



**PHASE IV COMPLETION REPORT AND
PARTIAL CLASS A-2 RESPONSE ACTION OUTCOME
STATEMENT
LONG ISLAND AND CAUSEWAY SOUTH
SHORELINE SEGMENT W2A-10
FAIRHAVEN, MASSACHUSETTS
BARGE B120 SPILL, BUZZARDS BAY, MASSACHUSETTS
RTN 4-17786**

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1.0 INTRODUCTION

This Phase IV Completion Report and Partial Class A-2 Response Action Outcome (RAO) Statement was prepared on behalf of Bouchard Transportation Company, Inc. ("Bouchard" or "RP"). This report was prepared by GeoInsight, Inc (GeoInsight) under the direction of Richard J. Wozmak, P.E., P.H. of EnviroLogic, LLC., the Licensed Site Professional (LSP)-of-record for this release. ENTRIX, Inc. also provided ecological and risk assessment support for this report. This report was prepared as part of response actions conducted under the Massachusetts Contingency Plan (MCP), associated with the release of Number 6 (No. 6) fuel oil from Bouchard Barge B120 that occurred on April 27, 2003 in Buzzards Bay. This report describes activities and conditions associated with shoreline segment W2A-10 (Long Island and Causeway South) located in Fairhaven, Massachusetts. The segment location is shown on Figure 1.

This report is based upon data and information presented in previous reports submitted to Massachusetts Department of Environmental Protection (MADEP), including:

- May 3, 2004 Phase I Initial Site Investigation (Phase I ISI) and Conceptual Site Model (CSM) Report, Tier Classification, and Conceptual Phase II Scope of Work (SOW);
- August 24, 2005 Phase II Comprehensive Site Assessment Scope of Work (Phase II CSA SOW) and Updated CSM;



- August 3, 2006 Phase II Comprehensive Site Assessment (Phase II CSA) Report;
- Method 3 Risk Characterization (included in the Phase II CSA Report);
- August 3, 2006 Phase III Remedial Action Plan (RAP);
- November 29, 2006 Phase IV Remedy Implementation Plan (RIP);
- April 3, 2007 Immediate Response Action (IRA) Status and Completion Report; and
- June 22, 2007 Phase IV Status Report.

The Method 3 Risk Characterization previously concluded that a condition of No Significant Risk (NSR) is present for human health and safety, but had not concluded NSR for public welfare or the environment for conditions at the Hoppy's Landing portion of this segment. Therefore, the Risk Characterization addendum that is presented in Section 5.0 of this report focuses on characterizing risk to public welfare and the environment, and demonstrates that a condition of NSR to public welfare and the environment has been achieved at the segment. This report also demonstrates that it is infeasible to further remediate the limited residual oil (consisting of weathered splatter on rock and marsh surfaces) remaining at this segment to achieve background conditions. Because NSR conditions currently exist, further remediation activities would have little, if any, benefit and the potential minor benefits would be overshadowed by additional environmental disturbance. Furthermore, mechanisms of natural attenuation have reduced, and will continue to further reduce, remaining oil to background over time (see Section 7.0). As a result of the conclusions presented herein, a Partial Class A-2 RAO Statement for shoreline segment W2A-10 is also being submitted as part of this report.

Refer to Figures 1 and 2 for the location of the Long Island and Causeway South segment. A copy of Bureau of Waste Site Cleanup (BWSC) Transmittal Forms 108 and 104 associated with this Phase IV Completion Report and RAO Statement are included in Appendix A.



2.0 BACKGROUND

On or about April 27, 2003, an unknown volume (estimated to range between 22,000 gallons and 98,000 gallons) of No. 6 fuel oil was released from Bouchard Barge B120 after entering the western approach of Buzzards Bay, Massachusetts. Oil from the release primarily floated on the water surface and was driven by waves, wind, and tides, ultimately stranding in the intertidal zone along the Buzzards Bay shoreline. The heaviest oiling occurred on exposed southwest facing shorelines, such as Barney's Joy and West Island.

For assessment and organizational purposes, the shoreline was initially divided into 149 shoreline segments. Of those 149 segments, 29 segments were found to be unoiled and not part of the Site. The Site was, therefore, considered to be the 120 shoreline segments that were oiled to varying degrees by the release and the subtidal area of Buzzards Bay. A Phase I ISI and CSM Report, Tier Classification, and Conceptual Phase II SOW were filed for the Site on May 3, 2004. On May 21, 2004, a Partial Class A-2 RAO statement was filed for 57 out of the 120 shoreline segments. These 57 shoreline segments were those segments where the maximum degree of initial oiling was characterized as "light" or "very light," as well as three remediated sandy beach segments where the maximum degree of initial oiling was characterized as "moderate."

A Tier IA Permit was issued by MADEP as part of a July 27, 2004 Decision to Grant Permit letter. A Phase II CSA SOW and Updated CSM were submitted to MADEP on August 24, 2005. MADEP approved portions of the proposed Phase II CSA SOW and requested additional information (primarily regarding the proposed ecological risk characterization) in a letter dated January 18, 2006. Additional information was provided to MADEP in a letter dated March 31, 2006, and MADEP issued final approval of the Phase II CSA SOW in a letter dated June 27, 2006.

A Phase II CSA was completed in August 2006 to characterize the remaining 63 shoreline segments and the subtidal zone in Buzzards Bay. The Phase II CSA included a Method 3



Risk Characterization that concluded that a condition of No Significant Risk to human health, public welfare, safety, and the environment was present at 61 of the remaining 63 shoreline segments and the subtidal zone in Buzzards Bay. A Partial Class A-2 RAO was submitted for these 61 segments and the subtidal zone in August 2006. At the remaining two shoreline segments, identified as segment W2A-10 – Long Island and Causeway South in Fairhaven and segment W1F-02 – Brandt Island West in Mattapoisett, the Method 3 Risk Characterization concluded that a condition of NSR existed for human health and safety (at segment W2A-10) and for human health, safety, and the environment (at segment W1F-02). However, localized residual oil was present at portions of these two segments and a condition of NSR to public welfare and/or the environment could not be concluded at that time for the environment and public welfare (at the Hoppy's Landing portion of segment W2A-10) and for public welfare (at the Leisure Shores portion of segment W1F-02). A Phase III RAP identified the preferred remedial alternatives at these locations, and a Phase IV RIP was completed for Hoppy's Landing. The objective of the remedial action at Hoppy's Landing was to remove residual oil to reach a condition of NSR to public welfare and the environment. Additional characterization activities will be conducted at Leisure Shores Beach in the summer of 2008 under Phase IV activities, and will be summarized in separate Phase IV MADEP deliverables for this segment.

Additional remedial activities at Hoppy's Landing started on December 4, 2006 and were completed on March 1, 2007. Inspections to evaluate remedial progress and identify additional areas for remediation were conducted during the cleanup activities and post-cleanup inspections were conducted after March 1, 2007. A Phase IV Status Report was submitted to MADEP in June 2007 that described cleanup activities and post-cleanup inspections conducted through May 3, 2007. On August 29, 2007, MADEP representatives accompanied GeoInsight and the LSP to conduct a visual inspection of post-cleanup conditions at Hoppy's Landing. In a memorandum dated August 2007, MADEP indicated that site conditions at the time of the inspection were consistent with a condition of NSR to public welfare, and thus we can conclude a condition of NSR for public welfare for this segment. Further description of the Long Island and Causeway South segment, and the



subsequent response actions at the portion of that segment called Hoppy's Landing is provided below.





3.0 SEGMENT SUMMARY

3.1 CHARACTERIZATION

The Long Island and Causeway South segment (shoreline segment W2A-10) consists of approximately 6,000 feet of shoreline in Fairhaven, Massachusetts. The segment extends from the eastern shore of the Sconticut Neck peninsula, near Goulart Memorial Drive, to the western shore of West Island. An approximately 1,500-foot long causeway connects the Sconticut Neck peninsula to West Island via Long Island. This segment includes the southern portion of the causeway and southern portion of Long Island. Nasketucket Bay is located to the north and Buzzards Bay is located to the south of the segment. The shoreline substrate at this shoreline segment is varied, with boulder rip rap along the causeway, sandy areas to the east and west of Long Island, and cobble shoreline along Long Island. Fringing marshes are present at some locations on Long Island. The portion of Long Island located south of Goulart Memorial Drive is known as Hoppy's Landing. Private residences are located along the western portion of the segment (on Sconticut Neck). In general, people use this shoreline primarily for limited seasonal recreational activities, including fishing, walking, boating (a public boat launch is located at Hoppy's Landing), and shellfishing. Additional information regarding this segment was included in the Phase II CSA submitted to the MADEP in August 2006.

Potential sensitive receptors identified at the Long Island and Causeway South segment include water resources, critical habitats, threatened and endangered species, and humans. Based upon information obtained and reviewed to evaluate potential sensitive receptors in the Buzzards Bay area from the Natural Heritage & Endangered Species Program (NHESP) and Massachusetts Geographic Information Systems (MassGIS), habitat for endangered species and fringing salt marshes are present at Hoppy's Landing. The shoreline segment is not located within a Zone II, an interim wellhead protection area, a potentially productive aquifer or a sole-source aquifer, and schools are not located in the vicinity of the shoreline segment.



Previous investigations, including the field activities described in the August 2006 Phase II CSA, found that a condition of NSR to human health, public welfare, safety, and the environment had been achieved for residual oil impacts at this shoreline segment, with the exception of a relatively localized area at the southern portion of Hoppy's Landing. At this localized area at Hoppy's Landing, a condition of NSR had been achieved for human health and safety, but a condition of NSR to public welfare and the environment could not be concluded at the time of the August 2006 Phase II CSA. Therefore, the investigations and cleanup activities described in this report focus primarily on this localized area at the southern portion at Hoppy's Landing where this residual oil was present (Figure 3). However, this RAO applies to the entire shoreline segment of W2A-10.

The residual oil at the southern portion of Hoppy's Landing Peninsula consisted primarily of splatter, small areas of pavement, and limited tar mats that were weathered and hardened on the outer surface. The pavement patches and tar mats were generally 1 to 2 inches in diameter located on the surface of some of the fringing marshes. The small amount of residual splatter was present on rock surfaces and was typically less than one inch in diameter. Oil was also encountered beneath cobbles in some of the areas. Small sheens, generally less than six inches in diameter, were also present on the water surface in tide pools adjacent to locations where pavement was present. Photographs of the pre-cleanup conditions at Hoppy's Landing are included in Appendix B. Residual oil from the B120 release is generally not present along the remainder of the W2A-10 shoreline, with the exception of very small, isolated spots of hardened, weathered splatter on rock surfaces.

3.2 IRA FIELD ACTIVITIES

IRA field activities were conducted between September 2003 and July 2006 as part of the September 15, 2003 IRA Plan. Residual oil was identified at the Hoppy's Landing portion of the Long Island and Causeway South segment (W2A-10) during IRA field inspections; therefore, periodic inspections and small-scale cleanup activities in this segment have been limited to Hoppy's Landing since September 2003 as part of IRA activities. IRA cleanup



activities generally consisted of removing isolated small tarballs (typically less than two inches in diameter) or wrack patties, wiping tacky oil from rocks using sorbent material, and removing small oiled rocks that could not be effectively wiped or cleaned.

IRA cleanup activities at Hoppy's Landing were conducted in May 2004, July 2004, September 2004, and December 2005. Cleanup activities consisted of removing tarballs by hand, scraping splatter and tacky oil on boulders and cobbles using wire brushes and sorbent material, and removing pavement from around boulders and cobbles. After cleanup activities were conducted, a relatively thin coating of residual oil was observed on the underside of a small number of rocks (estimated to be fewer than 25) in the intertidal zone near the southern point of Hoppy's Landing. Subsequent field surveys found that natural weathering processes removed most of the oil on the surface of these rocks. To remove oil from the underside of these rocks, they were turned by hand, exposing the rocks to wave action and sunlight to accelerate natural weathering. Information regarding IRA field activities in the Hoppy's Landing portion of the Long Island and Causeway South segment (W2A-10) is included in IRA Status Reports and the April 3, 2007 IRA Status and Completion Report.





4.0 REMEDY IMPLEMENTATION ACTIVITIES

4.1 INTRODUCTION

The overall objective of the remedial action at Hoppy's Landing was to remove residual oil to reach a condition of NSR to public welfare and the environment. The April 2006 Stage I Environmental Risk Screening identified the following exposure pathways that may result in a potentially significant risk to the environment: 1) harm to wildlife from direct physical contact with residual oil; and 2) harm to wildlife from the effects of oil constituents (PAH). PAH concentrations in sediment samples collected from the fringing marsh and intertidal zone during Phase II assessment activities did not exceed relevant ecological screening benchmarks (i.e., Effects Range-Low [ER-L] sediment values), and, consequently, significant risk of harm to wildlife from these constituents did not exist. Therefore, the potential risks to the environment were associated with wildlife coming into direct physical contact with the residual oil.

Public welfare concerns were associated with: 1) direct contact with residual oil splatter or pavement such that the oil would leave a film upon contact with fabric or skin during recreational activities and 2) visual and/or olfactory evidence of oil residuals present to the degree that it would discourage public use of the shoreline.

The remedial objective was to remove the majority of exposed residual oil to the extent feasible such that: 1) people who visit this area would not come in contact to a substantial degree with oil that could smear on skin and clothing, 2) the potential for wildlife to come into direct contact with exposed residual oil would be substantially reduced, and 3) the potential for persistent sheens would be eliminated. To achieve this objective, the Phase IV RIP proposed removal of residual pavement in oil-impacted portions of the fringing marsh using hand tools and removal of residual splatter from rocks using hand tools or pressure washing equipment. The use of hand tools was selected over mechanical equipment to reduce disturbance or alteration of the marsh and associated habitat. A brief summary of the



Phase IV activities is presented below. Detailed information regarding Phase IV cleanup activities was included in the Phase IV Status Report submitted to the MADEP in June 2007.

4.2 CLEANUP ACTIVITIES

GeoInsight and Trident Environmental Group, LLC (Trident) conducted cleanup activities at the southern portion of Hoppy's Landing on the following dates:

- December 4 through December 8, 2006;
- December 14 through December 22, 2006, and
- February 26 through March 1, 2007.

Residual oil was present at the southern portion of Hoppy's Landing and this area was where the cleanup operations were conducted. Absorbent booms were installed along the perimeter of the cleanup area to prevent migration of residual oil that may become mobilized by cleanup activities. The cleanup activities consisted primarily of excavating residual pavement from the surface of rocky shoreline and fringing marsh in the intertidal zone. Small, isolated areas of pavement were manually excavated by using hand tools (e.g., gardening trowels), while larger, more continuous areas of pavement were gently scraped off of the marsh surface with lawn rakes. The pavement was removed from the surface of the marsh sediment and cleanup operations took care to limit the removal of sediment below the surface of the marsh.

Rocks with residual oil splatter were either cleaned in-place using hand tools (e.g., wire brushes) or transported in a wheelbarrow to a localized containment area to remove the splatter with a pressure washer. The cleaned rocks were subsequently returned to the approximate original locations on the shoreline. Absorbent pads were used to remove soft oil from rock surfaces and to absorb sheen produced when residual oil and/or oiled sediment was disturbed during cleanup activities. Residually-oiled sediment was excavated from beneath impacted cobbles and absorbent material was used to wipe the residual oil from the cobble



surfaces. Replacement of the removed sediment was not conducted because the amount of removed sediment was negligible and the majority of the material removed consisted of pavement scraped from marsh surfaces and absorbent material.

Small sheens, generally less than one inch in diameter, were present on the water surface in tide pools adjacent to locations where pavement, tarmats, and residual liquid oil were observed during cleanup activities. Concentrated areas of sheen and oil particles were removed with absorbent pads. Sheens were not observed on surface water adjacent to affected shoreline areas.

The LSP and field personnel from GeoInsight were present to oversee and supervise Phase IV field activities. Periodic visual monitoring of the cleanup areas during the cleanup operations was conducted to evaluate the effectiveness of cleanup operations and to identify areas where additional cleanup would be required to meet the Phase IV cleanup objectives. Photographs of the post-cleanup conditions at Hoppy's Landing are included in Appendix B.

4.3 SHORELINE INSPECTIONS

In addition to inspections conducted during the Phase IV cleanup activities, post-cleanup inspections were conducted between April and August 2007. Post-cleanup inspections conducted in April and May 2007 were summarized in the Phase IV Status Report submitted to MADEP on June 22, 2007. Additional post-cleanup inspections were conducted in June, July, and August 2007 and are described below.

