



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 1  
1 Congress Street, Suite 1100  
Boston, MA 02114-2023

**CONTAINS ENFORCEMENT-SENSITIVE INFORMATION**

**MEMORANDUM**

**DATE:** APR 09 2008

**SUBJ:** Request for a Removal Action at the Birch Swamp Road Site,  
Warren, Bristol County, Rhode Island - **Action Memorandum**

**FROM:** Melanie Morash, On-Scene Coordinator *Melanie Morash*  
Emergency Response and Removal Section II

**THRU:** Steven R. Novick, Chief *for Arthur V. Johnson III*  
Emergency Response and Removal Section II

Arthur V. Johnson III, Chief *Arthur V. Johnson III*  
Emergency Planning & Response Branch

**TO:** James T. Owens III, Director  
Office of Site Remediation and Restoration

**I. PURPOSE**

The purpose of this Action Memorandum is to request and document approval of the proposed removal action at the Birch Swamp Road Site (the Site), which is located off of Birch Swamp Road in Warren, Bristol County, Rhode Island. Hazardous substances present in surface soils at the Site, if not addressed by implementing the response actions selected in this Action Memorandum, will continue to pose a threat to human health and the environment. There are no nationally significant or precedent-setting issues associated with this Site, and there has been no use of the OSC's \$200,000 warrant authority.

**II. SITE CONDITIONS AND BACKGROUND**

**CERCLIS ID# :** RIN000105871  
**SITE ID# :** 01ER  
**CATEGORY :** Time-Critical

## A. Site Description

### 1. Removal site evaluation

The Site was first identified by the Rhode Island Department of Environmental Management (RIDEM) during sediment sampling of the Kickemuit River in 2004, conducted by RIDEM as part of a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Pre-Remedial Preliminary Assessment/Site Inspection (PA/SI). Sampling results from the 2004 PA/SI indicated elevated levels of polychlorinated biphenyls (PCBs), lead, mercury and semi-volatile organic compounds (SVOCs) to be present in Kickemuit River sediments.

Due to the proximity of the Birch Swamp property to the Kickemuit River (which borders the Site to the east) and concerns related to the water quality of the Kickemuit River, which is a public drinking water supply, RIDEM identified the Birch Swamp Road Site as a potential source of the sediment contamination in the river and on March 27, 2006 requested that the EPA Emergency Planning and Response Branch (EPRB) assist by investigating the Birch Swamp Road Site.

EPA's EPRB conducted a Removal Site Investigation (SI) at the Site on July 3, 11, and 12, 2007. A portion of the property was operated as an automotive salvage yard and subsequently as a military surplus salvage yard for an unknown period of time, until at least the late 1980's. The remainder of the property is currently in residential and agricultural use.

Surface soil samples collected during the PA/SI in July 2007 indicate elevated levels of metals (including, but not limited to, lead) and polychlorinated biphenyls (PCBs), exceeding RIDEM's Residential Direct Exposure Criteria (R-DEC) for soil.<sup>1</sup> The maximum concentration of lead detected was 7,000 ppm,<sup>2</sup> while the maximum concentration of PCBs detected was 59 ppm of Aroclor-1248. The area of contamination is currently known to extend across two adjacent parcels of land, both of which are privately owned.

RIDEM has requested EPA's assistance in removing the contamination present at the Site and conducting further investigation activities to fully characterize the extent of contamination on the property. The state does not possess the funding to initiate a removal action at the Site and has indicated to EPA that any wastes generated pursuant to a

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<sup>1</sup> The Rhode Island Department of Environmental Management Office of Waste Management's *Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases* (as amended February 2004) lists the following Residential Direct Exposure Criteria: Lead in soil (150 ppm); PCBs in soil (10 ppm).

<sup>2</sup> ppm = parts per million

Superfund-lead removal action would be exempt from the RIDEM's Hazardous Waste Generation fees under the state's Hazardous Waste Regulations.

The Site Investigation was closed on March 26, 2008, with the recommendation that a time-critical removal action be conducted.

## **2. Physical location**

The Site is located off of an unnamed, unpaved access road that runs east-to-west, intersecting Birch Swamp Road to the west. The geographic coordinates, as measured from the approximate center of the property, are 41° 44' 43" north latitude and 71° 15' 31" west longitude. The Site is further identified as Lots 4 and 175 on the Warren Tax Assessor's Map 22 (Deed Book 103, Page 566 and Deed Book 133, Page 1126, respectively). The Site consists of open fields and large wooded and wetland areas. Land use in the surrounding area is comprised of a mixture of residential, agricultural, and industrial/commercial property, with single-family homes along Birch Swamp Road and the adjoining side roads. The Site is bordered to the west by Birch Swamp Road, to the north and south by residential properties, and to the east by the Kickemuit River.

