

MEMORANDUM

TO : Christine Player, Vine Associates, Inc.
CC : Steve Lipman, Special Project Coordinator Commissioners Office
: Yvonne Unger, Environmental Analyst
: Dave Ellis, Chief Solid Waste Management Section
: David Johnston, Deputy Regional Director, BWP
FROM: Mark Dakers, Environmental Analyst, Solid Waste Section-Lakeville
RE : Army Corps Dredging, Marshfield
DATE : April 7, 2004

The Department was asked by the Army Corps of Engineers to attend a meeting on March 16, 2004 to discuss Army Corp's dredging of inner Green Harbor in Marshfield Massachusetts. The main purpose of the meeting was to discuss options for dredge reuse and disposal. This memorandum briefly summarizes the project and required follow-up actions..

Follow-up Actions Required by Department:

1. Provide Vine Associates Inc. (the consultant for the town) with recent Department Beneficial Use Determination Decisions.--**Completed by Mark Dakers on March 18, 2004**
2. SERO is to review sediment-sampling results in order to determine possible reuse/disposal options and provide this information to the Town and Army Corps. ---
Subject of this Memorandum

Follow-up Actions Required by Vine Associates, Inc.:

1. Provide the Department with any existing plans pertaining to Town's dredge spoils area along with related floodplain and wetland resource area maps.--**Submitted to Department on April 5, 2004**

Project Background:

- The Army Corps expects to generate 50,000 cubic yards of silty sediments from the dredging of Green Harbor.
- There are several other piggyback dredge projects (town and local entities) that are expected to generate another 20,000 cubic yards of sediments (Total dredge volume = 70,000 yards).
- The last time the inner Harbor was dredged was in 1983 and the town of Marshfield/Army Corps and DEM placed the sediment in a large basin located very near the Harbor for dewatering and long-term storage. The dredge remained at this location until late 1990s when the material was placed at the Town of Marshfield's landfill prior to closure.
- Until very recently the Town and Army Corps were assuming they would be able to use the same basin for dewatering and storage and/or disposal of the new dredged material just as they did before. The Department spoke with the Army Corps and indicated that the 401 Water Quality Certification Program could not approve disposal of sediment at any location other than a landfill, sited/managed

under 310 CMR 16.000 and 19.000. Alternative disposal and reuse options were discussed. The Corps then requested a meeting with the Department and the Town to discuss the prohibition on disposal of the sediment at the basin and what other alternatives there may be for the dredge.

Review of Sediment Data for inner Harbor dredging by Army Corps:

The Department has reviewed 1999 laboratory results for sediment samples collected as part of inner Green Harbor Dredging Project. Based on this review, the Department has concluded the following:

1. Seven cores were collected in April 1999 and analyzed individually, no compositing occurred.
2. All seven samples were analyzed for the following parameters:
 - grain size analysis,
 - Arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc,
 - PCBs and pesticides,
 - PAHs,
 - EPH/VPH.
3. Grain size analysis indicates six of the seven cores contains sediment with greater than 15 percent silt and clay (passing through 200 sieve)
4. Pesticides were not detected in any of the seven sediment samples.
5. PCBs (one compound Aroclor 1260) were detected in four of the seven samples collected. The report incorrectly states that PCBs were detected in one sample. PCB concentrations ranged from 0.023 ppm to 0.052 ppm. Reporting Limits for the test method were 0.005 ppm.
6. PAHs were detected in all seven sediment samples. Total PAH concentrations ranged from 0.439 ppm to 1.563 ppm.
7. No VPH components were detected about detection limits. However VPH holding times (two weeks) were exceeded (3-4 weeks).
8. Total aliphatic and aromatic EPH components were detected.

C9-C18 range in seven samples—3 - 8 ppm

C19-C36 range in seven samples—3 - 91 ppm

C11-C 22 ranges from --10 - 21 ppm.

Comparison of Sediment data to Standards/Background/and Other Criteria:

- For those compounds for which the Department has promulgated cleanup standards all seven samples contained concentrations of contaminants less than S-1/GW-1 (310 CMR 40.000).
- For those PAHs and metals for which the Department has "Identified Background Levels in Soil" all seven samples contained concentrations of contaminants less than "Concentration in "Natural" Soil" (refer to Technical Update Background levels of Polycyclic Aromatic Hydrocarbons and metals in soil (5/23/2002), Updates: Section 2.3 Guidance for Disposal Site Risk Characterization-in Support

of Massachusetts Contingency Plan (1992). Site-specific background has not been determined for Marshfield location.

- The concentrations of metals and PAHs do not exceed acceptance criteria for Route 44 Gravel and Sand project in Carver, Massachusetts (site-specific background was established for this gravel pit).
- Even though the concentrations of PCBs are very low, they do exceed the acceptance criteria for Route 44 Gravel and Sand project in Carver.

Reuse/Disposal Options: Based upon the Department's review of sediment sampling data¹, the Department has the following comments regarding reuse/disposal options:

1. Option 1: Reuse within 100 Year Floodplain or Wetland Buffer Zone As Defined at 310 CMR 10.000: If the Town can provide information regarding the need to fill in the historic dewatering site (i.e. safety hazard, etc.) the Department could consider the use of the location for dewatering and reuse as part of site closure activity and permit the activity under 401 Water Quality Certification Program and 314 CMR 9.00.
2. Option 2: Upland Reuse: The dredge can only be used at an upland location that has similar concentrations of PCBs in order to meet antidegradation provisions of the MCP. There are probably not many upland locations that will meet this criteria in the vicinity of the project. Reuse at an upland location (not within 100 yr. floodplain, or wetland buffer) will require that the Applicant submit a permit for a Beneficial Use Determination (BWP SW13, 30) to the Department's Lakeville office.
3. Option 3: Reuse or Disposal at a Permitted Landfill (lined/unlined): The dredge does not exceed maximum allowable contaminant levels for sediment reuse at lined landfills as specified in the Department's Policy, COMM-94-007, the Interim Policy for Sampling, Analysis, Handling and Tracking Requirements for Dredged Sediment Reused or Disposed at Massachusetts Permitted Landfills. In order to reuse the dredge at an unlined landfill a landfill-minor modification permit or other DEP approval would be required.
4. Option 4: Confined Aquatic Disposal and Unconfined Open Ocean Disposal: In addition to the aforementioned reuse and disposal options, confined aquatic disposal and unconfined open ocean disposal are available. However, based on discussions at the March 16, 2004 meeting they are not being considered.

1. Please Note: This memorandum pertains to sediment sampling data from Army Corps dredging project only. Several other piggyback dredge projects are in the process of collecting sediment data that will need to be evaluated by the proponents prior to submission to the Department.

