

NPL-119-2-7

National Priorities

Superfund hazardous waste site listed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended in 1986

**NEWPORT NAVAL EDUCATION AND TRAINING CENTER
Newport, Rhode Island**

The Naval Education and Training Center (NETC) is spread along 6 miles of the western shoreline of Aquidneck Island, north of Newport, Newport County, Rhode Island. NETC facilities are also on Gould Island, west of Aquidneck Island. NETC covers 1,439 acres. Prior to 1973, it covered 2,692 acres.

The Navy has used Aquidneck Island as a refueling depot since 1900. Additional fuel facilities were built during World War II, as were a supply station, barracks, farms, and a fire fighting training school. After the war, a number of research and development facilities and training centers were set up.

NETC is participating in the Installation Restoration Program (IRP). Under this program, established in 1978, the Department of Defense seeks to identify, investigate, and clean up contamination from hazardous materials. IRP studies identified numerous potentially contaminated areas including the following. The 6-acre McAllister Point Landfill, along the shore of Narragansett Bay, from 1955 to the mid-1970s accepted wastes consisting primarily of domestic refuse, spent acids, solvents, paint, waste oil, and PCB-contaminated oil. Similar wastes were deposited at the 10-acre Melville North Landfill, located in a low-lying, wetland area along the shore of the bay. It was used from World War II to 1955 and sold to Melville Marine Industries/Hood Enterprises around 1984. Also in the Melville North area are two waste oil disposal areas; a sludge bed at an old sewage treatment plant, where oil was disposed of for 6 months; and two buried fuel tank farms. Another three farms are within 0.25 mile of the bay. Sludge from the farms was dumped on the ground or burned in chambers.

On Gould Island is a disposal area on a steep embankment along 200 yards of the west shoreline. Wastes disposed of included domestic trash, scrap metal, wood, pipes, rusted drums, two diesel fuel tanks, and concrete blocks, and possibly electroplating and degreasing wastes. Gould Island Bunker 11 previously contained 10 drums, contents unknown. They were removed in 1982, and the bunker was later demolished. The site is in the southwest portion of the island within 100 feet of Narragansett Bay. This portion of the island is now under State control and is accessible to the public by boat. The Gould Island Electroplating Shop produced wastes similar to those deposited at the disposal area. The wastes probably were dumped directly into the bay. The shop is not accessible to the public.

Lead and copper are present in monitoring wells in McAllister Point Landfill, according to a 1986 IRP report. An estimated 4,800 people obtain drinking water and 220 acres of land are irrigated from private wells within 3 miles of hazardous substances at the site.

Sediments collected from Narragansett Bay just off the shoreline of McAllister Point Landfill contain lead, copper, and nickel, according to the 1986 report. Surface water and ground water flow from the landfill into the bay, which is used for boating and fishing. Because the bay is an inlet to the Atlantic Ocean, it is influenced by tides. One tank farm is 300 feet from a coastal wetland.

The Navy and the Army Corps of Engineers plan to undertake field work by October 1989.

Facility name: Newport Naval Educational & Training Center
 Location: Newport, Rhode Island
 Region: I
 Person(s) in charge of the facility: Roger Poisson, Head of Engineering, NETC
 Name of Reviewer: Russell Devan, Versar, Inc. Date: August 25, 1988
 Brief description of the facility:
 (Example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)
The Naval Educational and Training Center (NETC) is located along
miles of the west shore of Aquidneck Island in Rhode Island. Its
present function is to provide education and training to naval
officers. The base had a much larger role during World War II when
it was the home port for many warships. The contaminants of concern
are PCBs, copper, tetra-ethyl lead, and ethyl benzene. The
contamination routes of concern are ground water and surface water.
 Data: $S_M = 32.25$ ($S_{gw} = 52.35$, $S_{sw} = 19.30$, $S_o = N/A$)
 $S_{FE} = NA$
 $S_{DC} = 0$

FIGURE 1
HRS COVER SHEET

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DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an audible record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: NEWPORT Naval Education and Training Center

LOCATION: Newport, Rhode Island

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Randy Ward

Ground Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1	45	45	3.1
If observed release is given a score of 45, proceed to line 4 . If observed release is given a score of 0, proceed to line 2 .					
2 Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 3	2		6	
Net Precipitation	0 1 2 3	1		3	
Permeability of the Unsaturated Zone	0 1 2 3	1		3	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score			N/A	15	
3 Containment	0 1 2 3	1	N/A	3	3.3
4 Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 15 18	1	18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	5	8	
Total Waste Characteristics Score			23	28	
5 Targets					3.5
Ground Water Use	0 1 2 3	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	20	40	
Total Targets Score			29	49	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			30,015	57,330	
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 52.35		

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Surface Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Rel. (Section)
1 Observed Release	0 45	1	45	45	4.1

If observed release is given a value of 45, proceed to line **4**.