On June 12, 2007, small (less than one-inch diameter) weathered oil splatter was observed in very limited areas on rocks. Areas of thicker splatter were scraped and removed, and approximately 10 cobbles were also removed from the area for disposal. Sheen was observed in several tide pools and oiled sediment that created the sheen was removed by the inspection team.





On July 26, 2007, two small areas (i.e., less than six inches in diameter) of pavement were removed. Sheens were observed in three locations adjacent to tide pools. Localized residual oily sediment (generally measuring six cubic inches) that created the sheens was removed by the inspection team. Isolated hardened splatter was observed on rocks but was not removed.

On August 13, 2007, two small areas (i.e., less than four inches in diameter) of sheen originating from small splatter on rocks (not oily sediment) were observed in tide pools. The inspection team observed several small (less than one to two inches diameter) sheens with no identified source. The source appeared to be one or two particles in sediment or limited splatter in rock crevasses. Small (less than one inch diameter) weathered oil splatter present in very limited areas on rock or marsh surfaces was scraped and removed. The inspection team removed five areas of oiled sediment adjacent to tide pools. Approximately 0.5-gallons of oiled sediment and cobbles with splatter were removed by the inspection team.

On August 29, 2007, representatives from the MADEP (John Fitzgerald and Rich Packard) were present to conduct a post-cleanup field inspection. A few small (less than one inch in diameter) sheens were observed in tide pools. Isolated hardened splatter was observed on rocks but was not removed. The inspection team removed one “pea-sized” tarball that was embedded in sediment beneath a cobble. In an August 2007 memorandum prepared after the August 29, 2007 field visit, MADEP noted that residual oil present at the segment had been “substantially reduced” due to a combination of cleanup activities and the dynamic coastal conditions. Based upon the field observations and the physical characteristics of the segment, MADEP reported that residual oil conditions did not constitute a significant risk to public welfare. A copy of the August 2007 MADEP memorandum is attached in Appendix C. Additional information regarding the risk evaluation is summarized in Section 5.0.

4.4 RESPONSE TO REPORT OF OIL

On October 1, 2007 subsurface residual oil was reported on a portion of the W2A-10 shoreline located on Goulart Memorial Drive in Fairhaven. Refer to Figure 4 for the





approximate location of the area where the residual oil was reported. On October 12, 2007 an inspection team met with the citizen who reported oil. The inspection team excavated a total of 13 trenches, ranging between approximately 4 feet to 10 feet long and between 4 inches to 20 inches deep, perpendicular to the shoreline surface. Neither residual oil nor sheen were observed in these trenches. However, large pieces of roadway asphalt and slag (not associated with the B120 release) were observed in many locations on the shoreline. The inspection team removed eight small cobbles with hardened asphalt or residual oil (note that it was unknown whether this material was B120 oil, but the inspection team removed them anyway). Two pieces of a black, flexible material were also found and removed. These two pieces of flexible material appeared to be similar to asphaltic caulking material, and were not associated with the B120 release.

The inspection team found a small amount of hardened oil splatter on two large rocks near a seawall. The oil splatter was present in small areas less than two inches in diameter. The inspection team scraped a very small volume (approximately 40 milliliters) of hardened splatter from these two rocks for disposal. Photographs from the October 12, 2007 field visit are attached in Appendix D.

4.5 REMEDIATION WASTE

Remediation waste generated during Phase IV activities consisted of residual pavement, oiled rocks, oiled sediment, oil absorbent material, and personal protective equipment used by the cleanup crews. The recovered remediation waste was collected in polyethylene bags that were temporarily stored on-site during cleanup activities. Remediation waste generated during Phase IV activities between December 2006 and May 2007 were transported by Trident Environmental Group, LLC to the Covanta Haverhill Inc. facility in Haverhill, Massachusetts for disposal. A total of 7.66 tons of remediation waste (including personal protective equipment, absorbent boom, and polyethylene bags) was generated during Phase IV cleanup activities between December 2006 and May 2007. The cleanup material generated during shoreline inspections in June, July, and August 2007 (approximately five





gallons of oiled sediment and cobbles) was incorporated into the waste stream. The remediation waste also included a small amount (less than 10 gallons) of oiled cobbles that were removed from the Leisure Shores area of shoreline segment W1F-02 by inspection teams. Documentation of remediation waste disposal between December 2006 and May 2007 is included in Appendix E.

4.6 PHASE IV RIP COMPLETION STATEMENT

Phase IV cleanup activities at Hoppy's Landing were started on December 4, 2006 and were completed on March 1, 2007. Inspections conducted after implementing the Phase IV activities indicated that cleanup operations substantially reduced the residual oil present at Hoppy's Landing. In general, the residual oil observed in the post-Phase IV cleanup inspections consisted primarily of small (generally 1 to 2 inches in diameter), isolated patches of pavement on some of the fringing marshes and small (up to one inch in diameter), isolated areas of splatter on rock surfaces. The residual oil was weathered and did not come off to the touch. Small (typically less than one inch in diameter), faint, non-persistent sheens were observed on the water surface in tide pools when sediment/cobbles adjacent to the tidal pools were disturbed. Photographs of the pre-cleanup and post-cleanup conditions at Hoppy's Landing are presented in Appendix B.

On August 29, 2007, MADEP accompanied the LSP and a representative from GeoInsight to conduct an inspection of the southern portion of Hoppy's Landing. In an August 2007 memorandum, MADEP indicated that site conditions at the time of the inspection did not constitute a significant risk to public welfare. Additional information regarding risk characterization is included in Section 5.0.

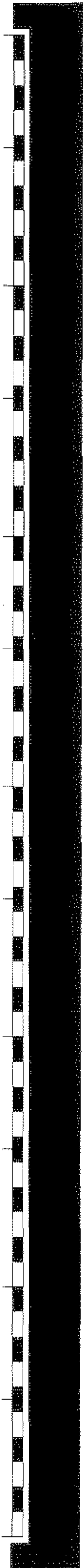
Residual oil at other portions of the segment (e.g., the shoreline at Goulart Memorial Drive that is described in Section 4.4 above) is sporadic, difficult to locate, and is not expected to affect shoreline use. Small, isolated patches of weathered splatter, generally less than one





inch in diameter, may be observed on rock surfaces. In general, sheens and areas of pavement are not observed in these portions of the segment.

Based upon field inspections, the cleanup objectives identified in the Phase IV RIP have been met and additional response actions are not necessary to achieve a Permanent Solution.





5.0 RISK CHARACTERIZATION ADDENDUM

5.1 INTRODUCTION

A Method 3 Risk Characterization was conducted as part of the August 2006 Phase II CSA report to evaluate the risk of harm to health, safety, public welfare, and the environment associated with potential exposures to spill constituents detected in environmental media along the Buzzards Bay shoreline. The characterization was conducted in accordance with the requirements of the MCP (Subpart I) and the MADEP *Guidance for Disposal Site Risk Characterization* (July 1995 and updates). A Method 3 Risk Characterization is a cumulative, Site-specific risk approach that addresses potential cumulative impacts to identified human and ecological receptors. It also characterizes the risk of harm to safety and public welfare. This method is used when environmental media other than (or in addition to) soil and ground water (e.g., air, sediment, surface water) have been affected by a release of oil and/or hazardous material (OHM). In this case, a Method 3 Risk Characterization was conducted because sediment, weathered oil, and shellfish tissue were initially identified as potential environmental media of concern. The purpose of the risk characterization was to evaluate whether a condition of NSR, as defined in the MCP, has been achieved at the Site under current and foreseeable future uses and activities. The August 2006 Method 3 Risk Characterization concluded that a condition of NSR was achieved at this segment for human health and safety, but that a condition of NSR to public welfare and to the environment could not be concluded at that time. Therefore, this Risk Characterization addendum focuses upon evaluating risks to public welfare and the environment.

The current and reasonably foreseeable uses and activities that were evaluated as part of the Method 3 Risk Characterization of this segment included walking, recreational shellfishing and fishing, sightseeing, and bird watching. The environmental risk evaluation identified potential wildlife receptors at this segment to include shorebirds, marine invertebrates, salt marsh grasses, and terrestrial mammals. Potential risks to environmental receptors were associated with direct contact with residual oil.



Visual observations were used to characterize the extent and magnitude of residual oil on the shoreline after the Phase IV cleanup activities were completed. The observations consisted of:

- Visual inspections of the shoreline conducted on multiple dates; and
- Excavating shallow test pits at selected locations to evaluate for potential residual oil below the surface.

These observations were used to determine the level of risk associated with direct contact with residual oil to public welfare and wildlife receptors.

5.2 PUBLIC WELFARE RISK CHARACTERIZATION UPDATE

The potential risk of harm to public welfare considers the existence of nuisance conditions, loss of active or passive property use, and nonpecuniary costs that may accrue due to the degradation of public or private resources directly attributable to the release of OHM. The risk of harm to public welfare was evaluated using two criteria: 1) comparing concentrations of detected constituents to appropriate Upper Concentration Limits (UCLs) defined in the MCP; and 2) evaluating the potential for the existence of a nuisance condition to the degree that would limit the use of the shoreline under current and reasonably foreseeable future uses that is directly attributable to the release of OHM.

Although small amounts of weathered residual oil splatter (i.e., dime or quarter size, occasionally an area measuring 1 by 1 inch) may be present at Hoppy's Landing, the splatter is discontinuous, less than 1/8 inch thick, and does not constitute a UCL exceedence for non-aqueous phase liquid (NAPL). The splatter is not readily visible or distinguishable from algae and other naturally occurring dark patches on rocks, and during the last field inspection, only a few faint, non-persistent sheens were observed on the water surface in tide pools when sediment/cobbles adjacent to the tidal pools were disturbed.





The second component of characterizing risks to public welfare is to evaluate the potential for residual oil to create a nuisance condition (such as rubbing off on skin when touched) to the degree that could significantly limit public or community use (active or passive) of the shoreline segment. In a memorandum attached to the MADEP June 27, 2006 Phase II SOW Addendum approval letter (Appendix C), MADEP provided additional Site-specific guidance on evaluating potential risks to public welfare, which included the following:

- visual and/or olfactory evidence of oil residuals that are likely to discourage the use of beaches, marshes, and related intertidal and subtidal areas that are otherwise accessible and available for public use; and;
- oil residuals that are likely to contact and adhere to persons engaged in recreational activities at beaches, marshes, and related intertidal and subtidal areas that are accessible and available for public use

During the August 29, 2007 inspection of Hoppy's Landing, isolated sheens, tarballs, and patches of pavement were observed. However, the residual oil was difficult to locate, did not exhibit an odor, and was weathered and hard to the touch. Only faint, non-persistent sheens were observed on surface water. Based upon these observations and the physical characteristics of the segment, MADEP concluded in their August 2007 (Appendix C) memorandum that site conditions at the time of the inspection did not constitute a significant risk to public welfare. It is important to note that while it is possible that the public may come into contact with residual oil and possibly sheen, this does not necessarily constitute a significant risk to public welfare. Although isolated splatter may be present, the splatter is weathered and hard to the touch, and contact with this splatter would not create a nuisance condition that would limit public or community use of the shoreline. Similarly, the occasional presence of faint, non-persistent sheens that may appear when sediment or cobbles are disturbed does not exceed the threshold of a significant risk to public welfare. Therefore, in accordance with the MADEP guidance, it is concluded that a condition of No Significant Risk to public welfare exists at the segment (W2A-10).



5.3 ENVIRONMENTAL RISK CHARACTERIZATION UPDATE

The April 2006 Stage I Environmental Risk Screening identified exposure pathways that may result in a potentially significant risk to the environment: 1) harm to wildlife from direct contact with residual oil and 2) harm to wildlife from the potential effects of oil constituents (PAH) partitioned to sediment. However, PAH concentrations in sediment samples collected from the fringing marsh and intertidal zone along Hoppy's Landing during the Phase II assessment activities did not exceed the ER-L values, and consequently, it was concluded that residual concentrations of PAH constituents in sediment did not pose a significant risk of harm to wildlife.

With respect to the potential risk of harm to wildlife associated with direct contact from residual oil, remedial activities and natural weathering conditions have reduced residual oil significantly since the April 2006 Stage I Environmental Risk Screening. Since Phase IV cleanup activities, very limited amounts (less than one inch in diameter) of weathered oil and only a few faint, non-persistent sheens were observed in the intertidal zone of a portion of Hoppy's Landing. However, the residual oil was weathered and hard to the touch, and would not smear on skin, fur, or feathers. On the basis of this evaluation, it was concluded that a condition of NSR to the environment (including wildlife direct contact) has been achieved for this segment (W2A-10).

5.4 CONCLUSIONS

Based upon the field observations and data described above, the Phase IV cleanup activities conducted at the southern portion of Hoppy's Landing have achieved a condition of NSR to public welfare and the environment for current and reasonably foreseeable future conditions at shoreline segment W2A-10. Previous risk characterization included in the August 2006 Method 3 Risk Characterization previously demonstrated that a condition of NSR to human health and safety had been achieved. Therefore, a condition of NSR to human health, public welfare, safety, and the environment has been achieved at this segment.





6.0 DATA QUALITY/DATA USABILITY ASSESSMENT

The types of data that were used to characterize risks at the site consisted of sediment sample concentrations and visual observations of residual oil (e.g., tarballs, oil pavement, splatter on rocks, and sheens). The sediment analytical data was primarily used in the August 2006 Method 3 Risk Characterization to characterize potential risks to human health and environmental receptors (e.g., benthic organisms) via ingestion of, and/or dermal contact with, residual oil in sediment. The visual data was used primarily to characterize public welfare risks (e.g., oil smearing on skin) and ecological risks related to wildlife direct contact with oil.

Sediment samples were collected from the Long Island and Causeway South intertidal zone and fringing marsh in August 2004 (marsh) and August 2005 (intertidal and marsh). The sediment samples were submitted for laboratory analysis for EPH fractions using MADEP methods and the 17 PAH target analytes by gas chromatograph/mass spectrometer. The sediment sample analytical data were included in the Method 3 Risk Characterization to evaluate risk to human health, public welfare, safety, and the environment. Sediment sample analytical data are summarized in Table 1. A data usability assessment and “Tier II” data validation was performed for these samples and the results were reported in the Phase II CSA. A summary of the data quality/data usability assessment is presented in the sections that follow.

When applicable, data usability was evaluated according to guidelines presented in the MCP Representativeness Evaluations and Data Usability Assessments final document dated September 19, 2007, that includes precision, accuracy, representativeness, comparability, sensitivity, and completeness. The “Tier II” data validation was performed using quality control criteria established by the analytical methods and USEPA National Functional Guidelines for the Contract Laboratory Program.





Samples collected during the field investigation were analyzed by the laboratory using MADEP-approved methods. The analytical results were consistent with the required reporting procedures outlined in the MADEP Compendium of Analytical Methods (CAM).

Visual inspections of the distribution and magnitude of residual oil were performed on various dates through different seasons during preliminary response actions (e.g., during IRA activities) and comprehensive response actions (e.g., during Phase II characterization). Visual inspections typically consisted of walking through the area of concern and documenting the residual oil impacts present. Post-Phase IV cleanup inspections were conducted on March 14, April 27, May 4, June 12, July 18, July 27, August 13, and August 29, 2007. During some of the inspections, test pits were excavated using hand tools to evaluate for the presence of residual oil below the surface.

6.1 DATA USABILITY ASSESSMENT

A “Level II” validation was conducted for EPH and PAH analyses in sediment samples collected as part of the Phase II assessment. The sediment samples were analyzed by Groundwater Analytical, Inc of Buzzards Bay, Massachusetts, in accordance with MADEP methodology for EPH and USEPA SW-846 methodology for PAH: measurement of EPH by MADEP-EPH-98-1 and PAH by 8270C. The data validation found that the samples were extracted and analyzed within the required holding times, the laboratory quality control surrogate compounds were within acceptable limits, and the quality assurance/quality control procedures and standards required for each method were achieved. The results of the quality assessment and validation indicated that the laboratory parameters were within acceptable limits and that the data are suitable for use in site characterization and risk assessment.

As part of Phase II sample collection, one to two field duplicates and one to two samples for matrix spike analysis were collected for approximately every 15 samples. The duplicate samples were collected and submitted for laboratory analysis to evaluate analytical precision. Analytical results for duplicate samples are presented in Table 25 of the Phase II CSA report.



The relative percent difference (RPD) values for duplicate samples were less than the data validation guideline of 50% recommended by the United States Environmental Protection Agency, and the matrix spike analytical results were within the accepted matrix spike recovery limits and RPD values.

