



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240



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Mr. Merrill S. Hohman
Director, Waste Management Division
HAA - CAN2
U.S. Environmental Protection Agency
J.F. Kennedy Federal Building
Boston, Massachusetts 02203



Dear Mr. Hohman:

SDMS DocID 275157

In accordance with IAG No. DW14933228-01-1, we have conducted a preliminary natural resources survey of the Union Chemical Site, South Hope, Maine. This survey report is based on a site visit, review of the draft Remedial Investigation (RI), the draft Feasibility Study (FS), the draft Record of Decision (ROD), as well as having numerous contacts with EPA's Remedial Project Managers for the site.

Based on the following information obtained in the course of conducting this survey, we have concluded that the remedy proposed in the draft ROD would be protective of this Department's trust resources. We would, therefore, be willing to enter into a covenant not to sue for damages to those trust resources for which the Secretary of the Interior is responsible if the proposed remedy were adopted.

SITE BACKGROUND

In 1967, the Union Chemical Company converted a former church to a laboratory/factory for the production of solvents used for the removal of furniture finishes. In 1969, a solvent recovery component was added to the site, which subsequently serviced Union Chemical Company and other entities desiring to recover organic solvents from waste products and manufacturing by-products. Some wastes were incinerated at the facility starting in about 1978.

Groundwater contamination associated with the facility was documented in 1979, and a subsequent series of operational deficiencies resulted in the revocation of the company's State Hazardous Waste Facility License. In 1984, following license revocation, the Maine Department of Environmental Protection (MEDEP) and the Environmental Protection Agency (EPA) initiated emergency removal of solvents contained in tanks and barrels.

Principal contaminants associated with the site include dichloroethane, trichloroethane, trichloroethylene, tetrachloroethylene, acetone, trichlorobenzene, ethylbenzene, freon, methylene chloride, methyl ethyl ketone, and toluene. Lower concentrations of metals, polycyclic aromatic hydrocarbons (PAH) and dioxins are also associated with the site, primarily with the incineration of waste at the facility.

SITE DESCRIPTION

Physical Setting. The "site" proper is confined to 2.5 acres of a 12.5-acre parcel bounded by State Route 17 to the north and Quiggle Brook to the east and south. The parcel's western boundary is a wooded drainageway that flows south to a forested wetland, and then, indirectly, to Quiggle Brook. Quiggle Brook meanders approximately six (6) miles through riparian wetlands, upland forest and agricultural fields prior to discharging to Crawford Pond. Crawford Pond drains to Muscongus Bay, via the St. George River.

Environmental Setting. The 12.5-acre property is primarily wooded upland, with several wetlands and drainageways scattered among the uplands. Upland dominates the area immediately surrounding the abandoned facility, and consists of "second growth" forest containing white ash, trembling aspen, red oak, American beech, paper birch, white pine and eastern hemlock. American beech, white pine, eastern hemlock and white ash are major tree species in the more mature upland forest on the remainder of the property.

There are three small wetlands and one significant wetland associated with the 2.5-acre site. The small wetlands total approximately one-quarter acre, and are vegetated by alder, red maple, balsam fir, sensitive fern, jewelweed, and beggar-tick. The significant wetland is approximately 2 acres in size, and lies to the east of the site, where it is associated with Quiggle Brook. This area is vegetated with red maple, balsam fir, alder, viburnum, witch hazel, blueberry, jewelweed, and sensitive fern. This wetland forms the eastern border of the 12.5-acre parcel, and extends from State Route 17, southward beyond the southernmost extent of the property.

Trust resources of the Department of the Interior expected to use the site, Quiggle Brook and its wetland include: American woodcock, sharp-shinned hawk, goshawk, horned owl, barred owl, ruby-throated hummingbird, hairy woodpecker, downy woodpecker, eastern phoebe, blue jay, American crow, black-capped chickadee, white-breasted nuthatch, catbird, American robin, yellow warbler, yellowthroat, red-winged blackbird, American redstart, song sparrow, and rose-breasted grosbeak. Other wildlife expected to

use the site, Quiggle Brook and its wetland, but that are not trust resources of the Department of the Interior include: ruffed grouse, white-tailed deer, gray squirrel, red squirrel, northern flying squirrel, mink, long-tailed weasel, eastern chipmunk, raccoon, red fox, woodland jumping mouse, white-footed mouse, deer mouse, snowshoe hare, short-tailed shrew, green frog, wood frog, spring peeper, leopard frog, and garter snake.

Quiggle Brook and Crawford Pond are not currently anadromous fish habitats, although their restoration for anadromous fish could occur in the future.

EXTENT OF CONTAMINATION

Groundwater. Of the environmental receptors at the site, groundwater generally has the greatest concentrations of contaminants, particularly volatile organic components (VOC). Two plumes of VOC-contaminated groundwater flow from the site toward Quiggle Brook. Maximum concentrations of groundwater VOCs reported in the RI are: TCE (84,000ppb), TCA (73,000ppb), DCE (19,000ppb), butanone (28,000 ppb), freon (17,000ppb), and xylene (8,000ppb). Somewhat elevated levels of dissolved zinc, copper, lead and cyanide were also found in some groundwater samples.

