



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

ANGUS S KING, JR.  
GOVERNOR

MARTHA KIRKPATRICK  
COMMISSIONER

July 12, 2002

Mr. Anthony Williams  
Public Works - Environmental  
Naval Air Station  
437 Huey Drive  
Brunswick, ME 04011

Re: Topsham Annex  
Phase II Environmental Site Assessment - Parcel 2  
Status of Restoration

Dear Mr. Williams:

On May 30, 2002, while at Topsham Annex for another project, MEDEP staff observed oil sheens on surface water within new drainage ways constructed last year when the Maine School Administrative District (MSAD) 75 built tennis courts just east of the Topsham Library (formerly Building 364) on parcel 2. Several areas of groundwater seepage were observed along the slope close to northwest part of the buried floor slab/parking pad where petroleum-contaminated soil was removed by the Navy last summer. This continued petroleum discharge was unexpected, and may be due to the altered site drainage immediately downslope, in combination with recent rains after a long drought period. The oil sheen is indicative of free product remaining in the soil which is violation of 38 M.R.S.A. §543, 548, and 550. While MEDEP appreciates the efforts taken by the Navy to remove the petroleum contaminated soil, it appears that those efforts were not entirely successful.

The seepage areas are in close proximity to where groundwater sampling has shown a plume of trichloroethylene (TCE) and vinyl chloride within a few feet of ground surface. The maximum measured concentrations of TCE and vinyl chloride in groundwater were 260  $\mu\text{g/L}$  and 20  $\mu\text{g/L}$ , respectively (Summit Environmental, February 26, 2002 draft report). The maximum TCE concentration was found at DP-106 and the maximum vinyl chloride concentration occurred at DP-105. Both values are between one and two orders-of-magnitude higher than their Maine Maximum Exposure Guidelines for potable water. Also additional sampling performed by GZA GeoEnvironmental, Inc. for MSAD 75 (Transmittal of Fall 2001 Stormwater Monitoring Results Semi-Annual Storm Water Monitoring Plan-December 13, 2001) indicated TCE concentration of 58  $\mu\text{g/L}$  measured in Outfall 002, which is located 200 feet due north of the northwest corner of Building 369.

MEDEP has concerns that the contaminated groundwater, after it surfaces or enters the surface water drainage, is readily accessible to school children. Also, the drainages have muddy bottoms that may entrain solvents and low concentrations of petroleum, and therefore, dermal exposure is also concern.

AUGUSTA  
17 STATE HOUSE STATION  
AUGUSTA, MAINE 04333-0017  
(207) 287-7688  
RAY BLDG., HOSPITAL ST.

BANGOR  
106 HOGAN ROAD  
BANGOR, MAINE 04401  
(207) 941-4570 FAX: (207) 941-4584

PORTLAND  
312 CANCO ROAD  
PORTLAND, MAINE 04103  
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE  
1235 CENTRAL DRIVE, SKYWAY PARK  
PRESQUE ISLE, MAINE 04769-2094  
(207) 764-0477 FAX: (207) 764-1507

The current assessments indicate that hazardous substances and oil were discharged within parcel 2. While MEDEP is reluctant to designate this site an Uncontrolled Hazardous Waste Site under 38 M.R.S.A. §1362 (2) in which current or former owners and/or operators of an uncontrolled hazardous substance sites are defined as responsible parties, it may become necessary if actions are not taken to mitigate the situation to protect the public health, welfare and the environment as required by 38 M.R.S.A. §1365 (5). Trichloroethylene (TCE) and vinyl chloride are identified as hazardous substances in 38 M.R.S.A. 1362 (1). Given the potential for direct contact by school children MEDEP will not consider monitored natural attenuation based on the current information. Therefore, Navy needs to develop a workplan determine the extent of the contamination and remediate the site in order to protect human health and the environment.

The outline below is a follow-up to our discussion that occurred at the site on May 30, 2002. As agreed, MEDEP has developed an approach to further investigate and remediate, as necessary, solvent and petroleum contamination in the shallow groundwater. The presently identified contaminated groundwater is suspected of emanating from under the floor slab of the former Navy power plant (Building 369). MEDEP anticipates meeting with the Navy to formulate a process for remediating this site, so please consider this as a starting point for our discussions.

**Short term actions:**

MEDEP recommends locating the seeps with a GPS unit as soon as possible so that these seep locations can be used as markers for delineation and remediation.

Environmental laboratory samples need to be taken of drainage way sediment and water at a minimum of four locations and analyzed for volatile organic compounds. An assessment of the risk posed by the site needs to be conducted and submitted to MEDEP approval.