6.2 DATA REPRESENTATIVENESS EVALUATION

Sediment samples were collected from intertidal shoreline locations and fringing marshes as part of Phase II assessment activities to evaluate potential risks to human and environmental receptors (e.g., benthic organisms). The oil that stranded on the shoreline in April and May 2003 from the release was discontinuous and varied substantially both among the various shoreline segments and within individual shoreline segments. The degrees of human use of the shoreline and potential environmental receptors also varied considerably along the shoreline. Due to the expansive area of potential impacts, as well as the variability of shoreline oiling, public use, and environmental receptors, intertidal and marsh sediment samples were not collected uniformly along the shoreline. Instead, intertidal and marsh sediment samples were collected during the Phase II CSA from a subset of the 63 remaining shoreline segments (including shoreline segment W2A-10), representing the current worst-case conditions. This subset of worst-case segments included representatives from each shoreline classification (i.e., sandy beaches, mixed sand and gravel beaches, rip rap seawalls, piers, rocky shores, and marshes). Characterization of intertidal sediment was conducted at 12 of the remaining 63 segments (approximately 20%), and these segments were considered to be worst-case examples. To provide representative coverage in the intertidal zone, intertidal sediment samples were collected from both the upper and lower intertidal zones.

To identify which segments were most representative of worst case conditions, the results of qualitative and quantitative surveys conducted between April 2003 and June 2005 were carefully reviewed using the following criteria:

- the extent and magnitude of residual oil along shoreline segments during the most recent field surveys;



- the results of existing field surveys and laboratory analyses of environmental media collected within the Site;
- the initial maximum shoreline oiling levels in the spring of 2003;
- the initial oiling index¹ for each shoreline segment; and
- the IRAC status² of each shoreline segment.

In addition, information on environmental resources at the remaining 63 segments was reviewed using these additional criteria:

- shoreline classification based on NOAA's Ecological Sensitivity Index and IRAC designations;
- salt marsh habitat;
- known occurrence of threatened or endangered species;
- presence of NHESP priority habitat; and
- public access/expected human use.

The results of this information review were assimilated to develop segment selection criteria for existing residual oil, initial oiling, ecological ranking, and public access. The primary emphasis was on the degree and extent of residual oil since those areas would be the most likely to pose a risk to ecological receptors and humans. The segments that had residual splatter on rocks with sporadic "pavement" and/or tar patties or flecks (including the Hoppy's Landing portion of W2A-10) were selected for further characterization. To be conservative, additional segments were selected for further characterization based on the current status of residual oil (albeit most of the residual oil was present as minimal weathered splatter) coupled with relatively high rankings for initial oiling, ecological ranking, and/or public access/use. A total of 16 marsh and sediment samples were collected from the W2A-10 shoreline segment at Hoppy's Landing. Samples were collected from areas where residual oil was present or in the vicinity based upon visual inspections.

The Phase II analytical data set conservatively focused upon evaluating locations that are considered to be "worst-case" where potential residual oil would most likely be present. The

¹ The initial oiling index is a numerical value ranging from 0 to 4 that is a function of the degree of oiling and the proportion of the segment that was oiled.

² The IRAC status of a particular shoreline segment was established at the completion of the IRAC inspections conducted by field teams under the direction of Unified Command.



Phase II characterization activities were described in the August 2005 Phase II SOW and the Phase II CSA.

Whole sediment samples (i.e., sediment particulates and associated pore water) were collected at each sampling location and the analytical results are presented on a dry-weight basis. Sediment sample analytical results were considered to be representative of residual oil impacts adsorbed to sediment, as well as dissolved in pore water. This is consistent with methodology followed during the sediment toxicity studies conducted as part of NOAA's National Status and Trends Program (NOAA NST Program) (Long and Morgan, 1991). ER-Ls were developed in this program using the results of dozens of whole sediment toxicity studies that incorporated sediment samples collected from major water bodies around the United States where it was known that a range of chemical contaminants co-occurred in the samples (Long and Morgan, 1991). A variety of benthic infaunal and epibenthic test organisms were used, including various amphipods and bivalve larvae, which are all sensitive to dissolved chemicals in porewater. Because ER-Ls were developed for organisms exposed to whole sediment, including porewater, ER-Ls directly address constituents dissolved in sediment porewater.

The visual observation data was an important data set for this release due to the following:

- Exposure routes specific to public welfare focus upon direct contact with oil or the presence of oil that would significantly impede or limit the public's ability or inclination to access, use, and enjoy the shoreline; and
- A component of the ecological risk characterization that focused upon direct contact of wildlife with oil.

In addition, due to the physical and chemical characteristics of the residual No. 6 fuel oil (e.g., low solubility), it is not expected that environmental media sampling would result in constituent concentrations in sediment or surface water above risk characterization thresholds. This condition is supported by the Phase I and Phase II sediment sample analytical results that did not indicate the presence of No. 6 fuel oil constituents at levels that



constituted a significant risk. In many samples, the constituent concentrations were below analytical detection limits.

Multiple visual inspections were conducted during low tide and in different seasons to account for different shoreline and oil conditions. For example shoreline visibility is increased during cold weather inspections when plants are dormant, while during hot weather conditions residual oil is potentially more tacky (less viscous) and could more easily produce a sheen or rub off on skin. The multiple visits also reduced the chances of not observing oil that could be hidden under wrack or flotsam during an individual inspection.

6.3 DATA QUALITY/DATA USABILITY CONCLUSIONS

Based upon the information presented above, the data collected to support this RAO is considered to be both useable and conservatively representative to characterize the extent and magnitude of impacts, and for use in human health and ecological risk characterization.





7.0 FEASIBILITY OF ACHIEVING OR APPROACHING BACKGROUND

The following discussion regarding the feasibility of achieving or approaching background was prepared in accordance with the MADEP Policy #WSC-04-160 *Conducting Feasibility Evaluations Under the MCP*, dated July 16, 2004 (the Policy).

The constituents of concern (COC) at the Site are derived from No. 6 fuel oil, which is considered to be a persistent contaminant under the Policy. However, it is important to note that the Policy typically addresses releases to soil and ground water at inland locations, where the degree of natural weathering is considerably less than in some locations along segment – W2A-10 - Long Island and Causeway South. Natural processes are expected to substantially degrade residual oil with high wave energy and the residual oil impacts may be considered to be non-persistent (i.e., degradable) at W2A-10. However, in other quiescent areas (e.g., some marsh habitat), No. 6 fuel oil is expected to be persistent because natural weathering is comparatively limited in these locations.

As described in the Phase II CSA report, for the purposes of this investigation, background concentrations of EPH fractions and PAH in intertidal and subtidal sediment were considered to be at or below the laboratory detection limits, and visible petroleum was assumed to be not present. Note that there may be local conditions³ where EPH fractions and PAH are present in Buzzards Bay sediments from non-B120 sources, or visible petroleum may be present from non-B120 sources. For example, non-B120 oil is present at Holly Woods in Mattapoisett and on Naushon Island, and pyrogenic PAH associated with the Atlas Tack Superfund Site were detected in sediment samples collected from Harbor View and Pope's Beach in Fairhaven. In addition, the definition of "approaching background" for soil that contain persistent contaminants, such as No. 6 fuel oil, is presented in the Policy as a number of criteria, one of which includes soil that has concentrations at or below Method 1 S-1 Standards. For this segment, sediment sample concentrations were below the S-1 Standards.

³ *Local conditions are present in a relatively small area when compared to the overall area of a site.*



Therefore, residual oil concentrations in sediment at the Hoppy's Landing portion of the W2A-10 segment could be considered to be "approaching background" (refer to Table 1) resulting in categorical infeasibility to achieve background and presumptive certainty of MADEP acceptance of this conclusion in accordance with the Policy. However, the Policy does not consider the presence of visible petroleum such as the small tarballs observed on the sediment surface. Therefore, to evaluate the feasibility of achieving or approaching background for this segment, a technological and cost-benefit evaluation was performed as well as an evaluation of conditions that MADEP considers to be almost always categorically feasible to achieve or approach background.

7.1 TECHNOLOGICAL EVALUATION

The objective of the technological evaluation is to identify whether remedial technologies are available that can reduce release-related conditions to achieve or approach background. Based upon the remedial actions performed by Unified Command, two alternatives were initially identified as potentially capable of remediating residual oil in the intertidal zone; these two alternatives were: 1) high pressure, hot water washing of rocks, using sorbents to catch separate-phase oil produced by the washing, and 2) excavation and disposal of oiled rocks with rock replacement. However, residual oil currently remaining on the shoreline is weathered and hardened and hot washing is no longer considered to be effective at removing residual weathered oil to background conditions. Complete excavation and disposal of oiled rocks with rock replacement (where necessary) is the only technology that is considered feasible to achieve or approach background conditions. However, based upon the initial screening results, complete excavation and disposal of impacted media would substantially impact the existing ecosystem and, therefore, the risks are very high to use this remedial action alternative at Hoppy's Landing. The total cost of excavation and disposal at this location is estimated to be greater than \$200,000, and, due to the discontinuous nature of oiling on the shoreline, it is possible that small amounts of residual oil could remain after additional cleanup operations.



7.2 BENEFIT-COST EVALUATION

Excavation of intertidal rocks and sediment will have a substantial adverse impact to the local ecosystem. While the removal of highly weathered, hardened, oil splatter from the intertidal zone may be beneficial from an aesthetic standpoint, the benefit is offset by the ecological damage that would be caused by the excavation of the existing ecosystems. Note that the aesthetic impacts are likely to be minimal due the comparatively infrequent use of this part of the shoreline compared to other areas along Buzzards Bay. Removing the small amounts of residual oil would likely damage or destroy more than 5,000 square feet of wetlands or wildlife habitat. Other Permanent Solutions (i.e., the focused removal of material completed during Phase IV cleanup activities) were already conducted and this segment has achieved a Condition of NSR. The limited remaining residual oil is primarily highly weathered splatter that is not expected to migrate and is not expected to bioaccumulate in its present form. The damages to the shoreline resources from large-scale excavation activities would remain for a long time and would not be repairable to its current state in a reasonable time frame (10 years).

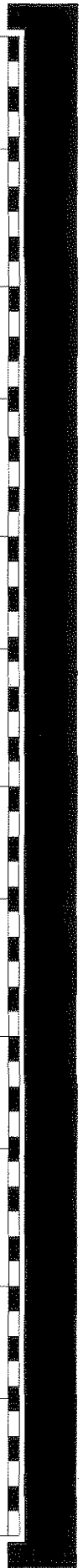
The ecological damage from large-scale cleanup operations would be substantial, and the benefits would be negligible because a condition of NSR already exists at this segment. Therefore, the disadvantages and costs for the potential remedial action are considered to be substantial and disproportionate to the negligible incremental benefit and, consistent with Section 3.0 of the Policy, it is not considered feasible to remove the remaining residual oil (which consists primarily of highly weathered oil splatter) at this segment.

7.3 EVALUATION OF CATEGORICAL FEASIBILITY CONDITIONS

It is MADEP's position that it is categorically feasible to remove small quantities (less than or equal to 20 cubic yards) of petroleum-impacted soil to achieve or approach background under certain conditions where the soil is accessible, is not located in a sensitive environment (e.g., wetlands), and the removal would not substantially interrupt public service or threaten



public safety. For this segment, it is likely that removal of residual petroleum-impacted sediment may require excavating greater than 20 cubic yards of material to reach background conditions. Also, as presented in Section 3.1, the area of remaining residual oil is located in a sensitive environment that consist of fringing salt marshes and threatened/endangered species habitat. Therefore, additional soil removal is not required to achieve or approach background based upon the conditions of categorical feasibility presented in the policy.





8.0 RESPONSE ACTION OUTCOME

As described in the Method 3 Risk Characterization included in the August 2006 Phase II CSA report, a condition of NSR to human health, safety was achieved for this shoreline segment. Phase IV cleanup activities were conducted at the southern portion of Hoppy's Landing between December 2006 and March 2007 to remove residual oil and address potential concerns to public welfare and the environment. Post-cleanup inspections were conducted between April and August 2007 and indicated that the cleanup activities reduced residual oil so that a condition of NSR to public welfare and the environment has been achieved. Therefore, a condition of NSR to human health, public welfare, safety, and the environment has been achieved at this shoreline segment. Hot spots, as defined in the MCP, are not present, and residual oil impacts do not exceed UCLs. No substantial hazards are present at the Site. Uncontrolled sources associated with this release have been eliminated or controlled. A site-specific evaluation of the feasibility for achieving or approaching background conditions was conducted and concluded that it was not feasible to achieve or approach background. Therefore a Partial Class A-2 RAO is appropriate for shoreline segment W2A-10 (Long Island and Causeway South). The shoreline segment addressed by this Partial RAO is shown on Figure 2.

This RAO is not based upon the implementation of an Activity and Use Limitation (AUL) to maintain a condition of NSR. Post-RAO monitoring is not necessary to ensure that the conditions upon which the Class A-2 RAO is based are maintained.



9.0 RELATIONSHIP TO OTHER RAOs FILED FOR THE DISPOSAL SITE

In May 2004 a Partial Class A-2 RAO was filed for 57 of the 120 oiled shoreline segments. In August 2006 a Partial Class A-2 RAO was submitted for the 61 of the remaining 63 segments and the entire subtidal zone beneath Buzzards Bay. This Partial Class A-2 RAO applies to Long Island and Causeway South (W2A-10). Additional response actions will be conducted at the remaining segment not addressed by this RAO or previously submitted RAOs (Brandt Island West [W1F-02]), as described in the August 2007 RIP for segment W1F-02. A separate RAO for segment W1F-02 will be submitted for the shoreline segment after response actions are satisfactorily completed in accordance with the MCP.



10.0 PUBLIC INVOLVEMENT

Notification of this Partial Class A-2 RAO was provided to owners of property within the boundaries of the shoreline segment that were included in this RAO. Note that although properties in Massachusetts may extend to mean low water, not all properties necessarily extend to mean low water (e.g., the property lines at some properties may only extend to mean high water and the property does not include the intertidal zone). However, evaluating whether a particular property extended to mean low water would require conducting a review of the deed for each property within the segments included in this RAO. To be conservative, although deed research for each property was not conducted, notification was provided to the owners of properties along the shoreline segment, recognizing that some of these properties may not actually extend to mean low water (and thus are not part of the Site).

Notification was also provided to the Fairhaven chief municipal officer and Board of Health. Copies of the notification letters to property owners and municipal officials are included in Appendix F.



TABLE 1
SUMMARY OF SEDIMENT ANALYTICAL RESULTS
BUZZARDS BAY, MASSACHUSETTS
SEGMENT: W2A-10
Long Island and Causeway South, Fairhaven

ANALYTE	W2A10-C01	W2A10-C02	W2A10-C03	W2A10-C04	W2A10-P2-UIT-01	W2A10-P2-LIT-01	W2A10-P2-UIT-02	W2A10-P2-LIT-02	MCP Method 1 Standards			Effects Range-Low Benchmarks Marine Sediments
	Marsh (Core) Sediment	Marsh (Core) Sediment	Marsh (Core) Sediment	Marsh (Core) Sediment	Intertidal Sediment	Intertidal Sediment	Intertidal Sediment	Intertidal Sediment	S-1 / GW-1	S-1 / GW-2	S-1 / GW-3	ER-L
	8/24/2004	8/24/2004	8/24/2004	8/24/2004	8/30/2005	8/30/2005	8/30/2005	8/30/2005				
EPH												
C ₉ -C ₁₈ Aliphatic Hydrocarbons	ND(43)	ND(140)	ND(45)	ND(39)	ND(35)	ND(34)	ND(30)	ND(36)	1,000	1,000	1,000	NA
C ₁₉ -C ₃₆ Aliphatic Hydrocarbons	110	ND(140)	ND(45)	ND(39)	ND(35)	ND(34)	ND(30)	ND(36)	2,500	2,500	2,500	NA
C ₁₁ -C ₂₂ Aromatic Hydrocarbons	180	ND(140)	ND(45)	ND(39)	ND(35)	ND(34)	ND(30)	ND(36)	200	800	800	NA
PAH by GC/MS-SIM by method 8270C												
Naphthalene	ND(0.014)	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	0.015	4	40	500	0.160
2-Methylnaphthalene	0.037	0.022 j	ND(0.015)	0.008 j	ND(0.016)	ND(0.018)	ND(0.012)	ND(0.012)	4	500	500	0.070
Acenaphthylene	ND(0.014)	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	ND(0.012)	100	100	100	0.044
Acenaphthene	0.014	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	ND(0.012)	20	1,000	1,000	0.016
Fluorene	0.026	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	ND(0.012)	400	1,000	1,000	0.019
Phenanthrene	0.120	ND(0.046)	ND(0.015)	0.005 j	ND(0.016)	ND(0.018)	ND(0.012)	0.007j	700	1,000	100	0.240
Anthracene	0.021	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	ND(0.012)	1,000	1,000	1,000	0.085
Fluoranthene	0.043	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	0.024	1,000	1,000	1,000	0.600
Pyrene	0.170	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	0.022	1,000	1,000	1,000	0.665
Benzo(a)anthracene	0.098	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	0.012	7	7	7	0.261
Chrysene	0.130	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	0.010j	7	7	7	0.384
Benzo(b)fluoranthene	0.070	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	ND(0.012)	7	7	7	NA
Benzo(k)fluoranthene	0.014	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	ND(0.012)	70	70	70	NA
Benzo(a)pyrene	0.093	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	ND(0.012)	2	2	2	0.430
Indeno(1,2,3-c,d)pyrene	0.012 j	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	0.011j	7	7	7	NA
Dibenzo(a,h)anthracene	0.012 j	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	ND(0.012)	0.7	0.7	0.7	0.063
Benzo(g,h,i)perylene	0.015	ND(0.046)	ND(0.015)	ND(0.013)	ND(0.016)	ND(0.018)	ND(0.012)	ND(0.012)	1,000	1,000	1,000	NA