Town-owned woods and wetlands, identified as Lot 38 on the Warren Tax Assessor's Map 22, also border the Site to the south. Additional soil sampling will be conducted on the town-owned property at the end of April 2008. The purpose of this sampling will be to determine if contamination related to Lots 4 and 175 is present on town-owned lands and should thus be addressed under this removal action.

## **3. Site characteristics**

A portion of the Site was formerly operated as an automotive salvage yard and subsequently as a military surplus salvage yard for an unknown period of time, until at least the late 1980's.

The property currently consists of open fields and large wooded and wetland areas. A concrete foundation is located in the approximate center of the Site. The former building was reportedly used as an ice packing house. An apparent man-made pond is visible to the east of the former building foundation, and was reportedly used for ice block manufacturing. A stream flows overland from the pond in a southeasterly direction to the Kickemuit River. This stream flows approximately 1,300 feet across the woodland area prior to draining into the river.

The Site is bordered to the west by Birch Swamp Road, to the north and south by residential properties, and to the east by the Kickemuit River. The Kickemuit River is a tributary of the Kickemuit (Warren) Reservoir drinking water supply, managed by the

Bristol County Water Authority (BCWA). The source water protection area for this public water supply includes the land occupied by the Birch Swamp Road Site.

Access to the Site is unrestricted to both pedestrian and vehicular traffic. The property appears to be used as a bike path to the Kickemuit river and as an area to drive all-terrain vehicles (ATVs). According to the 2000 census, 179 people live within 1/4 mile of the Site, and 2,454 people are located within 1 mile of the Site.

According to the EPA Region 1 Environmental Justice Mapping Tool, the Site is not located in an environmental justice area.

**4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant**

Based on information available at this time, the principal hazardous substances or pollutants or contaminants that are being released or for which there is a threat of release include, but are not necessarily limited to, the list below.

<u>Hazardous Substances or Pollutants or Contaminants</u>	<u>Media</u>
metals (lead)	surface soil
PCBs (Aroclor-1248)	surface soil

Sampling results indicate metals (including, but not limited to, lead) and PCBs to be present in soils at levels which exceed RIDEM's R-DEC for soil.

<u>Hazardous Substances or Pollutants or Contaminants</u>	<u>Highest Concentration Observed</u>	<u>RIDEM R-DEC</u>
Lead	7,000 ppm	150 ppm
PCBs (Aroclor-1248)	59 ppm	10 ppm

**5. NPL status**

The site is not currently on the National Priorities List, and has not received a Hazardous Ranking System rating.

**B. Other Actions to Date**

**1. Previous actions**

In 2004 RIDEM collected sediment samples from the Kickemuit River, which borders the Site to the east. Elevated levels of PCBs, lead, mercury, and SVOCs were detected. The state subsequently identified the adjacent Birch Swamp Road Site as a potential source of the sediment contamination in the river.

**2. Current actions**

There are no ongoing cleanup activities at the Site.

**C. State and Local Authorities' Roles**

**1. State and local actions to date**

On March 27, 2006 RIDEM requested the EPA Removal Program's help with investigating the Birch Swamp Road Site as a potential source of the lead- and PCB- contamination in adjacent Kickemuit River sediments. Following the detection of elevated lead- and PCB- levels in Site surface soils during EPA's July 2007 PA/SI, RIDEM has requested EPA's assistance in removing the contamination present at the Site and conducting further investigation activities to fully characterize the extent of contamination on the property.

**2. Potential for continued State/local response**

RIDEM is expected to assist EPA by providing technical comments on the proposed removal action and generating a list of regulations for consideration as applicable or relevant and appropriate.

**III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES**

**A. Threats to Public Health or Welfare**

*Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants; [§300.415(b)(2)(i)];*

Hazardous substances or pollutants or contaminants are exposed to the environment and may serve as a source of contamination to individuals who access the Site. Contaminants present in surface soils include, but are not limited to, metals (lead), and PCBs.