**Proposed Groundwater Investigative Approach**

The concrete slab area at Building 369 including the paved parking apron must be investigated to determine if a source of TCE yet exists in the subsurface. MEDEP suspects that either (or both) the sewer line and the subsurface drainage pipe system that serviced the power plant premises has conducted, and may yet be conducting, TCE contamination away from the power plant footprint. This area currently has a grass cover overlying the buried concrete floor, and is used as a soccer field, hopefully disturbance to the soccer field will be minimal however if a hot-spot of contamination is discovered beneath the field, it will have to be remediated regardless of intrusive damage.

**Proposed Sequence of Field Work**

**Step 1** -- MEDEP has talked with a local geophysical firm about using non-intrusive technology to examine the subsurface beneath the field to accurately locate and map the sewer line and drainage system pathways. A survey using an EM-61 metal detector and a ground-penetrating radar (GPR) instrument appears likely to find these pipes, which are larger than 6 inches in diameter, located at shallow depth beneath the reinforced 6 inch concrete floor slab and/or their fill trenches. Such a survey could be done in one day of field effort, plus one day of office report preparation. The survey should start along the northern apron of the former power plant where engineering drawings indicate the approximate location of these pipes. Assuming that geophysical anomalies are found on the northern fringe, the survey would continue southward to attempt to trace the features to their end points (end of or break in pipes). More than likely, the entire northern half of the building pad (slab plus adjacent formerly paved area) would be surveyed. The geophysical interpretative maps from the EM-61 and GPR surveys would be studied and compared by the geophysicists and a MEDEP geologist. Features of interest would be marked in the field.

**Step 2** -- If the geophysical survey is definitive in identifying pipe-like features, point-specific intrusive work would be performed to expose the "pad outlets" of the sewer and drainage pipes so that water/sediment samples can be collected and sent to a laboratory for analysis. If the pipes are dry, soil sampling could be performed under the pipes to look for leaked contaminated water in the past. The results of the analysis of water/sediment (or soil) samples would determine to what extent contamination was present. If a substantial presence of TCE is found, the intrusive sampling beneath the buried floor slab may need to progress further southward along the pipe(s). Substantial is defined as a concentration higher than that found to date at Outfall 002 (58  $\mu\text{g/L}$  in October 2001).

**Step 3** -- Depending on the results of Step 2, the investigation should result in one of the scenarios discussed below:

- (1) If sampling results of the sewer and drainage pipes emerging under the north side of the former power plant indicates a substantial presence of TCE contamination, then a source lying under the power plant slab likely exists. At the least, a few direct-push groundwater samples should be collected upgradient of DP-106 to establish a plume pathway to the contaminated line under the slab, and to determine if concentrations much greater than the 260  $\mu\text{g/L}$  at DP-106 exist. A second objective would be to perform direct push groundwater sampling in the northeast paved parking area of former Building 369 to find the source of TCE contamination in Outfall 002.
- (2) If the geophysical survey is not successful in locating the pipes, or if chlorinated solvents are not found at greater than trace levels in water and/or sediment within the pipes as they exit the slab, then the source is still unidentified. In this case, direct-push groundwater sampling should be implemented. The primary objective of the direct push sampling would be to delineate the upgradient extent of the previously identified TCE hot-spot, and determine if higher concentrations occur. The primary area to be investigated shall include approximately a 60 by 110-foot area of the northwest corner of the building slab (see Attachment 1). As in (1) above, groundwater in the northeast area between the north end of the building slab and Outfall 002 would also need to be sampled at several points to determine if this area is clean or contaminated.

The groundwater sampling task should be performed similarly to the sampling at the site by Summit Environmental in November 2001. Even if the drainage and sewer pipes are sampled, and regardless of the analytical outcome, a few direct-push groundwater samples should be collected upgradient of DP-106 to bound the hot-spot, or establish a pathway to the sewer line under the slab.

- (3) If the appropriate investigation undertaken above does not locate a source of the TCE contamination, the DP-106 hot-spot will be considered to have been the result of a local point release near the former west cooling tower. In this case, the remaining problem may be that a source for TCE contamination measured at Outfall 002 will not have been established.

**Petroleum:**

Once the locations of the seeps have been located with a Global Positioning System (GPS) it should be a simple matter of performing direct pushes upgradient of the seep to located the source(s).

After these data have been collected, MEDEP will have to consider if any further data collection is needed. The remedial options in view of overall site knowledge at that point will be discussed with the Navy.

Page 4 of 4

I am confident that we can resolve these environmental issues satisfactorily and look forward to our upcoming discussions for this site.

Respectfully,



Claudia Sait  
Project Manager-Federal Facilities  
Bureau of Remediation & Waste Management

Cf: File  
Larry Dearborn-MEDEP  
Denise Messier-MEDEP  
Brian Helland-EFANE  
Heather Jackson-MEDEP (Land & Water)  
Dr. Michael Wilhelm-MSAD 75