NOTES:

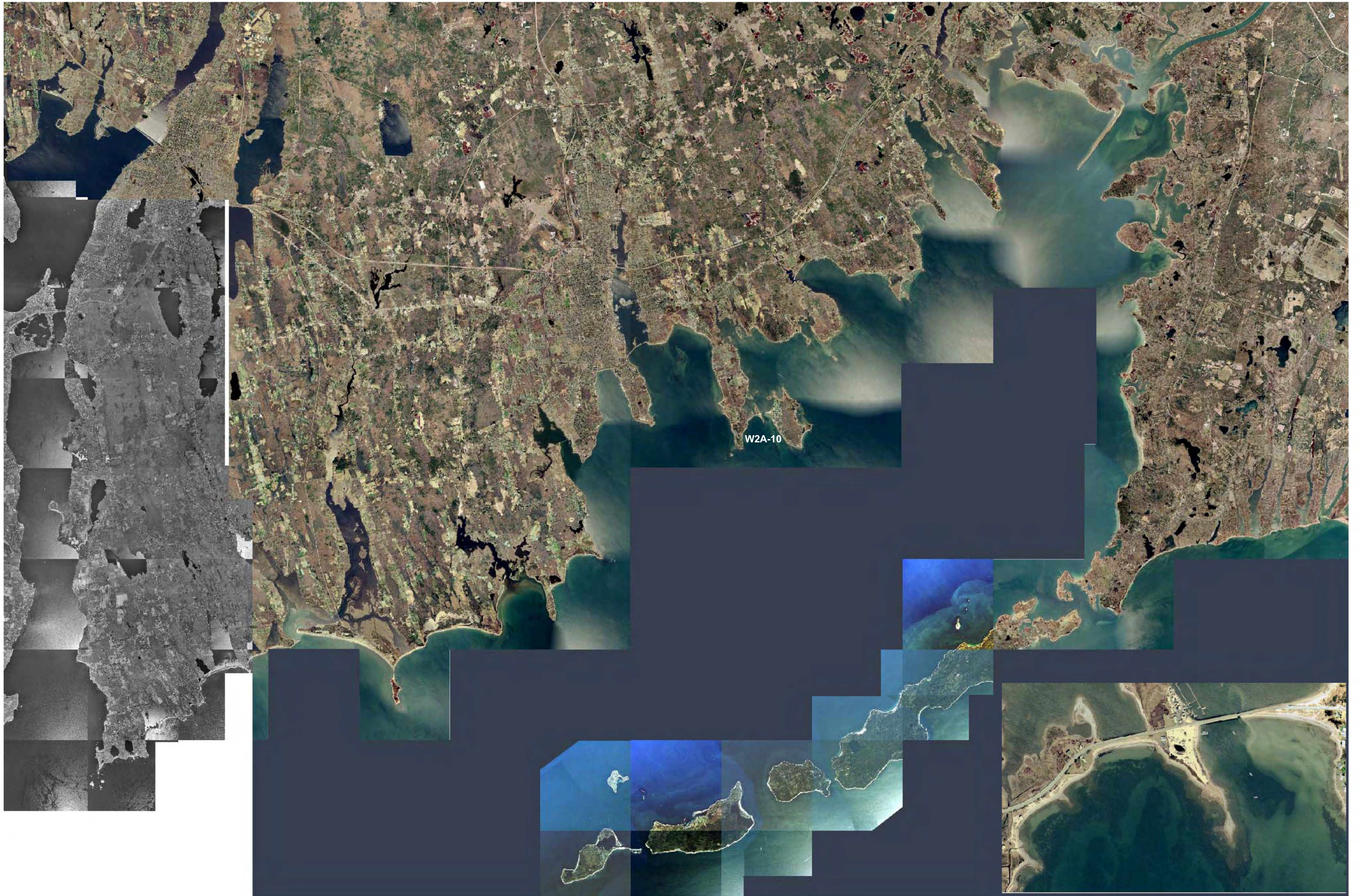
1. Results in mg/Kg (milligrams per kilogram).
2. EPH: Extractable Petroleum Hydrocarbons.
3. ND(x): Constituent not detected at practical quantitation limits (PQL) noted in parentheses.
4. PAH by GC/MS-SIM: Polynuclear Aromatic Hydrocarbon analysis by Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring.
5. j: Estimated concentration/ detected below standard laboratory reporting limits.
6. MCP: Massachusetts Contingency Plan.
7. NA: Not Applicable.
8. Bold values exceed laboratory practical quantitation limit.
9. Highlighted values exceed applicable standards.
10. ER-L: Effects Range Low (Long and Morgan 1991).

TABLE 1
SUMMARY OF SEDIMENT ANALYTICAL RESULTS
BUZZARDS BAY, MASSACHUSETTS
SEGMENT: W2A-10
Long Island and Causeway South, Fairhaven

ANALYTE	W2A10-P2-UIT-03	W2A10-P2-LIT-03	W2A10-P2-UIT-05	W2A10-P2-LIT-05	W2A10-P2-M-01	W2A10-P2-M-02	W2A10-P2-M-03	W2A10-P2-M-04	MCP Method 1 Standards		
	Intertidal Sediment	Intertidal Sediment	Intertidal Sediment	Intertidal Sediment	Marsh Sediment	Marsh Sediment	Marsh Sediment	Marsh Sediment	S-1 / GW-1	S-1 / GW-2	S-1 / GW-3
	8/30/2005	8/30/2005	8/30/2005	8/30/2005	8/29/2005	8/29/2005	8/29/2005	8/29/2005			
EPH											
C ₉ -C ₁₈ Aliphatic Hydrocarbons	ND(32)	ND(36)	ND(32)	ND(35)	ND(49)	ND(38)	ND(56)	ND(38)	1,000	1,000	1,000
C ₁₉ -C ₃₆ Aliphatic Hydrocarbons	ND(32)	ND(36)	ND(32)	ND(35)	ND(49)	ND(38)	ND(56)	ND(38)	2,500	2,500	2,500
C ₁₁ -C ₂₂ Aromatic Hydrocarbons	ND(32)	ND(36)	ND(32)	ND(35)	62	ND(38)	ND(56)	ND(38)	200	800	800
PAH by GC/MS-SIM by method 8270C											
Naphthalene	ND(0.012)	ND(0.014)	ND(0.012)	0.006j	0.010j	ND(0.018)	0.010j	ND(0.014)	4	40	500
2-Methylnaphthalene	ND(0.012)	ND(0.014)	ND(0.012)	ND(0.012)	ND(0.016)	ND(0.018)	ND(0.019)	ND(0.014)	4	500	500
Acenaphthylene	ND(0.012)	ND(0.014)	ND(0.012)	ND(0.012)	ND(0.016)	ND(0.018)	ND(0.019)	ND(0.014)	100	100	100
Acenaphthene	ND(0.012)	ND(0.014)	ND(0.012)	ND(0.012)	ND(0.016)	ND(0.018)	ND(0.019)	ND(0.014)	20	1,000	1,000
Fluorene	ND(0.012)	ND(0.014)	ND(0.012)	ND(0.012)	ND(0.016)	ND(0.018)	ND(0.019)	ND(0.014)	400	1,000	1,000
Phenanthrene	ND(0.012)	ND(0.014)	ND(0.012)	ND(0.012)	0.012j	ND(0.018)	ND(0.019)	ND(0.014)	700	1,000	100
Anthracene	ND(0.012)	ND(0.014)	ND(0.012)	ND(0.012)	ND(0.016)	ND(0.018)	ND(0.019)	ND(0.014)	1,000	1,000	1,000
Fluoranthene	0.011	ND(0.014)	ND(0.012)	ND(0.012)	0.031	ND(0.018)	0.015j	ND(0.014)	1,000	1,000	1,000
Pyrene	0.009j	ND(0.014)	ND(0.012)	ND(0.012)	0.033	ND(0.018)	0.017j	ND(0.014)	1,000	1,000	1,000
Benzo(a)anthracene	ND(0.012)	ND(0.014)	ND(0.012)	ND(0.012)	0.016	ND(0.018)	ND(0.019)	ND(0.014)	7	7	7
Chrysene	ND(0.012)	ND(0.014)	ND(0.012)	ND(0.012)	0.090	ND(0.018)	ND(0.019)	ND(0.014)	7	7	7
Benzo(b)fluoranthene	ND(0.012)	ND(0.014)	ND(0.012)	ND(0.012)	0.049	ND(0.018)	ND(0.019)	ND(0.014)	7	7	7
Benzo(k)fluoranthene	ND(0.012)	ND(0.014)	ND(0.012)	ND(0.012)	0.009j	ND(0.018)	ND(0.019)	ND(0.014)	70	70	70
Benzo(a)pyrene	ND(0.012)	ND(0.014)	ND(0.012)	ND(0.012)	0.066	ND(0.018)	ND(0.019)	ND(0.014)	2	2	2
Indeno(1,2,3-c,d)pyrene	0.008j	ND(0.014)	ND(0.012)	ND(0.012)	0.034	ND(0.018)	0.016j	ND(0.014)	7	7	7
Dibenzo(a,h)anthracene	ND(0.012)	ND(0.014)	ND(0.012)	ND(0.012)	0.031	ND(0.018)	0.021	ND(0.014)	0.7	0.7	0.7
Benzo(g,h,i)perylene	ND(0.012)	ND(0.014)	ND(0.012)	ND(0.012)	0.042	ND(0.018)	ND(0.019)	ND(0.014)	1,000	1,000	1,000

NOTES:

1. Results in mg/Kg (milligrams per kilogram).
2. EPH: Extractable Petroleum Hydrocarbons.
3. ND(x): Constituent not detected at practical quantitation limits (PQL) noted in parentheses.
4. PAH by GC/MS-SIM: Polynuclear Aromatic Hydrocarbon analysis by Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring.
5. j: Estimated concentration/ detected below standard laboratory reporting limits.
6. MCP: Massachusetts Contingency Plan.
7. NA: Not Applicable.
8. Bold values exceed laboratory practical quantitation limit.
9. Highlighted values exceed applicable standards.
10. ER-L: Effects Range Low (Long and Morgan 1991).



Legend

- W2A-10
- Segment Break

0 5 10 Miles



Figure 1
 Segment Location W2A-10
 Bouchard B No. 120 Oil Spill
 Buzzards Bay, MA



ENTRIX
ENVIRONMENTAL CONSULTANTS

Figure 2
RAO Segment Boundary
W2A-10
Long Island and Causeway South
Bouchard B No. 120 Oil Spill
Buzzards Bay, MA



2,500 Feet

1,250

625

0





SOURCE:

MASSACHUSETTS GEOGRAPHIC
INFORMATION SYSTEMS (MASSGIS)

2001 AERIAL PHOTOGRAPH

NORTH

PROJECT:
B120 OIL SPILL
BUZZARDS BAY, MASSACHUSETTS

LOCATION:
LONG ISLAND (HOPPY'S LANDING)
FAIRHAVEN, MASSACHUSETTS

TITLE:

PHASE IV CLEANUP ACTIVITIES - W2A-10

DESIGNED:	DRAWN:	CHECKED:	APPROVED:
KEZ	KDT	KDT	MJW

SCALE:	DATE:	FILE NO.:	PROJECT NO.:	FIGURE NO.:
AS SHOWN	5/10/07	3871-OILING	3871-002	



GeoInsight®

Environmental Strategy & Engineering
Practical in Nature



GOULART MEMORIAL DRIVE

**APPROXIMATE
LOCATION OF ROCKS
WITH RESIDUAL OIL
SPLATTER**

LEGEND:

TRENCH
(APPROXIMATE LOCATION)

NORTH

SOURCE:

MASSACHUSETTS GEOGRAPHIC
INFORMATION SYSTEMS (MASSGIS)

2001 AERIAL PHOTOGRAPH

PROJECT:

B120 OIL SPILL

LOCATION:

SHORELINE SEGMENT W2A-
10MFAIRHAVEN MASSACHUSETTS

TITLE:

LOCATION OF OCTOBER 12, 2007 FIELD
INSPECTION AREA

DESIGNED:

KDT

DRAWN:

KDT

CHECKED:

KDT

APPROVED:

MJW

SCALE:

AS SHOWN

DATE:

10/24/07

FILE NO.:

F3-OCT12RECON

PROJECT NO.:

3871-002



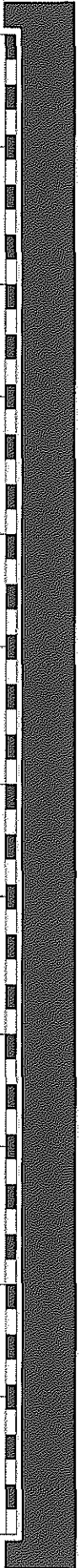
GeoInsight®

Environmental Strategy & Engineering

Practical in Nature

FIGURE NO.:

4



APPENDIX A
BUREAU OF WASTE SITE CLEANUP (BWSC) TRANSMITTAL FORMS
BWSC104 AND BWSC108



RESPONSE ACTION OUTCOME (RAO) STATEMENT
Pursuant to 310 CMR 40.1000 (Subpart J)

Release Tracking Number
4 - 17786

For sites with multiple RTNs, enter the Primary RTN above.

A. SITE LOCATION:

1. Site Name/Location Aid: Barge B120 Spill

2. Street Address: N/A

3. City/Town: Buzzards Bay 4. ZIP Code: N/A

5. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site.

a. Tier IA b. Tier IB c. Tier IC d. Tier II

6. If a Tier I Permit has been issued, provide Permit Number: W050019

B. THIS FORM IS BEING USED TO: (check all that apply)

1. List Submittal Date of RAO Statement (if previously submitted): 08/03/2006
mm/dd/yyyy

2. Submit a **Response Action Outcome (RAO) Statement**

a. Check here if this RAO Statement covers additional Release Tracking Numbers (RTNs). RTNs that have been previously linked to a Tier Classified Primary RTN do not need to be listed here.

b. Provide additional Release Tracking Number(s) covered by this RAO Statement. - -

3. Submit a **Revised Response Action Outcome Statement**

a. Check here if this Revised RAO Statement covers additional Release Tracking Numbers (RTNs), not listed on the RAO Statement or previously submitted Revised RAO Statements. RTNs that have been previously linked to a Tier Classified Primary RTN do not need to be listed here.

b. Provide additional Release Tracking Number(s) covered by this RAO Statement. - -

4. Submit a **Response Action Outcome Partial (RAO-P) Statement**

Check above box, if any Response Actions remain to be taken to address conditions associated with this disposal site having the Primary RTN listed in the header section of this transmittal form. This RAO Statement will record only an RAO-Partial Statement for that RTN. A final RAO Statement will need to be submitted that references all RAO-Partial Statements and, if applicable, covers any remaining conditions not covered by the RAO-Partial Statements.