Specific information on lead and PCBs is presented below:

Lead is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. Lead is used in the production of batteries, ammunition, metal products, paints, and devices to shield X-rays. Exposure to lead can occur from breathing contaminated air or dust, eating contaminated foods, or drinking contaminated water. Children can be exposed from eating lead-based paint chips or playing in contaminated soil. The central nervous system is the organ system most affected in humans upon exposure to high levels of lead. Lead also damages kidneys and the reproductive system, decreases reaction time, causes weakness and fatigue, and may cause anemia, a disorder of the blood. DHHS has determined that lead acetate and lead phosphate may reasonably be anticipated to be carcinogens based on studies in animals.<sup>3</sup>

PCBs are mixtures of up to 209 individual chlorinated compounds; many commercial mixtures are known in the U.S. by the trade name Aroclor. PCBs have been used as coolants and lubricants in transformers, capacitors, and other electrical equipment because they don't burn easily and are good insulators. PCBs may enter the air, water, and soil during their manufacture, use, and disposal, from accidental spills and leaks during their transport, and from leaks or fires in products containing PCBs. PCBs do not readily break down in the environment and bind strongly to soil particles. The most commonly observed health effects in people exposed to large amounts of PCBs are skin conditions such as acne and rashes. Studies in exposed workers have shown changes in blood and urine that may indicate liver damage. The Department of Health and Human Services (DHHS) has concluded that PCBs may reasonably be anticipated to be carcinogens. The EPA and the International Agency on Cancer (IARC) have determined that PCBs are probably carcinogenic to humans.<sup>4</sup>

Access to the area of contamination, which is comprised of an open field and wooded and wetland areas, is unrestricted to both pedestrian and vehicular traffic. The Site appears to be used as a bike path to the adjacent Kickemuit river and as an area to drive all-terrain vehicles (ATVs). Residential properties border the Site to the north and south. According to the 2000 census, 179 people live within 1/4 mile of the Site, and 2,454 people are located within 1 mile of the Site.

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<sup>3</sup> Agency for Toxic Substances and Disease Registry (ATSDR), U.S. Department of Health and Human Services (DHHS), Public Health Service (PHS). August 2007. *ToxFAQs for Lead*. Available at <http://www.atsdr.cdc.gov/tfacts13.html> Internet, accessed March 28, 2008.

<sup>4</sup> ATSDR, DHHS, PHS. February 2001. *ToxFAQs for Polychlorinated Biphenyls (PCBs)*. Available at <http://www.atsdr.cdc.gov/tfacts17.html> Internet, accessed March 28, 2008.

*Actual or potential contamination of drinking water supplies or sensitive ecosystems [§300.415(b)(2)(ii)];*

The Kickemuit River, which is a tributary of the Kickemuit (Warren) Reservoir drinking water supply – managed by the Bristol County Water Authority (BCWA) – flows along the eastern border of the Site. The source water protection area for this public water supply includes the land occupied by the Birch Swamp Road Site. The Kickemuit Reservoir accounts for approximately 40 percent of the overall system and serves an estimated 22,000 people.<sup>5</sup> A stream flows overland from the apparent man-made pond on the property in a southeasterly direction to the Kickemuit River. This stream flows approximately 1,300 feet across the woodland area prior to draining into the river. Overland flow across the Site may direct contaminated drainage to the Kickemuit River, as well as the downstream drinking water reservoir.

According to RIDEM, the Birch Swamp Road area is not serviced by public water and residents utilize ground water for their drinking water supply. The majority of residents in the towns of Warren, Bristol and Barrington receive their drinking water from the BWCA, which operates the Kickemuit Reservoir. The public water supply intake for the Kickemuit Reservoir is less than ½ mile downstream from the Site. Thus the contamination present in surface soils at the Site poses a threat of contamination to local drinking water supplies.

*High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate [§300.415(b)(2)(iv)];*

Sampling results indicate hazardous substances or pollutants or contaminants to be present in surface soils at levels which exceed RIDEM R-DEC soil. Soils in the open field portion of the property are exposed and sparsely vegetated, increasing the threat due to migration. Overland flow across the Site may direct contaminated drainage to the Kickemuit River.

*Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released [§300.415(b)(2)(v)];*

Annual precipitation in the area is at least 3 feet<sup>6</sup> and seasonal and weather-related changes in precipitation levels likely affect the volume and rate of drainage flow from the upland and wetland areas on the property to the river. A flowing stream on the property travels approximately 1,300 feet across the woodland area prior to draining into the river. Surface drainage may act as a pathway for contaminants to migrate off-site and enter the Kickemuit River and downstream drinking water reservoir.

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<sup>5</sup> RIDEM report entitled *Preliminary Assessment/Site Inspection Report for Bristol Sandblasting, Warren, RI*, dated September 2005.

