater than 1 is associated with an increased level of concern about adverse non-cancer health effects.

Hazard Quotient (HQ): A comparison of the level of exposure to a substance in contact with the body per unit time to a chemical-specific Reference Dose to evaluate potential non-cancer health effects. Exceedence of a Hazard Quotient of 1 is associated with an increased level of concern about adverse non-cancer health effects.

Initial Assessment Study (IAS): Preliminary investigation usually consisting of review of available data and information of a site, interviews, and a non-sampling site visit to observe areas of potential waste disposal and migration pathways.

Land Disposal Restrictions (LDRs): A set of EPA-prescribed limit concentrations with associated treatment standards regulating disposal in landfills.

Maximum Contaminant Level (MCL): EPA-published (promulgated as law) maximum concentration level for compounds found in water in a public water supply system.

Noncarcinogenic: A type of risk resulting from the exposure to chemicals that may cause systemic human health effects.

National Contingency Plan (NCP): The National Contingency Plan is the basis for the nationwide environmental restoration program known as Superfund and is administered by EPA under the direction of the U.S. Congress.

National Priorities List (NPL): EPA's list of the nation's top priority hazardous substance disposal facilities that may be eligible to receive federal money for response under CERCLA.

Presumptive Remedy: Preferred technologies for common categories of sites based on historical patterns of remedy selection and EPA's scientific and engineering evaluation of performance data on technology implementation. Presumptive remedies ensure the consistent selection of remedial actions.

RCRA Subtitle D facility: Municipal-type waste disposal facility (landfill) regulated by the Resource Conservation and Recovery Act (RCRA).

Record of Decision (ROD): A legal document that describes the remedy selected for a Superfund facility, why the remedial actions were chosen and others not, how much they are expected to cost, and how the public responded.

Reference Dose (RD): An estimate with an uncertainty spanning an order of magnitude or greater of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a portion of a lifetime.

Remedial Action Objective (RAO): An objective selected in the FS, against which all potential remedial actions are judged.

Remedial Investigation (RI): Study that determines the nature and extent of contamination at a site.

Site Inspection (SI): Sampling investigation with the goal of identifying potential sources of contamination, types of contaminants, and potential migration of contaminants. The SI is conducted prior to the RI.

Semivolatile Organic Compounds (SVOCs): Organic chemicals [e.g., phthalates or polycyclic aromatic hydrocarbons (PAHs)] that do not readily evaporate under atmoshperic conditions.

Target Compound List/Target Analyte List (TCL/TAL): List of routine organic compounds (TCL) or metals (TAL) included in the EPA Contract Laboratory Program.

Toxicity Characteristic Leaching Procedure (TCLP): Analytical test prescribed by EPA to determine potential leachate toxicity in materials; commonly used to determine the suitability of a waste for disposal in a landfill.

Trichloroethene (TCE): Common volatile organic solvent formerly used for cleaning, degreasing or other uses in commerce and industry.

Volatile Organic Compounds (VOCs): Organic liquids [e.g., vinyl chloride or trichloroethylene (TCE)] that readily evaporate under atmospheric conditions.

FOR FURTHER INFORMATION

MAILING LIST

If you did not receive this Proposed Plan in the mail and wish to be placed on the mailing list for future information pertaining to this site, please fill out, detach, and mail this form to:

Commanding Officer
Naval Weapons Station Earle
Code 043
201 Highway 34 South
Colts Neck, New Jersey 07722-5014

Name: _____ Affiliation: _____

Address: _____ Phone: ( )_____

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