Also, specify if you are an Eligible Person or Tenant pursuant to M.G.L. c. 21E s.2, and have no further obligation to conduct response actions on the remaining portion(s) of the disposal site:

a. Eligible Person b. Eligible Tenant

5. Submit an optional **Phase I Completion Statement** supporting an RAO Statement

6. Submit a **Periodic Review Opinion** evaluating the status of a **Temporary Solution** for a Class C-1 RAO Statement, as specified in 310 CMR 40.1051 (Section F is optional)

7. Submit a **Retraction** of a previously submitted **Response Action Outcome Statement** (Sections E & F are not required)

(All sections of this transmittal form must be filled out unless otherwise noted above)



RESPONSE ACTION OUTCOME (RAO) STATEMENT

Release Tracking Number

Pursuant to 310 CMR 40.1000 (Subpart J)

4 - 17786

C. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply; for volumes, list cumulative amounts)

- 1. Assessment and/or Monitoring Only
- 3. Deployment of Absorbent or Containment Materials
- 5. Structure Venting System
- 7. Product or NAPL Recovery
- 9. Groundwater Treatment Systems
- 11. Bioremediation
- 13. Monitored Natural Attenuation
- 15. Removal of Contaminated Soils
- 2. Temporary Covers or Caps
- 4. Treatment of Water Supplies
- 6. Engineered Barrier
- 8. Fencing and Sign Posting
- 10. Soil Vapor Extraction
- 12. Air Sparging
- 14. In-situ Chemical Oxidation

- a. Re-use, Recycling or Treatment
 - i. On Site Estimated volume in cubic yards _____
 - ii. Off Site Estimated volume in cubic yards See Attached

ii.a. Facility Name: _____ Town: _____ State: _____

ii.b. Facility Name: _____ Town: _____ State: _____

iii. Describe: _____

- b. Landfill
 - i. Cover Estimated volume in cubic yards _____

Facility Name: _____ Town: _____ State: _____

- ii. Disposal Estimated volume in cubic yards _____

Facility Name: _____ Town: _____ State: _____

- 16. Removal of Drums, Tanks or Containers:

a. Describe Quantity and Amount: _____

b. Facility Name: _____ Town: _____ State: _____

c. Facility Name: _____ Town: _____ State: _____

- 17. Removal of Other Contaminated Media:

a. Specify Type and Volume: _____

b. Facility Name: _____ Town: _____ State: _____

c. Facility Name: _____ Town: _____ State: _____



RESPONSE ACTION OUTCOME (RAO) STATEMENT

Release Tracking Number

Pursuant to 310 CMR 40.1000 (Subpart J)

4 - 17786

C. DESCRIPTION OF RESPONSE ACTIONS (cont.): (check all that apply; for volumes, list cumulative amounts)

18. Other Response Actions:

Describe: _____

19. Use of Innovative Technologies:

Describe: _____

D. SITE USE:

1. Are the response actions that are the subject of this submittal associated with the *redevelopment, reuse* or the *major expansion of the current use* of property(ies) impacted by the presence of oil and/or hazardous materials?

a. Yes b. No c. Don't know

2. Is the property a *vacant or under-utilized commercial or industrial property* ("a brownfield property")?

a. Yes b. No c. Don't know

3. Will funds from a state or federal brownfield incentive program be used on one or more of the property(ies) within the disposal site?

a. Yes b. No c. Don't know If Yes, identify program(s): _____

4. Has a Covenant Not to Sue been obtained or sought?

a. Yes b. No c. Don't know

5. Check all applicable categories that apply to the person making this submittal: a. Redevelopment Agency or Authority

b. Community Development Corporation c. Economic Development and Industrial Corporation

d. Private Developer e. Fiduciary f. Secured Lender g. Municipality

h. Potential Buyer (non-owner) i. Other, describe: _____

This data will be used by MassDEP for information purposes only, and does not represent or create any legal commitment, obligation or liability on the part of the party or person providing this data to MassDEP.

E. RESPONSE ACTION OUTCOME CLASS:

Specify the Class of Response Action Outcome that applies to the disposal site, or site of the Threat of Release. Select **ONLY** one Class.

1. Class A-1 RAO: Specify one of the following:

a. Contamination has been reduced to background levels. b. A Threat of Release has been eliminated.

2. Class A-2 RAO: You **MUST** provide justification that reducing contamination to or approaching background levels is infeasible.

3. Class A-3 RAO: You **MUST** provide an implemented Activity and Use Limitation (AUL) and justification that reducing contamination to or approaching background levels is infeasible.

4. Class A-4 RAO: You **MUST** provide an implemented AUL, justification that reducing contamination to or approaching background levels is infeasible, and justification that reducing contamination to less than Upper Concentration Limits (UCLs) 15 feet below ground surface or below an Engineered Barrier is infeasible. If the Permanent Solution relies upon an Engineered Barrier, you must provide or have previously provided a Phase III Remedial Action Plan that justifies the selection of the Engineered Barrier.



RESPONSE ACTION OUTCOME (RAO) STATEMENT

Release Tracking Number

Pursuant to 310 CMR 40.1000 (Subpart J)

4 - 17786

E. RESPONSE ACTION OUTCOME CLASS (cont.):

- 5. Class B-1 RAO: Specify one of the following:
 - a. Contamination is consistent with background levels
 - b. Contamination is **NOT** consistent with background levels.
- 6. Class B-2 RAO: You **MUST** provide an implemented AUL.
- 7. Class B-3 RAO: You **MUST** provide an implemented AUL and justification that reducing contamination to less than Upper Concentration Limits (UCLs) 15 feet below ground surface is infeasible.
- 8. Class C-1 RAO: You must submit a plan as specified at 310 CMR 40.0861(2)(h). Indicate type of ongoing response actions.
 - a. Active Remedial System
 - b. Active Remedial Monitoring Program
 - c. None
 - d. Other Specify: _____
- 9. Class C-2 RAO: You must hold a valid Tier I Permit or Tier II Classification to continue response actions toward a Permanent Solution.

F. RESPONSE ACTION OUTCOME INFORMATION:

1. Specify the Risk Characterization Method(s) used to achieve the RAO described above:
 - a. Method 1
 - b. Method 2
 - c. Method 3
 - d. Method Not Applicable-Contamination reduced to or consistent with background, or Threat of Release abated
2. Specify all Soil Category(ies) applicable. More than one Soil Category may apply at a Site. Be sure to check off all **APPLICABLE** categories:
 - a. S-1/GW-1
 - d. S-2/GW-1
 - g. S-3/GW-1
 - b. S-1/GW-2
 - e. S-2/GW-2
 - h. S-3/GW-2
 - c. S-1/GW-3
 - f. S-2/GW-3
 - i. S-3/GW-3
3. Specify all Groundwater Category(ies) impacted. A site may impact more than one Groundwater Category. Be sure to check off all **IMPACTED** categories:
 - a. GW-1
 - b. GW-2
 - c. GW-3
 - d. No Groundwater Impacted
4. Specify remediation conducted:
 - a. Check here if soil remediation was conducted.
 - b. Check here if groundwater remediation was conducted.
5. Specify whether the analytical data used to support the Response Action Outcome was generated pursuant to the Department's Compendium of Analytical Methods (CAM) and 310 CMR 40.1056:
 - a. CAM used to support all analytical data.
 - b. CAM used to support some of the analytical data.
 - c. CAM not used.
6. Check here to certify that the Class A, B or C Response Action Outcome includes a Data Usability Assessment and Data Representativeness Evaluation pursuant to 310 CMR 40.1056.
7. Estimate the number of acres this RAO Statement applies to: 5



Massachusetts Department of Environmental Protection

Bureau of Waste Site Cleanup

BWSC104

RESPONSE ACTION OUTCOME (RAO) STATEMENT

Release Tracking Number

4 - 17786

Pursuant to 310 CMR 40.1000 (Subpart J)

G. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B indicates that either an RAO Statement, Phase I Completion Statement and/or Periodic Review Opinion is being provided, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 5463

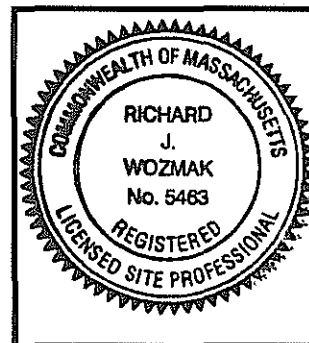
2. First Name: Richard 3. Last Name: Wozmak

4. Telephone: (603) 437-8227 5. Ext.: 6. FAX: (603) 437-0500

7. Signature: [Handwritten Signature]

8. Date: 4-25-08 mm/dd/yyyy

9. LSP Stamp:



H. PERSON MAKING SUBMITTAL:

1. Check all that apply: [] a. change in contact name [] b. change of address [] c. change in the person undertaking response actions

2. Name of Organization: Bouchard Transportation Company, Inc

3. Contact First Name: W. Lawrence 4. Last Name: Lopez

5. Street: 58 South Service Road, Suite 150 6. Title: Risk Manager

7. City/Town: Melville 8. State: NY 9. ZIP Code: 11747

10. Telephone: (516) 681-4900 11. Ext.: 12. FAX:



RESPONSE ACTION OUTCOME (RAO) STATEMENT

Release Tracking Number

Pursuant to 310 CMR 40.1000 (Subpart J)

4 - 17786

I. RELATIONSHIP TO RELEASE OR THREAT OF RELEASE OF PERSON MAKING SUBMITTAL:

- 1. RP or PRP a. Owner b. Operator c. Generator d. Transporter
- e. Other RP or PRP Specify: _____

2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

4. Any Other Person Making Submittal Specify Relationship: _____

J. REQUIRED ATTACHMENT AND SUBMITTALS:

1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

2. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of an RAO Statement that relies on the public way/rail right-of-way exemption from the requirements of an AUL.

3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of a RAO Statement with instructions on how to obtain a full copy of the report.

4. Check here to certify that documentation is attached specifying the location of the Site, or the location and boundaries of the Disposal Site subject to this RAO Statement. If submitting an RAO Statement for a PORTION of a Disposal Site, you must document the location and boundaries for both the portion subject to this submittal and, to the extent defined, the entire Disposal Site.

5. Check here to certify that, pursuant to 310 CMR 40.1406, notice was provided to the owner(s) of each property within the disposal site boundaries, or notice was not required because the disposal site boundaries are limited to property owned by the party conducting response actions. (check all that apply)

a. Notice was provided prior to, or concurrent with the submittal of a Phase II Completion Statement to the Department.

b. Notice was provided prior to, or concurrent with the submittal of this RAO Statement to the Department.

c. Notice not required. d. Total number of property owners notified, if applicable: 25

6. Check here if required to submit one or more AULs. You must submit an AUL Transmittal Form (BWSC113) and a copy of each implemented AUL related to this RAO Statement. Specify the type of AUL(s) below: (required for Class A-3, A-4, B-2, B-3 RAO Statements)

a. Notice of Activity and Use Limitation b. Number of Notices submitted: _____

c. Grant of Environmental Restriction d. Number of Grants submitted: _____

7. If an RAO Compliance Fee is required for any of the RTNs listed on this transmittal form, check here to certify that an RAO Compliance Fee was submitted to DEP, P. O. Box 4062, Boston, MA 02211.

8. Check here if any non-updatable information provided on this form is incorrect, e.g. Site Address/Location Aid. Send corrections to the DEP Regional Office.

9. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



RESPONSE ACTION OUTCOME (RAO) STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

Release Tracking Number

4 - 17786

K. CERTIFICATION OF PERSON MAKING SUBMITTAL:

1. I, Richard Wozmak, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By:  Signature 3. Title: Licensed Site Professional

4. For: Agent for Bouchard Transportation Co., Inc. 5. Date: 4-25-08
(Name of person or entity recorded in Section H) mm/dd/yyyy

6. Check here if the address of the person providing certification is different from address recorded in Section H.

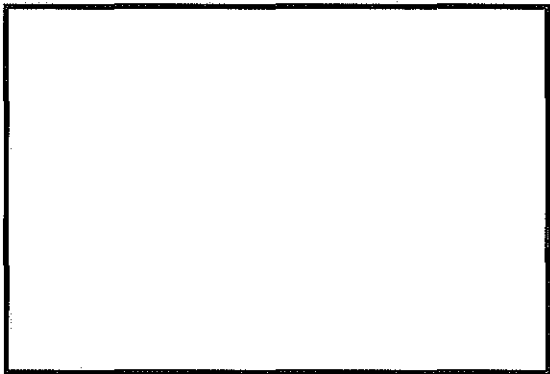
7. Street: _____

8. City/Town: _____ 9. State: _____ 10. ZIP Code: _____

11. Telephone: _____ 12. Ext.: _____ 13. FAX: _____

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY:)



Supplement to BWSC104
 Barge B120 Release
 Buzzards Bay, Massachusetts
 4-17786

Section C – Description of Response Actions

15. a. Re-Use, Recycling or Treatment

The following volume of oiled stone and sediment was removed during Unified Command cleanup operations and sent off-site to the following facilities for recycling or treatment:

Estimated Volume (yds³)	Estimated Weight (tons)	Facility Name	Town	State
220	330.71	Environmental Soil Management, Inc.	Loudon	NH
143	215.82	Aggregate Recycling Corp.	Eliot	ME
1,219	1,829.08	Aggregate Industries	South Dennis	MA

17. Removal of Other Contaminated Media

The following amount of miscellaneous material, including oiled absorbent material and spent personal protective equipment, was removed during Unified Command cleanup operations and sent off-site to the following facility for treatment:

Estimated Weight (tons)	Facility Name	Town	State
2,965.68	SE MASS	Rochester	MA

The following amount of miscellaneous material (including oiled absorbent material and spent personal protective equipment) as well as oiled stone and sediment was removed during Phase IV cleanup operations conducted under the MCP and sent off-site to the following facility for treatment:

Estimated Weight (tons)	Facility Name	Town	State
7.66	Covanta Haverhill, Inc.	Haverhill	MA

The following amount of miscellaneous material (including oiled absorbent material and spent personal protective equipment) as well as oiled stone and sediment was removed during Immediate Response Action (IRA) cleanup operations conducted under the MCP and sent off-site to the following facility for treatment:

Estimated Weight (tons)	Facility Name	Town	State
15.73	SE MASS	Rochester	MA

Section J – Required Attachments and Submittals

1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

Massachusetts Department of Environmental Protection Orders, Permits, and/or Approvals:

- September 8, 2003 Request for IRA with Interim Deadlines;
- July 27, 2004 Decision to Grant Permit;
- January 18, 2006 Phase II Scope of Work Conditional Approval/Interim Deadline;
- June 27, 2006 Phase II SOW Addendum Approval.



**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
FORM & PHASE I COMPLETION STATEMENT**

Release Tracking Number

4 - 17786

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

A. SITE LOCATION:

- 1. Site Name: Barge B120 Spill
- 2. Street Address: N/A
- 3. City/Town: Buzzards Bay 4. ZIP Code: N/A
- 5. UTM Coordinates: a. UTM N: _____ b. UTM E: _____
- 6. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site.
 - a. Tier IA b. Tier IB c. Tier IC d. Tier II
- 7. If applicable, provide the Permit Number: W050019

B. THIS FORM IS BEING USED TO: (check all that apply)

- 1. Submit a **Phase I Completion Statement**, pursuant to 310 CMR 40.0484.
 - 2. Submit a **Revised Phase I Completion Statement**, pursuant to 310 CMR 40.0484.
 - 3. Submit a **Phase II Scope of Work**, pursuant to 310 CMR 40.0834.
 - 4. Submit an **interim Phase II Report**. This report does not satisfy the response action deadline requirements in 310 CMR 40.0500.
 - 5. Submit a **final Phase II Report and Completion Statement**, pursuant to 310 CMR 40.0836.
 - 6. Submit a **Revised Phase II Report and Completion Statement**, pursuant to 310 CMR 40.0836.
 - 7. Submit a **Phase III Remedial Action Plan and Completion Statement**, pursuant to 310 CMR 40.0862.
 - 8. Submit a **Revised Phase III Remedial Action Plan and Completion Statement**, pursuant to 310 CMR 40.0862.
 - 9. Submit a **Phase IV Remedy Implementation Plan**, pursuant to 310 CMR 40.0874.
 - 10. Submit a **Modified Phase IV Remedy Implementation Plan**, pursuant to 310 CMR 40.0874.
 - 11. Submit an **As-Built Construction Report**, pursuant to 310 CMR 40.0875.
 - 12. Submit a **Phase IV Status Report**, pursuant to 310 CMR 40.0877.
 - 13. Submit a **Phase IV Completion Statement**, pursuant to 310 CMR 40.0878 and 40.0879.
- Specify the outcome of Phase IV activities: (check one)
- a. Phase V Operation, Maintenance or Monitoring of the Comprehensive Remedial Action is necessary to achieve a Response Action Outcome.
 - b. The requirements of a Class A Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.
 - c. The requirements of a Class C Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.
 - d. The requirements of a Class C Response Action Outcome have been met. Further Operation, Maintenance or Monitoring of the remedial action is necessary to ensure that conditions are maintained and that further progress is made toward a Permanent Solution. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

(All sections of this transmittal form must be filled out unless otherwise noted above)



**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
FORM & PHASE I COMPLETION STATEMENT**

Release Tracking Number

4 - 17786

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

B. THIS FORM IS BEING USED TO (cont.): (check all that apply)

14. Submit a **Revised Phase IV Completion Statement**, pursuant to 310 CMR 40.0878 and 40.0879.

15. Submit a **Phase V Status Report**, pursuant to 310 CMR 40.0892.

16. Submit a **Remedial Monitoring Report**. (This report can only be submitted through eDEP.)

a. Type of Report: (check one) i. Initial Report ii. Interim Report iii. Final Report

b. Frequency of Submittal: (check all that apply)

i. A Remedial Monitoring Report(s) submitted monthly to address an Imminent Hazard.

ii. A Remedial Monitoring Report(s) submitted monthly to address a Condition of Substantial Release Migration.

iii. A Remedial Monitoring Report(s) submitted concurrent with a Status Report.

c. Status of Site: (check one) i. Phase V ii. Remedy Operation Status iii. Class C RAO

d. Number of Remedial Systems and/or Monitoring Programs: _____

A separate BWSC108A, CRA Remedial Monitoring Report, must be filled out for each Remedial System and/or Monitoring Program addressed by this transmittal form.