<sup>6</sup> *ibid*

*The availability of other appropriate Federal or State response mechanisms to respond to the release [§300.415(b)(2)(vii)];*

Neither state nor local authorities have the resources to remove the contaminants present at the Site at this time. RIDEM has requested EPA's assistance in removing the contamination present at the Site and conducting further investigation activities to fully characterize the extent of contamination on the property. The state does not possess the funding to initiate a removal action at the Site and has indicated to EPA that any wastes generated pursuant to a Superfund-lead removal action would be exempt from the RIDEM's Hazardous Waste Generation fees under the state's Hazardous Waste Regulations.

**B. Threats to the Environment**

*Actual or potential contamination of drinking water supplies or sensitive ecosystems [§300.415(b)(2)(ii)];*

Run-off from the Site enters the Kickemuit River, which flows to the Kickemuit (Warren) Reservoir and ultimately into Mt. Hope Bay and Narragansett Bay. Narragansett Bay is an estuary system with an area of approximately 150 square miles, which provides habitat to thousands of species of plants, fish, and wildlife. More than two million residents live in the Narragansett Bay watershed and ten million tourists visit the Bay each year. Its annual contribution to Rhode Island's economy totals billions of dollars.<sup>7</sup>

**IV. ENDANGERMENT DETERMINATION**

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.<sup>8</sup>

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<sup>7</sup>Rhode Island Department of Environmental Management, Bay Assessment & Response Team. December 6, 2007. *Introduction to Narragansett Bay*. Available at <http://www.dem.ri.gov/bart/nbay.htm> Internet, accessed March 28, 2008.

<sup>8</sup>In accordance with the EPA Office of Solid Waste and Emergency Response (OSWER) Directive 9360.0-34, an endangerment determination is made based on relevant action levels, cleanup standards, risk management guidance, or other relevant information published and relied upon by the State of Connecticut.

## V. PROPOSED ACTIONS AND ESTIMATED COSTS

### A. Proposed Actions

#### 1. Proposed action description

The scope of the proposed removal action includes:

- 1) Take measures to prevent unauthorized access to the Site. These activities may include installing security fencing and posting appropriate signage;
- 2) Clear on-site vegetation and debris as needed to make room for Site activities;
- 3) Conduct erosion-control and dust suppression activities as needed;
- 4) Conduct air monitoring activities as appropriate;
- 5) Conduct a magnetometer survey, or other investigation-related activities, as appropriate, to facilitate the further characterization of the horizontal and vertical extent of contamination;
- 6) Collect and analyze samples as needed to further characterize the horizontal and vertical extent of contamination;
- 7) Conduct dewatering-related activities, as appropriate, to facilitate the excavation and consolidation of contaminated surface soils;
- 8) Excavate and consolidate surface soils and debris contaminated with hazardous substances, including, but not limited to, metals and PCBs;
- 9) Collect and analyze post-excavation confirmatory samples;
- 10) Backfill excavations with clean fill materials;
- 11) Package, stage, and remove contaminated materials for off-site disposal at EPA-approved disposal facilities; and
- 12) Repair response-related damage to areas disturbed by site activities.

## **2. Community relations**

EPA will continue to coordinate with the Town of Warren and RIDEM to prepare and implement a community involvement plan for removal actions at the Site.

## **3. Contribution to remedial performance**

The cleanup proposed in this Action Memorandum is designed to mitigate the threats to human health and the environment posed by the Site. The actions taken at the Site would be consistent with and will not impede any future responses.

## **4. Description of alternative technologies**

At this time, no alternative cleanup technologies are proposed for the removal action at the Site.

## **5. Applicable or relevant and appropriate requirements (ARARs)**

### Federal ARARs

29 CFR Parts 1910, 1926, and 1904: OSHA Health and Safety Regulations

40 CFR Part 262 Standards Applicable to Generators of Hazardous Waste:

#### Subpart B - The Manifest

- 262.20 : General requirements for manifesting
- 262.21 : Acquisition of manifests
- 262.22 : Number of copies of manifests
- 262.23 : Use of the manifest

#### Subpart C - Pre-Transport Requirements

- 262.30 : Packaging
- 262.31 : Labeling
- 262.32 : Marking

#### Subpart D - Recordkeeping and Reporting

- 262.40 : Recordkeeping

40 CFR Part 264 Standards for Owners and Operators of Hazardous waste Treatment, Storage, and Disposal Facilities:

#### Subpart I - Use and Management of Containers

- 264.171 : Condition of containers
- 264.172 : Compatibility of waste with containers
- 264.173 : Management of containers
- 264.174 : Inspections
- 264.175 : Containment
- 264.176 : Special requirements for ignitable or reactive waste
- 264.177 : Special requirements for incompatible wastes