If observed release is given a value of 0, proceed to line **2**.

2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1		3	
1-yr. 24-hr. Rainfall	0 1 2 3	1		3	
Distance to Nearest Surface Water	0 1 2 3	2		6	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score			N/A	15	

3 Containment	0 1 2 3	1	N/A	3	4.3
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4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 18	1	18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	5	8	
Total Waste Characteristics Score			23	26	

5 Targets					4.5
Surface Water Use	0 1 2 3	3	6	9	
Distance to Sensitive Environment	0 1 2 3	2	6	6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10	1	0	40	
	12 16 18 20				
	24 30 32 35 40				
Total Targets Score			12	55	

If line 1 is 45, multiply 1 x 4 x 5					
If line 1 is 0, multiply 2 x 3 x 4 x 5			12,420	64,350	

Divide line **6** by 64,350 and multiply by 100 **S_{sw} = 19.30**

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	S	S ²
Groundwater Route Score (S _{gw})	52.35	2,740.52
Surface Water Route Score (S _{sw})	19.30	372.49
Air Route Score (S _a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		3,113.01
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		55.79
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		32.25

WORKSHEET FOR COMPUTING S_M

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Direct Contact Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Incident	0 45	1	0	45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 3	1	0	3	8.2
3 Containment	0 15	1	15	15	8.3
4 Waste Characteristics Toxicity	0 1 2 3	5	15	15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 4 5	4	12	20	
Distance to a Critical Habitat	0 1 2 3	4	0	12	
Total Targets Score			12	32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			0	21,600	
7 Divide line 6 by 21,600 and multiply by 100			SDC = 0		

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that consist mostly of schists, quartzite, and metamorphosed anthracite. These rocks belong to the Rhode Island Formation (Ref. 2, pp. 5-18 to 5-21). The glacial till aquifer and the bedrock aquifer (Rhode Island formation) are hydraulically connected and occur under water table conditions (Ref. 17). The bedrock aquifer is continuous beneath the Narragansett Bay to Jamestown (Conanicut Island) and Prudence Island, west of Aquidneck Island (Ref. 2, p. 5-18, Ref. 17, and Ref. 22). The lateral extent of the Rhode Island formation is also discussed in Ref. 2, pp. 5-18 through 5-21. The vertical extent of the formation is not known.

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

N/A

Depth from the ground surface to the lowest point of waste disposal/storage:

N/A

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

N/A

Mean annual lake or seasonal evaporation (list months for seasonal):

N/A

Net precipitation (subtract the above figures):

N/A

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

N/A

Permeability associated with soil type:

N/A

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Compound with highest score:

Lead and copper have a matrix value of 18 (Ref. 1, 47 FR 31229).

A value of 18 was assigned.

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

100 gallons of PCB oil at McAllister Point Landfill	=	2 drums
72,000 gallons of fuel oil sludge at Tank Farm 1	=	1,440 drums

Total quantity of hazardous substances = 1,442 drum equivalents.

Basis of estimating and/or computing waste quantity:

The total waste quantity is unknown. However, it is known that a minimum of 100 gallons of PCB-contaminated oil was disposed of at McAllister Point Landfill (Ref. 2, p. 2-6), and a minimum of 72,000 gallons of leaded fuel tank sludge was disposed of at Tank Farm 1 (Ref. 2, p. 2-7). This material is a RCRA listed hazardous waste (K052).

A value of 5 was assigned (Ref. 1).

* * *

5 TARGETS

Ground Water Use

The municipal water supply systems obtain water from unthreatened surface water sources (Refs. 4, 5 and 19). However, not everyone is served by these municipal systems (Refs. 14, 19, 26, and 27) nor can everyone using private wells be easily supplied with municipal water. This is because water mains are not present in all areas (Refs. 21, 24, 26, and 27).