17. Submit a **Remedy Operation Status**, pursuant to 310 CMR 40.0893.

18. Submit a **Status Report to maintain a Remedy Operation Status**, pursuant to 310 CMR 40.0893(2).

19. Submit a **Modification of a Remedy Operation Status**, pursuant to 310 CMR 40.0893(5).

20. Submit a **Termination of a Remedy Operation Status**, pursuant to 310 CMR 40.0893(6).

21. Submit a **Phase V Completion Statement**, pursuant to 310 CMR 40.0894.

Specify the outcome of Phase V activities: (check one)

a. The requirements of a Class A Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement (BWSC104) will be submitted to DEP.

b. The requirements of a Class C Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

c. The requirements of a Class C Response Action Outcome have been met. Further Operation, Maintenance or Monitoring of the remedial action is necessary to ensure that conditions are maintained and/or that further progress is made toward a Permanent Solution. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

22. Submit a **Revised Phase V Completion Statement**, pursuant to 310 CMR 40.0894.

23. Submit a **Post-Class C Response Action Outcome Status Report**, pursuant to 310 CMR 40.0898.

(All sections of this transmittal form must be filled out unless otherwise noted above)



COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
FORM & PHASE I COMPLETION STATEMENT

Release Tracking Number

4 - 17786

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

C. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B indicates that a Phase I, Phase II, Phase III, Phase IV or Phase V Completion Statement is being submitted, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B indicates that a Phase II Scope of Work or a Phase IV Remedy Implementation Plan is being submitted, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B indicates that an As-Built Construction Report, a Remedy Operation Status, a Phase IV, Phase V or Post-Class C RAO Status Report, a Status Report to Maintain a Remedy Operation Status and/or a Remedial Monitoring Report is being submitted, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 5463

2. First Name: Richard

3. Last Name: Wozmak

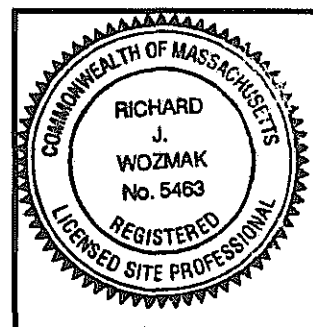
4. Telephone: (603) 421-2777

5. Ext.: 6. FAX: (603) 421-9880

7. Signature:

8. Date: 4-25-08
(mm/dd/yyyy)

9. LSP Stamp:





COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
FORM & PHASE I COMPLETION STATEMENT

Release Tracking Number

4 - 17786

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

D. PERSON UNDERTAKING RESPONSE ACTIONS:

1. Check all that apply: a. change in contact name b. change of address c. change in the person undertaking response actions

2. Name of Organization: Bouchard Transportation Co., Inc.

3. Contact First Name: W. Lawrence 4. Last Name: Lopez

5. Street: 58 South Service Road, Suite 150 6. Title: Risk Manager

7. City/Town: Melville 8. State: NY 9. ZIP Code: 11747

10. Telephone: (516) 681-4900 11. Ext.: _____ 12. FAX: _____

E. RELATIONSHIP TO SITE OF PERSON UNDERTAKING RESPONSE ACTIONS:

1. RP or PRP a. Owner b. Operator c. Generator d. Transporter

e. Other RP or PRP Specify: _____

2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

4. Any Other Person Undertaking Response Actions Specify Relationship: _____

F. REQUIRED ATTACHMENT AND SUBMITTALS:

1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

2. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of any Phase Reports to DEP.

3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase III Remedial Action Plan.

4. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase IV Remedy Implementation Plan.

5. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of any field work involving the implementation of a Phase IV Remedial Action.

6. If submitting a Modification of a Remedy Operation Status, check here to certify that a statement detailing the compliance history, as per 310 CMR 40.0893(5), for the person making this submittal is attached.

7. If submitting a Modification of a Remedy Operation Status, check here to certify that written consent of the person who submitted the Remedy Operation Status submittal, as per 310 CMR 40.0893(5), is attached.

8. Check here if any non-updatable information provided on this form is incorrect, e.g. Site Name. Send corrections to the DEP Regional Office.

9. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
FORM & PHASE I COMPLETION STATEMENT**

Release Tracking Number

4 - 17786

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

G. CERTIFICATION OF PERSON UNDERTAKING RESPONSE ACTIONS:

1. I, Richard Wozmak, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: *[Signature]* Signature 3. Title: Licensed Site Professional

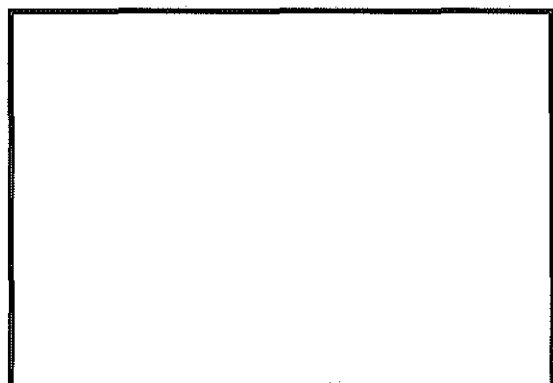
4. For: Agent for Bouchard Transportation Co., Inc. 5. Date: 4-25-08
(Name of person or entity recorded in Section D) (mm/dd/yyyy)

6. Check here if the address of the person providing certification is different from address recorded in Section D.

7. Street: _____
8. City/Town: _____ 9. State: _____ 10. ZIP Code: _____
11. Telephone: _____ 12. Ext.: _____ 13. FAX: _____

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY:)



Bouchard Transportation Co., Inc.

ATLANTIC COAST • LONG ISLAND SOUND
GREAT LAKES • GULF COAST

58 South Service Road, Suite 150
Melville, New York 11747
Tel.: (631) 390-4900
Fax: (631) 390-4905

January 29, 2004

Richard J. Wozmak
GeoInsight, Inc.
319 Littleton Road, Suite 105
Westford, MA 01886

RE: B120 Oil Release
RTN 4-17786
Buzzards Bay, Massachusetts

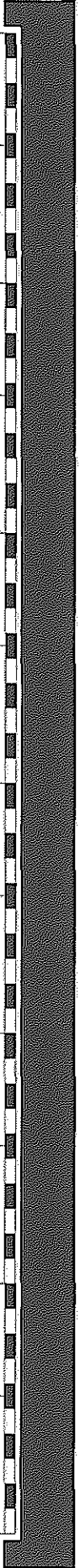
Dear Mr. Wozmak:

In accordance with 310 CMR 40.0009 (2), this letter is to serve as written authorization for you to act as an agent for Bouchard Transportation Company, Inc. for the purposes of making written declarations required under 301 CMR 40.0000. This authorization applies to written declarations for the release of oil from Bouchard Barge B120 on April 27, 2003 (release tracking number 4-17786).

Sincerely,



Victor P. Corso, Esq.
Risk Manager



APPENDIX B

PHASE IV PRE-CLEANUP AND POST-CLEANUP PHOTOGRAPHS

**PHASE IV PRE-CLEANUP AND POST-CLEANUP PHOTOGRAPHS
HOPPY'S LANDING
B120 RELEASE
BUZZARDS BAY, MASSACHUSETTS**



1. Pre-Cleanup: Residual oil pavement near marsh and rock.



2. Pre-Cleanup: Residual oil pavement on marsh surface.

**PHASE IV PRE-CLEANUP AND POST-CLEANUP PHOTOGRAPHS
HOPPY'S LANDING
B120 RELEASE
BUZZARDS BAY, MASSACHUSETTS**



3. Pre-Cleanup: Residual oil pavement on marsh surface.



4. Pre-Cleanup: Residual oil splatter on rock surfaces.

**PHASE IV PRE-CLEANUP AND POST-CLEANUP PHOTOGRAPHS
HOPPY'S LANDING
B120 RELEASE
BUZZARDS BAY, MASSACHUSETTS**



5. Pre-Cleanup: Residual oil pavement on marsh surface.



6. Pre-Cleanup: Residual oil on marsh surface.

**PHASE IV PRE-CLEANUP AND POST-CLEANUP PHOTOGRAPHS
HOPPY'S LANDING
B120 RELEASE
BUZZARDS BAY, MASSACHUSETTS**



7. Post-Cleanup: Residual oil on marsh surface (note shovel blade for scale).



8. Post-Cleanup: Oil sheen on shoreline surface (note shovel blade for scale).

**PHASE IV PRE-CLEANUP AND POST-CLEANUP PHOTOGRAPHS
HOPPY'S LANDING
B120 RELEASE
BUZZARDS BAY, MASSACHUSETTS**



9. Post-Cleanup: Marsh surface and tide pool.



10. Post-Cleanup: Sheen on underside of rock.

**PHASE IV PRE-CLEANUP AND POST-CLEANUP PHOTOGRAPHS
HOPPY'S LANDING
B120 RELEASE
BUZZARDS BAY, MASSACHUSETTS**



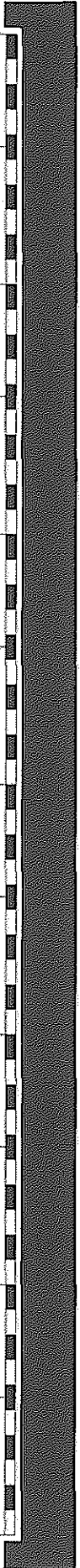
11. Post-Cleanup: Marsh surface and tide pool.



12. Post-Cleanup: Tide pool with faint sheen in upper left corner.



APPENDIX C
MADEP LETTER AND MEMORANDA





COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
20 RIVERSIDE DRIVE, LAKEVILLE, MA 02347 508-946-2700

MITT ROMMNEY
Governor

KERRY HEALEY
Lieutenant Governor

STEPHEN R. PRITCHARD
Secretary

ROBERT W. GOLLEDGE, Jr.
Commissioner

June 27, 2006

Mr. W. Lawrence Lopez, Risk Manager
Bouchard Transportation Company, Inc.
58 South Service Road, Suite 150
Melville, New York 11747

RE: BOURNE –BWSC
Buzzards Bay, B-120 Oil Spill
Phase II SOW Addendum
RTN 4-17786

Dear Mr. Lopez:

On March 31, 2006, the Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup (MassDEP) received a letter report titled "Response to MADEP Comments – letter dated January 18 2006, Phase II Scope of Work Conditional Approval/Interim Deadline, Barge B120 Oil Spill – Buzzards Bay, Massachusetts, RTN 4-17786, EnviroSense Project Number –7567-05/001" dated March 31, 2006 and prepared by Richard J. Wozmak of EnviroSense, the LSP of record for the site. The letter serves as an Addendum to the Phase II Comprehensive Site Assessment Scope of Work (the Phase II Scope of Work Addendum) and provides additional information required by MassDEP regarding the determination of background, local conditions and the completion of an ecological risk assessment for the 63 remaining shoreline segments.

EnviroSense proposed that risk characterization for the 63 remaining shoreline segments follow an iterative process. Specifically, data associated with the shoreline segments will be evaluated to determine whether or not polycyclic aromatic hydrocarbons (PAHs) have been detected or are present in potentially impacted media (i.e., surface water, sediments, etc.) above applicable detection limits. If PAHs have not been detected in environmental media, and there's no evidence of stressed vegetation, sheens, and residual oil, EnviroSense will conclude a level of "No Significant Risk" has been achieved at those respective shoreline segments.

However, if detectable levels of PAHs exist in the environment, a Stage I Environmental Screening will be conducted for those shoreline segments pursuant to 310 CMR 40.0995, and all applicable federal, state and local laws, regulations, guidelines and policies. A level of "No Significant Risk" will be concluded for those segments where PAHs do not exceed applicable benchmarks, and residual oil does not present/pose adverse physical effects. If detectable levels of PAHs exist at shoreline segments above applicable Stage I Screening benchmarks, an evaluation of local conditions will be conducted to determine whether or not the PAHs that exist are associated with the release from Bouchard Barge B-120, or if they are associated with pyrogenic sources. EnviroSense will conclude a level of "No Significant Risk" has been achieved for those segments where PAHs exceed applicable Stage I Screening benchmarks and are consistent with local conditions. A Stage II Environmental Risk Characterization pursuant to 310 CMR 40.0995(4) and all applicable federal, state, and local regulations, policies and guidelines will be conducted for the remaining shoreline segments.

This information is available in alternate format by calling Donald Gomes our ADA Coordinator at (617) 556-1057.

MassDEP on the World Wide Web: <http://www.magnet.state.ma.us/dep>

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The Department approves the Phase II Scope of Work Addendum with the following conditions:

1. A Phase II Comprehensive Site Assessment Report (the Phase II Report) prepared in strict conformance with 310 CMR 40.0835 that addresses the nature and extent of both residual oil and the potential presence of oil constituents including PAHs in all potentially impacted environmental media is submitted to MassDEP pursuant to 310 CMR 40.0550(2)(b).
2. A Risk Characterization report that addresses the risk of harm to public welfare and the environment is submitted to MassDEP with the Phase II Report. The Risk Characterization shall be completed in strict conformance with the 310 CMR 40.0900, and all applicable federal, state and local regulations, polices, guidelines and technical guidance documents/updates. The risk of harm to public welfare and the environment should evaluate current and future conditions pursuant to 310 CMR 40.0000, and address potential exposures to free product as well as the components of oil including PAHs.

A copy of the Memorandum titled “Risk Characterization Requirements for Five Locations on Buzzards Bay Impacted by the Bouchard Oil Spill In Mattapoisett, Fairhaven, and Dartmouth, Massachusetts” and prepared by the Office of Research and Standards has been attached for your information and consideration in the preparation of the Risk Assessment.

Regarding your request for a 45 day extension of the July 27, 2006 deadline for submission of the Phase II CSA Report and Phase III Remedial Action Plan submission of this report is established by 310 CMR 40.0550 (2) (b). MassDEP policy is that extension of a regulatory deadline of this type can only be accomplished by issuance of an order or by agreement in writing via administrative consent order.

All inquiries regarding the contents of this letter should be directed to Laura Stanley at the letterhead address or at (508) 946-2880. All future communication regarding this matter must reference Release Tracking Number: **4-17786**.

Very truly yours,

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

Richard F. Packard, Chief
Emergency Response/
Release Notification Section

RP/re

BuzzardsBaySpill/4-17786PhaseIIEcologicalScopeofWork.doc

Attachment – ORS Memorandum

fc: Richard Wozmak, LSP, EnviroSense, Inc., (603) 437-0500

ec: Kevin Trainer, LSP, Geo-Insight, Inc., kdtrainer@geoinc.com

DEP-BOSTON- Nancy Bettinger, Office of Research and Standards
DEP-SERO - Millie Garcia-Surette, Deputy Regional Director, BWSC

Data Entry



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

MITT ROMNEY
Governor

KERRY HEALEY
Lieutenant Governor

STEPHEN R. PRITCHARD
Secretary

ROBERT W. GOLLEDGE, Jr.
Commissioner

MEMORANDUM

To: Richard Packard, Section Chief, Emergency Response/SERO
Through: Carol Rowan West, Director, ORS
From: Nancy Bettinger, ORS
Date: April 6, 2006

Subject: Risk Characterization Requirements for
Five Locations on Buzzards Bay Impacted by the Bouchard Oil Spill
In Mattapoisett, Fairhaven and Dartmouth Massachusetts

Introduction

On April 27, 2003, a barge carrying oil (Barge Number B-120) owned by Bouchard Transportation, Inc. ran aground in the vicinity of Dartmouth, Massachusetts, releasing as much as 98,000 gallons of Number 6 oil into Buzzards Bay. Since that time, extensive cleanup has been done at numerous locations throughout Buzzards Bay. Chemical weathering and physical processes have also substantially diminished the extent of residual oil at most impacted locations. This memorandum summarizes current information available to ORS on environmental conditions at five Buzzards Bay beaches: Leisure Shores in Mattapoisett; Hoppy's Landing, Pope's Beach, and Harbor View Beach in Fairhaven; and Round Hill Beach in Dartmouth.