Soils. Surface soils in the immediate vicinity of the buildings and former storage areas had total VOCs ranging from ≤ 100 ppb to ≥ 100 ppm. However, total VOCs in surface soils were generally less than 1 ppm. Elevated levels of metals (Cu-4850ppm; Pb-9200ppm; Ni-700ppm; Cr-800ppm; Zn-1000ppm), PAHs (total PAHs $\approx$ 100ppm) and phthalates ($\approx$ 1100ppm) were found in soils and debris associated with the facility. However, average levels of these materials on the site are within "normal" ranges for soils.

PAHs have been detected "off-site", although in low to moderate levels (i.e., ≤ 20 ppm total PAH). These levels may not be attributable to the site.

Surface Waters and Sediments. VOC levels in Quiggle Brook decreased significantly since the emergency removal operations in 1984, and the construction of the groundwater interceptor trench. When detectable, total VOCs in Quiggle Brook waters and sediments are generally less than 10 ppb. Quiggle Brook's moderately steep gradient of approximately 50 feet per mile, and the low vapor pressures of VOCs have resulted in non-detectable levels of total VOCs in Quiggle Brook beginning just south of the Union Chemical Company property. No VOCs have been detected in Crawford Ponds waters or sediments, however, three water samples from the wetland area immediately south of the facility (Area 4) had low (≈ 50 ppb;ND;ND) levels of total VOCs.

Low-moderate levels of total PAHs (≤ 20 ppm) have been detected in Quiggle Brook sediments immediately east of the property, and

immediately south of State Route 17. The source of some or all of these sediment PAHs may be from runoff associated with the highway.

All but one metal concentration in Quiggle Brook waters and sediments are within normal limits. Sample station Q83 had one lead sediment concentration at 156 ppm, but follow-up sampling at the same location revealed sediment lead levels of 14.1, 8.4, and 9.0 ppm. It is likely that the 156 ppm value was atypical of Quiggle Brook sediment. Water samples in Wetland Area 4 show an elevated lead level, although all other metals in the sample were within normal levels.

Biota. No biota were sampled for contaminant tissue residue analyses.

ECOLOGICAL HAZARD ASSESSMENT

Groundwater. Direct exposure of wildlife to groundwater is expected to be limited, and, therefore, is not considered further in our hazard evaluation.

Soils. Contaminant levels in the site's surface (0-18 inches) soils are limited in areal scope, with the higher levels occurring beneath existing buildings and the pads of former buildings, where they are relatively inaccessible to biota. Infiltration, leaching, volatilization and chemical/biochemical degradation have reduced the levels of total VOCs in exposed (i.e., lacking buildings) surface soils to generally less than 1 ppm. These levels do not represent a significant hazard to Department of the Interior (DOI) trust resources, either through direct contact, or through the consumption of contaminated soil biota. Further, these limited VOC concentrations should not result in significant degradation of habitat of DOI trust resources due to toxic effects to soil invertebrates or other food chain biota.

The higher soil metal and PAH levels are associated with building and site debris, and will be mitigated during remediation to levels approximating average values for the property. Mean surface soil concentrations of PAHs and metals for the property do not represent a significant hazard to biota, including DOI trust resources.

Surface Waters and Sediments. VOC concentrations in surface waters and sediments (Quiggle Brook and wetland Area 4), when detectable, are low, and should not result in adverse impacts to biota, including DOI trust resources. The ephemeral nature and limited areal extent of surface water VOC contamination significantly reduce the likelihood that levels reported in sampling events since 1987 would be harmful to DOI trust resources.

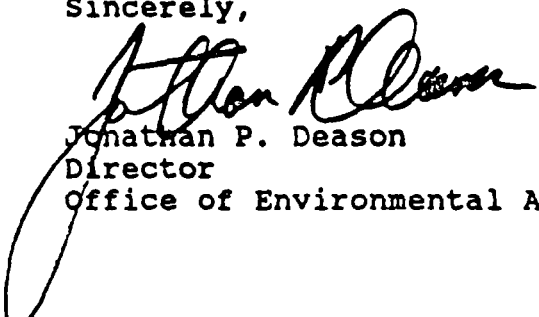
Total PAH concentrations in two Quiggle Brook sediment sampling stations were approximately 20 ppm. These concentrations approximate levels reported in the scientific literature (for the marine environment) where toxic effects to benthic organisms begin to occur. Similarly, the individual concentration of phenanthrene approximates an apparent effects threshold for marine organisms. However, the limited areal extent of these PAHs in Quiggle Brook does not warrant the disturbance of the environmentally sensitive Brook and associated wetland. The PAH levels reported in QB2 and QB3 do not represent a significant hazard to DOI trust resources.

SUMMARY

The contaminant levels presently existing at and near the site, as reported in the draft RI, generally do not represent significant hazards to DOI trust resources. Maximum PAH and metal levels closely associated with the site's buildings do represent potential hazards to trust resources and other biota if not remediated as proposed in the draft ROD. Quiggle Brook sediment PAH levels, as reported for QB2 and QB3, approximate effect levels reported for marine benthic organisms but are limited in their distribution. Removal of these sediments would likely result in more harm than benefit to Quiggle Brook and its associated wetland.

Our Departmental Representative for this site is William Patterson (617)-565-6856, Regional Environmental Officer, Boston, Massachusetts, who is also our Representative on the Regional Response Team.

Sincerely,



Jonathan P. Deason
Director
Office of Environmental Affairs