A value of 3 was assigned.

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SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

Lead, copper, and nickel were detected in nearshore sediments in the Narragansett Bay in levels above the control samples (Ref. 3, Fig. 3, F-6 through F-11). These sediment samples were collected at the McAllister Point landfill. Ethylbenzene, cadmium, and cyanides were detected in leachate samples also collected at this landfill (Ref. 3, pp. F-9, F-10).

Rationale for attributing the contaminants to the facility:

Nine sediment samples were collected from the Narragansett Bay just off the shoreline of McAllister Point Landfill (Ref. 3, Figure 4). The three samples nearest to shore had contaminant concentrations ranging from 267 to 900 ug/gm for lead, 655 to 1,455 ug/gm for copper, and 64 to 86.6 ug/gm for nickel. The six samples further from the shoreline had concentrations ranging from 21.5 to 78.2 ug/gm for lead, 16.6 to 63.4 ug/gm for copper, and 11.5 to 20.3 ug/gm for nickel. The two control samples had concentrations ranging from 6.8 to 27.5 ug/gm for lead, 10.3 to 18.3 ug/gm for copper, and 11.3 to 21.3 ug/gm for nickel (Ref. 3, p. F-15). For scoring purposes, the offshore sediments were considered background samples. As can be seen from these concentrations, the offshore sediments appear to be less contaminated than the nearshore sediments. Surface runoff and ground water flow from the landfill into Narragansett Bay (Ref. 3, p. F-2).

Two wet weather leachate samples were also collected from McAllister Point landfill. One sample contained 30 mg/l of ethylbenzene (Ref. 3, p. F-9). The second sample contained 0.058 mg/l of cadmium and 0.876 mg/l of cyanides (Ref. 3, p. F-10). Table 2 summarizes the released contaminants.

The McAllister Point Landfill is considered the source of the contaminants because no alternate sources are available and because of the wide variety of wastes known to be disposed in the landfill. Although actual wastes which may have contributed the various contaminants to the surface water sediments are not known, paints and cleaning solvents, known to contain metals, have been deposited at the landfill.

A value of 45 was assigned.

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

N/A

Name/description of nearest downslope surface water:

N/A

Average slope of terrain between facility and above-cited surface water body in percent:

N/A

Is the facility located either totally or partially in surface water?

N/A

Is the facility completely surrounded by areas of higher elevation?

N/A

1-Year 24-Hour Rainfall in Inches

N/A

Distance to Nearest Downslope Surface Water

N/A

Physical State of Waste

N/A

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Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

100 gallons of PCB oil at McAllister Point Landfill - 2 drums
72,000 gallons of fuel oil sludge at Tank Farm 1 - 1,440 drums

Total quantity of hazardous substances = 1440 drum equivalents.

Basis of estimating and/or computing waste quantity:

The total waste quantity is unknown. However, at a minimum, it is known that a minimum of 100 gallons of PCB-contaminated oil was disposed of at McAllister Point Landfill (Ref. 2, p. 2-6), and a minimum of 72,000 gallons of leaded fuel tank sludge was disposed of at Tank Farm 1 (Ref. 2, pp.2-7, 2-8). Containment of the PCB waste at McAllister Point Landfill with respect to surface water could not be determined, so this waste was not included in the quantity. Wastes at the tank farm were disposed directly on the ground and are available to surface water.

A value of 5 was assigned (Ref. 1)

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

The Narragansett Bay is the only surface water body within 3 miles downstream of the NETC disposal areas. There are numerous ponds and reservoirs near NETC, but all of these are upstream of the disposal areas and at higher elevations (Refs. 8 and 14). The Narragansett Bay is used for boating and fishing (Ref. 12).

A value of 2 was assigned.

Is there tidal influence?

Because the Narragansett Bay is an inlet of the Atlantic Ocean, it is influenced by tides (Ref. 8).

Name/description of nearest of above water bodies:

The nearest water body is the Narragansett Bay (Ref. 8).

Distance to above-cited intakes, measured in stream miles.

There are no surface water intakes in the bay within 3 miles of NETC (Ref. 12).