As requested, ORS has:

- Obtained guidance from BWSC on evaluating the risk of harm to public welfare posed by residual on beaches.
- Surveyed five Buzzards Bay beaches to assess the severity of residual oil remaining on the beaches in the inter-tidal zone to identify potential risks and additional human welfare and ecological risk assessment requirements related to the presence of visible product. The survey was conducted on March 15, 2006.
- Reviewed the summaries of chemical analysis of beach sand for residual PAHs from the oil spill.

In the section that follows, ORS recommends requiring additional submittals to complete the site assessment and risk characterization at five beaches on Buzzards Bay. Subsequent sections

This information is available in alternate format. Call Donald M. Gomes, ADA Coordinator at 617-556-1057. TDD Service - 1-800-298-2207.

MassDEP on the World Wide Web: <http://www.mass.gov/dep>

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discuss the determination of whether the Bouchard oil spill is the source of the PAHs detected at each beach, provide guidelines for evaluating welfare risk, and summarize field observations from the site survey of each beach.

Recommendations

ORS recommends requiring the submittal of additional reports to support and complete the risk characterizations for five beaches on Buzzards Bay:

1. A supplemental site assessment report should be submitted to update the assessment of the nature and extent of contamination, addressing both residual oil and the potential presence oil constituents, specifically PAHs.
2. An environmental risk characterization report addressing the risk of harm to public welfare and risk of harm to the environment at each beach location should be submitted to MassDEP. The evaluation of the risk of harm to the environment should address potential exposures to free product as well as toxic components of oil, specifically PAHs.

Chemical Analysis Results

Locations on Buzzard's Bay affected by the Bouchard oil spill have been sampled and analyzed extensively for PAHs. The most recent samples showed PAH concentrations above screening criteria at Pope's, Harbor View and Round Hill Beaches. The consultants have noted that the composition of the PAH mixtures found at those locations are not consistent with the composition of the B-120 oil, but rather they are indicative of a pyrogenic source. To date, however, a complete written justification for attributing the PAHs to pyrogenic sources has not been submitted to MassDEP.

PAHs that are attributable to pyrogenic sources would be considered background in accordance with the MCP and would not be subject to further assessment and/or cleanup requirements. To bring the question of the PAH source(s) to a close, ORS recommends that SERO require the submittal of a Site Assessment Addendum updating the characterization of nature and extent of contamination, as specified in item 1. in the preceding section. The report should present the data and analysis that forms the basis for attributing the detected PAHs to sources other than the oil spill.

Risk of Harm to Public Welfare: Assessment Guidance

MassDEP's Bureau of Waste Site Cleanup (BWSC) has provided the following guidelines for identifying conditions at beaches with residual oil contamination that pose a risk of harm to public welfare:

Significant Risk to Public Welfare exists if the presence of oil or hazardous materials at a disposal site significantly impedes or limits the public's ability or inclination to access, use, enjoy and/or benefit from the natural resources of the Commonwealth. Examples in this regard would include, without limitation:

- *visual and/or olfactory evidence of oil residuals that are likely to discourage the use of beaches, marshes, and related intertidal and subtidal areas that are otherwise accessible and available for public use;*
- *oil residuals that are likely to contact and adhere to persons engaged in recreational activities at beaches, marshes, and related intertidal and subtidal areas that are accessible and available for public use;*
- *oil residuals that are likely to adversely impact the economic interests of a region, by decreasing tourism, investment, development, and/or marine and fishery commerce.*

ORS believes these guidelines are applicable and appropriate for evaluating whether residual oil on any beach poses a significant risk of harm to public welfare. It is important to note that these guidelines clearly link risk of harm to welfare with the presence of oil or hazardous material. Based on this guidance and observations during the site survey, ORS offers an opinion about the existence of a risk of harm to public welfare for each of the five beaches in the following section. As is the case for evaluating the risk of harm to health and the environment under the MCP, the risk of harm to welfare is evaluated for current and future conditions, not past conditions.

Survey of Five Buzzards Bay Beaches

For each of the five beaches surveyed on March 15, 2006, a description of conditions is presented below, along with comments on the potential risk of harm to public welfare and to the environment from the presence of residual oil.

Hoppy's Landing in Fairhaven

Description of Residual Oil Contamination:

Oil contamination is visible as sporadic, small (approximate four square inch) patches, often present under rocks or on the inland side of rocks. Patches that I inspected closely appeared to be oil mixed with sand, rather than pure slicks. The oil is present in two areas, one just to the north of the beach rocks that were replaced, and one on the south side of the point. In both areas, the sporadic oil is present in a 10 – 15 foot strip of beach, parallel to the shore, in the rocky intertidal zone. The marsh habitat behind the beach at Hoppy's Landing is not extensive, and there does not appear to be significant harm to marsh habitat from oil contamination in this area.

During the time of the visit, the air was cold and the oil was not viscous as it was reported to be in the summer. Although it was easy to distinguish oil staining from algal mats once the difference was pointed out, in the cold weather it was very difficult to distinguish oil staining from algal staining on rocks. Nevertheless, much of the dark material in the area is clearly from algae, not oil.

The consultants noted that the amount of oil contamination in this location has diminished substantially since the summer, and that the beach appears to have been intensively scoured out by a hard storm earlier in the winter.

A representative of the Fairhaven Conservation Department (Shellfish Officer), Kevin Villa, joined us during our survey of Hoppy's Landing. He stated that the shellfish beds were closed owing to both microbial contamination and oil contamination. The consultants pointed out that the "closing due to oil" was because additional clean up activities were being considered for the shoreline, because no elevated concentrations of petroleum hydrocarbons had been detected in shellfish since 2003. Mr. Villa also mentioned that the captain of the only quahog dredging boat still operating in town reported finding "dead zones" along the dredging line (roughly parallel to the shore, about a half mile out). The term "dead zones" referred to the condition of the shellfish in those locations. Mr. Villa said that the boat operator had reported an unusually high frequency of dead quahogs in certain areas and had stated that the appearance of many of the shells differed from the appearance of shells of quahogs that die of natural causes (they were closed rather than open). Mr. Villa stated that the boat in question was being repaired, but when it is again operable, he plans to return to the same areas with the same boat captain to collect samples of sediment and quahogs for analysis.

Risk of Harm to Public Welfare:

In this writer's opinion, based on observations during the field survey and considering the public welfare risk evaluation guidance offered above, residual oil present on and near the point at Hoppy's Landing continues to pose a significant risk of harm to public welfare.

Risk of Harm to Wildlife:

Conditions at Hoppy's landing may pose a risk of harm to wildlife from direct contact with oil. The potential risk of harm to wildlife should be assessed in the Stage II Ecological Risk Characterization.

Pope's Beach in Fairhaven

Description of Residual Oil Contamination:

Oil contamination is visible as sporadic, small patches in a 10 – 15 foot strip parallel to the shore in the inter-tidal zone stretching from the access path southward almost to Boy's Creek. These discontinuous oil patches occur more frequently near the access path and less frequently toward the Boy's Creek end of the beach. There is substantial marsh habitat behind this beach. Most of the oil is within the fringing marsh area where marsh grass is evident. According to the consultant, no oiling has been detected in the back-beach marsh area.

The oil patches along the fringing marsh area of this segment have been described as "pavement" because it occurs in small flat plates and is hardened even during the summer.

As was noted for Hoppy's Landing, the oil contamination is noticeably less extensive than it was last summer.

Pieces of slag (which look like coal cinders) from an unknown source can be found throughout Pope's Beach, including the fringe marsh area. Most are fairly small, about 1 to 2 inches in diameter. It is possible that these cinders or their source could also be the source of some of the PAHs detected at beaches in this area.

Risk of Harm to Public Welfare:

In this writer's opinion, based on observations during the field survey and considering the public welfare risk evaluation guidance offered above, residual oil present on and near the point at Pope's Beach does not pose a significant risk of harm to public welfare.

Risk of Harm to Wildlife:

Conditions at Hoppy's landing may pose a risk of harm to wildlife from direct contact with oil. The potential risk of harm to wildlife should be assessed in the Stage II Ecological Risk Characterization.

Leisure Shores in Mattapoisset

Description of Residual Oil Contamination:

The only contamination attributed to the Bouchard release observed at Leisure Shores in the past year are black specks described as pepper-like flecks of hardened oil. In the past, these flecks have been observed floating on the water table when test holes were dug in the sand. When we visited the beach, the consultants dug about 10 small test pits in the sand at various locations to demonstrate the appearance of the flakes on the water table, but none was visible.

The reason for the presence of oil in the form of flecks previously observed at this location has not been identified, and may never be. One possible explanation is that oil contamination on nearby Brandt Island (which was heavily oiled initially) may have dried at the original location and later been worn away and been transported by wave action to Leisure Shores. In any case, these flecks were not observed during this visit to Leisure Shores. This beach appears to be clean.

Risk of Harm to Public Welfare:

At the time of the survey, no residual oil was observed, and conditions at this beach posed no significant risk of harm to welfare. Conditions should be monitored over time to determine whether the absence of material from the oil spill is temporary. If this beach remains free of the oil flecks observed in the past, it would be reasonable to conclude that a condition of no significant risk of harm to public welfare exists.

Risk of Harm to Wildlife

If this beach remains free from the oil flecks observed in the past, it would be reasonable to conclude that conditions at this beach pose no significant risk of harm to wildlife from direct contact with oil from the spill.

Harbor View Beach in Fairhaven

Description of Residual Oil Contamination:

Small patches of oil were observed in two locations, around two marsh hummocks located near each other, where somewhat larger amounts were observed in the past. According to the consultants, larger oil stains were previously observed around the sides and backs of the hummocks, but they have worn away, and only a fraction of the original oil contamination remains.

Coal and coal slag/cinders were observed in the intertidal zone of this segment. Otherwise, this beach appears to be clean.

Risk of Harm to Public Welfare

There is very little oil remaining on this beach. In the ORS' opinion, the small amount of residual oil remaining at this beach poses no significant risk of harm to public welfare.

Risk of Harm to Wildlife

In the ORS' opinion, the small amount of residual oil remaining on this beach poses no significant risk of harm to wildlife at Harbor View beach.

Round Hill Beach in Dartmouth

Description of the Residual Oil Contamination:

This location is near the grounding site, and it was originally contaminated with oil. The beach is almost pure sand with very few rocks, and the oil appears to have been washed away completely. This beach appears to be very clean.

Risk of Harm to Human Welfare:

There is no residual oil contamination at this beach, and therefore no significant risk of harm to human welfare.

Risk of Harm to Wildlife from Direct Exposure:

There is no residual oil contamination at this beach, and therefore no significant risk of harm to wildlife from direct contact exposure to oil.

Summary

Available information related to the risk of harm to human welfare and wildlife is summarized in the table that follows.

Potential for Significant Environmental and Welfare Risk from Residual B-120 Oil

Risk	Leisure Shores	Hoppy's Landing	Popes Beach	Harbor View Beach	Round Hill Beach
"No Significant Risk" of harm to human welfare demonstrated?	Yes ¹	No	Yes ⁴	Yes	Yes
"No Significant Risk" of harm to wildlife from direct contact with residual oil demonstrated?	Yes ¹	No ³	No ³	Yes	Yes
"No Significant Risk" of Harm to Wildlife from toxic effects of oil constituents (PAHs) demonstrated?	Yes	Yes	Yes ²	Yes ²	Yes ²

Table Notes:

¹ On the condition that the sand and shallow groundwater remain free from oil flecks observed in the past.

² On the condition that MassDEP concurs with the assertion that chemical analysis results demonstrate that the where PAH concentrations exceed screening criteria, the PAH mixtures are attributable primarily to non-B-120 pyrogenic sources.

³ Potential risk of harm to wildlife at both Hoppy's Landing and Pope's Beach should be evaluated and described in a Stage II ecological Risk Assessment Report. Residual oil at Hoppy's remains viscous, and is mainly present under and among rocks near the shoreline, while that at Pope's Beach is hardened and is present in the marsh grass. As a consequence, potential receptors and effects of concern may be different.

⁴ On the condition that, as has been asserted, the residual oil is hardened and not noticeable or accessible during the warmer months.

In summary:

- If the sand and groundwater at Leisure Shores remain free of oil flecks, it will be reasonable to conclude that a condition of "no significant risk" of harm exists at that location.
- If it is demonstrated that PAHs previously detected at Round Hill Beach and Harbor View Beach are attributable primarily to pyrogenic sources, it will be reasonable to conclude that a condition of "no significant risk" of harm exists at that location.
- If it is shown by a Stage II Environmental Risk Characterization that the residual oil contamination at Pope's Beach does not pose a risk of harm to wildlife, it may be reasonable to conclude that a condition of "no significant risk" of harm exists at that location.
- Considering the definition of Welfare Risk provided in an earlier section of this memorandum, the residual oil at Hoppy's Landing appears to pose a significant risk

of harm to welfare. The potential risk of harm to wildlife at Hoppy's Landing should be evaluated in a Stage II Risk Characterization.

Limitations

The conclusions and recommendations offered in this memorandum apply only to the five beaches mentioned, and they are based primarily upon information obtained at a March meeting with the consultants and one field survey of the five beaches in question. The opinions expressed here are valid only to the extent the information and data on which they are based is complete and representative.

If you have any questions about this memorandum, please feel free to contact me at (617)556-1159 or at nancy.bettinger@state.ma.us.

Memorandum

BY: John Fitzgerald, BWSC/NERO

DATE: August 29, 2007

SUBJECT: **FAIRHAVEN – HOPPY'S LANDING – Site Inspection**

On the above date, the writer conducted an inspection of Hoppy's Landing, accompanied by Rich Packard of BWSC/SERO, and LSPs Kevin Trainor and Rich Wozmak of Geolnsight, Inc. The purpose of this inspection was to evaluate site conditions, with respect to residual oil contamination from the (2003) B-120 oil spill. Previous work by Geolnsight had documented that a condition of No Significant Risk had been achieved at this location for human health, safety. At issue is whether residual oil could continue to constitute a significant risk to public welfare and whether occasional sheens constitute a significant risk to the environment.



Activities and Observations

The inspection was conducted between 1:00 PM and 2:30 PM, just before low tide, which was at 2:53 PM. The weather was sunny with temperatures in the mid 80's. The combination of tidal conditions and (summer) weather provided for "worst case" observational conditions, with respect to the appearance of sheens and tar balls.

The Area of Interest was visually evaluated. Tide pools were inspected for the presence of sheens; rocks were evaluated for the presence of oil/splotches, and sediment/marsh areas were investigated for the presence of tar balls. Smaller rocks were overturned; small holes were dug with a shovel; tidal pools were disturbed to promote the appearance of sheens.

In general, it was difficult to locate signs of the residual oil. At a few locations, after a concentrated effort, small sheens (perhaps the size of a quarter) was observed in tidal pools. Some rocks had small (quarter-size) blotches of oil, generally of a powdery nature. A few small tar ball areas were noted in terrestrial (low tide) sediment areas. None of these sheens/blotches/tar balls exhibited a petroleum odor, and the writer was only able to produce an oil film on his fingers (and white oil absorbent pad) at two locations (small blotches/tar balls), but only with vigorous rubbing.

Black algal mats and rocks are present at the site, unrelated to any oil spill. Vegetation appeared healthy, with most areas supporting marsh grasses. Many clams and crabs were identified in the tide pools. Even though it was a warm and sunny summer day, there were no visitors to the site, except for a few persons that had used the boat launch.

Findings and Recommendations

Remedial activities and dynamic coastal conditions have substantially reduced petroleum residuals at this location. Absent a concentrated and directed effort, remaining blotches and tar balls are visually indistinguishable from natural conditions, and are generally present as odorless, powdery materials which will not leave a film upon contact with fabric or skin.

Although a public area, the site is predominated by rocks and marsh grass, and is unlikely to support activities that would frequently lead to members of the public coming into contact with oil residuals (such as what might happen at a sandy beach, where children digging in the sand could contact tar balls).

On this basis, it is the opinion of the writer that site conditions do not constitute a significant risk to public welfare.



APPENDIX D
PHOTOGRAPHS FROM OCTOBER 12, 2007 FIELD INSPECTION

Photographs from October 12, 2007 Field Inspection
Shoreline Segment W2A-10
Fairhaven, Massachusetts



Trenches excavated along shoreline.



Piece of slag (not B120 oil) found on shoreline.

Photographs from October 12, 2007 Field Inspection
Shoreline Segment W2A-10
Fairhaven, Massachusetts



Piece of roadway pavement (not B120 oil) found on shoreline.



Reverse surface of roadway pavement noted above (note flat surface).