40 CFR Part 264 Hazardous Waste Regulations - RCRA Subtitle C:  
 268-270 : Hazardous and Solid Waste Amendments Land Disposal Restrictions Rule

40 CFR Part 300.440 Procedures for Planning and Implementing Off-Site Response Actions (Off-Site Rule)

40 CFR Part 761.60 and Parts 761.202-218 : TSCA requirements for disposal of PCBs

49 CFR Parts 171-179 : Department of Transportation Regulations for Transport of Hazardous Materials

**State ARARs:**

The OSC will coordinate with State officials to identify additional State ARARs, if any. In accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and EPA Guidance Documents, the OSC will determine the applicability and practicability of complying with each ARAR which is identified in a timely manner.

**6. Project schedule**

Work is scheduled to begin within the next two months, pending the outcome of the notification and access request process with the potentially responsible parties (PRPs).

The duration of on-site activities is not expected to exceed six months from the time they begin, weather permitting.

**B. Estimated Costs**

<b>COST CATEGORY</b>		<b>CEILING</b>
<b><i>REGIONAL REMOVAL ALLOWANCE COSTS<sup>9</sup></i></b>		
ERRS <sup>10</sup> Contractor		\$600,000
Interagency Agreement		\$0
<b><i>OTHER EXTRAMURAL COSTS NOT FUNDED FROM THE REGIONAL ALLOWANCE</i></b>		
START <sup>11</sup> Contractor		\$27,000
Extramural Subtotal		\$627,000
Extramural Contingency	20%	\$125,400
<b>TOTAL, REMOVAL ACTION CEILING</b>		<b>\$752,400</b>

<sup>9</sup> This cost will be driven by the selected option(s). Should longer term options need to be implemented, additional funding may be required.

<sup>10</sup> ERRS = Emergency and Rapid Response Services

<sup>11</sup> START = Superfund Technical Assessment and Response Team

**VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

Delayed action will increase risks to human health and/or the environment from hazardous substances present at the Site. Conditions at the Site may be expected to remain unaddressed, and risks associated with the presence of hazardous substances will continue to pose a threat of release if the actions detailed in this Action Memorandum are not implemented.

**VII. OUTSTANDING POLICY ISSUES**

There are no precedent-setting policy issues associated with the Site.

**VIII. ENFORCEMENT ... For Internal Distribution Only**

See attached Enforcement Strategy.

The total EPA costs for this removal action based on full-time accounting practices that will be eligible for cost recovery are estimated to be \$ 752,400 (extramural costs) + \$ 25,600 (EPA intramural costs) = \$ 778,000 X 1.33 (regional indirect rate) = \$ 1,034,740<sup>12</sup>.

**IX. RECOMMENDATION**

This decision document represents the selected removal action for the Birch Swamp Road Site in Warren, Rhode Island, developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. The basis for this decision will be documented in the administrative record to be established for the Site.

Conditions at the Site meet the NCP Section 300.415 (b) (2) criteria for a removal action due to the following:

*Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants [§300.415(b)(2)(i)];*

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<sup>12</sup> Direct Costs include direct extramural costs [\$ 752,400] and direct intramural costs [\$ 25,600]. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site specific costs [33% x \$ 778,000], consistent with the full accounting methodology effective October 2, 2000. These estimates do not include pre-judgement interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

*Actual or potential contamination of drinking water supplies or sensitive ecosystems [§300.415(b)(2)(ii)];*

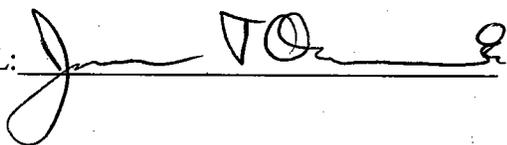
*High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate [§300.415(b)(2)(iv)];*

*Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released [§300.415(b)(2)(v)]; and*

*The availability of other appropriate Federal or State response mechanisms to respond to the release [§300.415(b)(2)(vii)].*

I recommend that you approve the proposed removal action at the Birch Swamp Road Site. The total removal action project ceiling if approved will be \$ 752,400.

APPROVAL: \_\_\_\_\_



DATE: \_\_\_\_\_

4/9/08

DISAPPROVAL: \_\_\_\_\_

DATE: \_\_\_\_\_