A value of 0 was assigned.

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Hazardous Waste Quantity

Total quantity of hazardous waste:

N/A

Basis of estimating and/or computing waste quantity:

N/A

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3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

N/A

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

N/A

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

N/A

Distance to critical habitat of an endangered species, if 1 mile or less:

N/A

Land Use

Distance to commercial/industrial area, if 1 mile or less:

N/A

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FIRE AND EXPLOSION

1 CONTAINMENT

Hazardous substances present:

No waste disposal site at NETC has ever been certified as a fire or explosion hazard (Ref. No. 14).

Type of containment, if applicable:

N/A

* * *

2 WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

N/A

Ignitability

Compound used:

N/A

Reactivity

Most reactive compound:

N/A

Incompatibility

Most incompatible pair of compounds:

N/A

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Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

N/A

Distance to residential area, if 2 miles or less:

N/A

Distance to agricultural land in production within past 5 years, if 1 mile or less:

N/A

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

N/A

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

N/A

Population Within 2-Mile Radius

N/A

Buildings Within 2-Mile Radius

N/A

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4 WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

	<u>Toxicity</u>
PCBs (Ref. 2, p. 2-6)	2 (Ref. 6)
Lead (Ref. 2, p. 2-6, 2-7)	3 (Ref. 6)

Compound with highest score:

* * *

5 TARGETS

Population within one-mile radius

The greatest population was within 1 mile of McAllister Point Landfill; 392 houses were counted on the topographic map (Ref. 8). Assuming 3.8 persons per house yields a population of 1,490.

A value of 3 was assigned.

Distance to critical habitat (of endangered species)

There are no endangered species within 1 mile of NETC (Ref. 13).

A value of 0 was assigned.

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REFERENCE NUMBER	DESCRIPTION OF REFERENCE
10	U.S. Geological Survey, 7.5-minute topographic map of Bristol, Rhode Island, 1955. Photorevised 1970 and 1975.
11	Roger Poisson, Head of Engineering, NETC, (401) 841-2161. Telephone conversation with Russell Devan, Versar, Inc., on December 23, 1987. Subject: Wells, population of NETC, location of housing units, fire potential, and security.
12	Jeff Crawford, Rhode Island Department of Environmental Management (401) 277-2797. Conversation with Russell Devan, Versar, Inc., on December 16, 1987. Subject: Air releases at NETC and use of Narragansett Bay.
13	Christopher Raithel, Natural Resources Specialist, Rhode Island Endangered Species Program, (401) 277-2776. Conversation with Russell Devan, Versar, Inc., on December 16, 1987. Subject: Location of endangered species within 1 mile of NETC.
14	Roy Anderson, Director of Utilities, Newport Water Works, (401) 847-0154. Telephone conversation with Russell Devan, Versar, Inc., on December 29, 1987. Subject: Number of people in Middletown served by Newport water.
15	Priscilla Anthony, Office Manager, Portsmouth Water and Fire District, (401) 683-2090. Telephone conversation with Russell Devan, Versar, Inc., on December 30, 1987. Subject: Number of residential water customers in Portsmouth, Rhode Island.
16	Roger Poisson, Head of Engineering, NETC, (401) 841-2161. Telephone conversation with Russell Devan, Versar, Inc., on February 2, 1988. Subject: Waste disposal areas at NETC.

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REFERENCE NUMBER	DESCRIPTION OF REFERENCE
24	Mathew Faerber, Jr., Deputy Director for Water, City of Newport, R.I. Water Dept., (401) 847-0154. Letter and maps sent to Russell Devan, Versar, Inc., dated August 23, 1988. Subject: Location of water mains near McAllister Point.
25	Jean Clinton, Deputy Town Clerk, City of Middletown, R.I., (401) 847-0009. Conversation with Russell Devan, Versar, Inc., on December 22, 1987. Subject: Population of Middletown, R.I.
26	Newport Water Works, Water Main Map of Middletown, Rhode Island. Updated January 1981.
27	U. S. Geological Survey, 7.5 Minute Topographic Map of Prudence Island, Rhode Island (Southeast Quadrant), 1955. Photo revised 1970 and 1975. Depicts areas not covered by Newport Water Works (Ref. 26) to highlight houses used to establish target population for ground-water route.

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