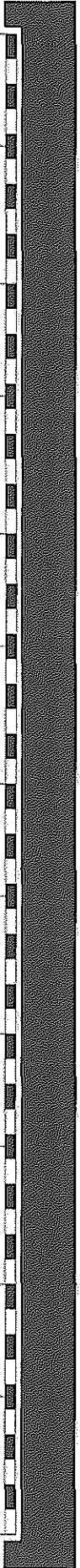
Photographs from October 12, 2007 Field Inspection
Shoreline Segment W2A-10
Fairhaven, Massachusetts



Residual oil splatter on rock.



Residual oil splatter on rock.



APPENDIX E
REMEDIATION WASTE DOCUMENTATION

COPY 4

COVANTA HAVERHILL

100 RECOVERY WAY, HAVERHILL, MA 01835

SOLD TO

COV13275 / TRIDENT ENVIRONMENTAL GROUP

SPECIAL INSTRUCTIONS

DRIVER

ON

OFF

TRUCK NO. NOF	VEHICLE VEHICLE NOT ON FILE	DATE 07/12/2007	TIME 11:51	TICKET NO. 1367694
CONTAINER NO.	CONTAINER	ZONE		

WEIGHMASTER

A. Z.

Material	Dest	Tipped	Exited	Yds	Gross	Tare	Net	Charges
SPECIAL WASTE	3	11:36	11:51		25.98	18.32	7.66	

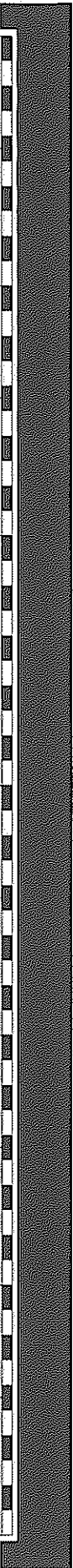
DRIVER

LeFarber

1367694



APPENDIX F
PUBLIC NOTIFICATION





Environmental Consultants

PUBLIC NOTIFICATION SUMMARY
PARTIAL CLASS A-2
RESPONSE ACTION OUTCOME STATEMENT

BARGE B120 SPILL
BUZZARDS BAY, MASSACHUSETTS
MassDEP RTN 4-17786

October 2008

EXECUTIVE SUMMARY

We are sending you this notice because property records show that you may own waterfront property in Fairhaven, Massachusetts on the south side of Long Island Causeway, which may be part of assessment and cleanup activities associated with the oil spilled in Buzzards Bay from the Bouchard Barge B120 in April 2003. This portion of the shoreline was identified as shoreline segment W2A-10 – Long Island and Causeway South during the assessment and cleanup operations. Please refer to **Figure 1** for the location of the shoreline that is the subject of this notice. Richard J. Wozmak, P.E., P.H. of EnviroLogic, LLC is the Licensed Site Professional (LSP) [pursuant to CMR 40.0000 and Massachusetts Department of Environmental Protection (MassDEP) oversight] overseeing assessment and cleanup activities under Massachusetts law, and EnviroLogic is working with GeoInsight, Inc. on this project. Through the assessment process we are required to demonstrate that the affected shoreline meets the MassDEP cleanup standards in accordance with the Massachusetts Contingency Plan (MCP). This notice is to inform you that a Response Action Outcome (RAO) statement has been prepared and is being filed with the MassDEP; indicating that assessment and cleanup activities associated with the oil spill have been completed for this segment of shoreline.

This notice will tell you about documents that are available to show what work has been completed, the level of cleanup that was achieved, and how this work complies with regulations, in case you were unavailable to attend our public meetings or review assessment and cleanup reports on the www.buzzardsbay.org website. We are also letting you know that the cleanup and assessment process has been completed for this segment of the shoreline. We recognize that the cleanup and assessment process and Massachusetts environmental regulations are very complicated and technical, so if you have questions, please contact our technical team. You are not required to do anything, but your input is welcome, and if you see any residual oil that you think may be left over from the spill, please contact the technical team at (603) 421-2777.



INTRODUCTION

This package of information serves as notification to owners of property that may be within the boundaries of the shoreline segment on the south side of Hoppy's Landing or Long Island Causeway, which was affected by the release of No. 6 fuel oil that occurred on April 27, 2003 in Buzzards Bay (affected sections of shoreline are collectively referred to as the "Site" in this letter). Activities conducted to assess environmental conditions and clean up sections of shoreline affected by the release were conducted under the state's environmental regulations, referred to as the Massachusetts Contingency Plan (MCP). You may have already received one or more notifications similar to this one for Partial Response Action Outcome (RAO) Statements relating to other shoreline areas, or for the Phase II Comprehensive Site Assessment (CSA) report transmittal relating to this area, filed with the MassDEP in August 2006. This current notification is for the September 2008 transmittal of a Partial Class A-2 RAO Statement to the MassDEP, as indicated on the attached *Informational Notice to Property Owners*. The RAO Statement is the regulatory document that completes and concludes assessment and cleanup activities at the Site. The RAO Statement is summarized herein, and a complete copy is available for review at the MassDEP office in Lakeville, Massachusetts and can also be found online at the www.buzzardsbay.org website. This notification package also includes a map (**Figure 1**) showing the shoreline segment which is the subject of this letter, and which may include a portion of your property.

This notification is provided to owners of property that may be within the intertidal zone of the shoreline segment. Note that although some properties in Massachusetts may extend to mean low water, not all properties necessarily extend that far (e.g., the property lines at some properties may only extend to mean high water, which means such properties do not include the intertidal zone). Evaluating whether a particular property extended to mean low water would require conducting a review of the deed for each property within the segment. Deed research for each property was not conducted and notification is therefore provided to the owners of properties along the shoreline, recognizing that some of these properties may not actually extend to mean low water, and may therefore not actually be within the boundaries of the subject area.

BACKGROUND AND RESPONSE ACTION HISTORY

On or about April 27, 2003, an unknown volume of No. 6 fuel oil, estimated to range between 22,000 gallons and 98,000 gallons, was released from Bouchard Barge B120 after entering the western approach of Buzzards Bay, Massachusetts. Winds and currents drove released oil to the north, northwest, and northeast in the days following the spill until it became stranded on the shoreline. The municipalities where released oil impacted the shoreline included: Westport, Dartmouth, New Bedford, Fairhaven, Gosnold, Mattapoisett, Marion, Wareham, Bourne, and Falmouth. The dispersion of oil by wind and current resulted in approximately 84 miles of impacted shoreline with varying degrees of shoreline oiling, ranging from traces to relatively heavy amounts. Shoreline oiling was generally concentrated at exposed points and peninsulas on the northern shore of Buzzards Bay. In addition, a few isolated areas of sporadic shoreline oiling were reported in parts of Rhode Island and the Elizabeth Islands.



Emergency cleanup actions were immediately initiated and were conducted through September 3, 2003 by Unified Command (consisting of the U.S. Coast Guard, MassDEP, and the Responsible Party) in accordance with the federal Oil Pollution Act (OPA) of 1990. In September 2003, oversight of assessment and cleanup activities transitioned from Unified Command to the current LSP. On September 15, 2005, an Immediate Response Action (IRA) Plan was transmitted to MassDEP that outlined steps to perform further cleanup in limited areas of the shoreline; to respond to citizen's complaints of oil along the shoreline; to assess the potential presence of buried oil; and to investigate segments that were not approved by Unified Command as meeting their endpoint cleanup criteria. IRA cleanup activities generally consisted of removing isolated small tarballs or wrack patties, wiping tacky oil from rocks using sorbent material, and removing small rocks with oil that could not be effectively wiped or cleaned. IRA cleanup and assessment activities have been concluded, and are summarized in an IRA Completion Report submitted to MassDEP, dated April 3, 2007.

Concurrent with the IRA activities summarized above, Phase I through Phase IV Comprehensive Response Actions were completed to evaluate potential risks to human health, safety, public welfare and the environment, (if any) associated with the release. Phase I and Phase II activities were summarized in previous reports, including a Phase I Initial Site Investigation Report (Phase I Report), Conceptual Site Model (CSM), Phase II Scope of Work and updated CSM, Phase II CSA Report, and Phase III Remedial Action Plan. The August 2006 Phase II CSA report concluded that there was No Significant Risk (NSR) to human health and safety at this segment. However, at that time, NSR could not be concluded with respect to the environment and public welfare (i.e., oil rubbing off on skin or clothing to the degree that could compromise use of the shoreline by a community) along an area on the southern portion of Hoppy's Landing, where additional cleanup needed to be conducted.

A Phase IV Remedy Implementation Plan (RIP) was submitted in November 2006, identifying cleanup activities to be conducted near the southern tip of Hoppy's Landing. Cleanup started on December 4, 2006 and was completed on March 1, 2007. Post-cleanup inspections were conducted after March 1, 2007. A Phase IV Status Report was submitted in June 2007 describing cleanup activities and post-cleanup inspections conducted prior to May 4, 2007.

Inspections conducted after implementing the Phase IV activities indicated that cleanup operations substantially reduced the residual oil present at Hoppy's Landing. In general, the residual oil observed in the post-Phase IV cleanup inspections consisted primarily of small (generally 1 to 2 inches in diameter), isolated patches of oil "pavement" on some of the fringing marshes and small (up to one inch in diameter), isolated areas of oil splatter on rock surfaces. The residual oil was weathered and did not come off to the touch. Small (typically less than one inch in diameter), faint, non-persistent oil sheens were observed on the water surface in tide pools when sediment/cobbles adjacent to the tidal pools were disturbed.

On August 29, 2007, MassDEP accompanied the LSP and a representative from GeoInsight in an inspection of the southern portion of Hoppy's Landing where cleanup occurred. In an August 2007 memorandum, MassDEP indicated that Site conditions at the time of the inspection did not constitute a significant risk to public welfare. In addition, the cleanup was successful in achieving conditions that are protective of the environment.



Residual oil at other portions of the segment is minimal, sporadic, difficult to locate, and is not expected to affect shoreline use. Small, isolated patches of weathered splatter, generally less than one inch in diameter, may be observed on rock surfaces. Since remaining oil is weathered, hard to the touch, and would not smear on skin, fur, or feathers, it is concluded that a condition of NSR to the environment (including wildlife direct contact) has been achieved for this shoreline segment. In general, oil sheens and areas of pavement are not present on the shoreline.

Based upon field inspections, the cleanup objectives identified in the Phase IV RIP have been met and additional response actions are not necessary to achieve an RAO for this segment (i.e., the segment meets the MassDEP cleanup standards).

CLOSING

Information regarding assessment and cleanup activities for the Site has been presented and discussed at numerous public meetings held at the Whaling Museum in New Bedford. In addition, the reports referenced above as well as the Partial RAO Statement are available for review at the MassDEP offices in Lakeville, many of which can also be viewed online at the www.buzzardsbay.org website.

Attachments:

Response Action Outcome Conclusions
Informational Notice to Property Owners
Figure 1, RAO Segment Boundary W2A-10



RESPONSE ACTION OUTCOME CONCLUSIONS

As described in the Method 3 Risk Characterization included in the August 2006 Phase II CSA report, a condition of NSR to human health and safety was achieved for this shoreline segment. Phase IV cleanup activities were conducted between December 2006 and March 2007 to remove residual oil and address potential concerns to public welfare and the environment. Post-cleanup inspections were conducted between April and August 2007 and indicated that the cleanup activities reduced residual oil so that a condition of NSR to public welfare and the environment has been achieved. Hot spots, as defined in the MCP, are not present, and residual oil impacts do not exceed UCLs. No substantial hazards are present at the Site. Uncontrolled sources associated with this release have been eliminated or controlled. A site-specific evaluation of the feasibility for achieving or approaching background conditions was conducted and concluded that it was not feasible to achieve or approach background. Therefore a Partial Class A-2 RAO is appropriate for shoreline segment W2A-10 (Long Island and Causeway South). The shoreline segment addressed by this Partial RAO is shown on **Figure 1**.

This RAO is not based upon the implementation of an Activity and Use Limitation (AUL) to maintain a condition of NSR. Post-RAO monitoring is not necessary to ensure that the conditions upon which the Class A-2 RAO is based are maintained.



INFORMATIONAL NOTICE TO PROPERTY OWNERS

As Required by 310 CMR 40.1406 of the Massachusetts Contingency Plan (MCP)

A. DISPOSAL SITE ADDRESS: (associated with Release Tracking Number provided above)

- 1. Street Address:
- 2. City/Town:
- 3. ZIP Code:

B. THIS NOTICE IS BEING PROVIDED TO THE FOLLOWING PROPERTY OWNER:

- 1. Name of Property Owner:
- 2. Address of Property For Which This Notice is Being Provided Owned by Property Owner named in B1:
 - a. Street Address:
 - b. City/Town:
 - c. ZIP Code:

C. THIS NOTICE IS BEING GIVEN : (check one)

- 1. Upon Completion of a Phase II Comprehensive Site Assessment.
- 2. Upon Submittal of a Response Action Outcome (i.e., Site Closure Report).
- 3. Upon Completion of Additional Investigation showing that Oil or Hazardous Material is not Present at the Property.

D. DESCRIPTION OF OIL AND/OR HAZARDOUS MATERIAL PRESENT OR LIKELY TO BE PRESENT AT THE PROPERTY :

(check all that apply)

AFFECTED ENVIRONMENTAL MEDIA

PRINCIPAL CHEMICAL(S) PRESENT

- 1. Soil
- 2. Groundwater
- 3. Surface Water
- 4. Sediment
- 5. Indoor Air
- 6. Other: (specify)

E. ATTACHMENTS PROVIDED WITH THIS NOTICE. AS REQUIRED BY 310 CMR 40.1406:

- 1. A Copy of the Map Showing or a Description Describing the Area where the Oil and/or Hazardous is or is likely to be Present.
- 2. A Copy of the Phase II Completion Site Assessment or Response Action Outcome Conclusions.

F. CONTACT INFORMATION RELATED TO THE PARTY PROVIDING THIS NOTICE:

- 1. Contact Name:
- 2. Street:
- 3. City/Town:
- 4. State:
- 5. ZIP Code:
- 6. Telephone:
- 7. Email:



INFORMATIONAL NOTICE TO PROPERTY OWNERS

As Required by 310 CMR 40.1406 of the Massachusetts Contingency Plan (MCP)

MASSACHUSETTS REGULATIONS THAT REQUIRE THIS NOTICE

This notice is being provided pursuant to the Massachusetts Contingency Plan and the notification requirement at 310 CMR 40.1406. The Massachusetts Contingency Plan is a state regulation that specifies requirements for parties who are taking actions to address releases of chemicals (oil or hazardous material) to the environment.

THE PERSON(S) PROVIDING THIS NOTICE

This notice has been sent to you by the party(ies) who is/are addressing a release of oil or hazardous material to the environment at the location listed in **Section A** on the reverse side of this form.

PURPOSE OF THIS NOTICE

Parties who are taking actions to respond to releases of oil or hazardous material to the environment are required by state regulations (referred to above) to notify the owners of property where the oil or hazardous material is or is likely to be present. These same parties are also required to notify property owners upon completion of actions to address the oil or hazardous material, or if additional investigations show that the oil or hazardous material is not, as previously suspected, present at a property. **Section C** on the reverse side of this form indicates the circumstance under which you are receiving this notice at this time.

INFORMATION RELATED TO YOUR PROPERTY

Section D on the reverse side of this form indicates the type(s) of oil or hazardous material that is or is likely to be present at your property, and the environmental medium (e.g., soil or groundwater) where it is or is likely to be present. **Please note** when an investigation indicates that the oil or hazardous material is or is likely to be present at your property, this does not mean that the oil or hazardous material is posing a health risk to you. Parties who are taking actions to address oil and hazardous material releases are required by state regulations to adequately investigate these releases and take necessary actions to ensure that affected properties meet standards that are protective of human health and the environment.

ATTACHED MAP OR DESCRIPTION AND REPORT CONCLUSIONS

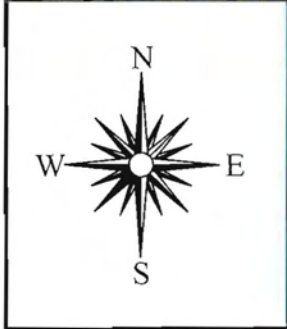
The party providing this notice to you is required to attach a map or description that indicates the boundaries of the area where the oil or hazardous material is or is likely to be present, and the conclusions of the site investigation or closure report (**Section E**). These attachments should give you additional information about the nature and location of the oil or hazardous material with respect to your property.

FOR MORE INFORMATION

Information about the general process for addressing releases of oil or hazardous material under the Massachusetts Contingency Plan and related public involvement opportunities may be found at <http://www.mass.gov/dep/cleanup/oview.htm>.

For more information regarding this notice, you may contact the party listed in **Section F** on the reverse side of this form. Information about the disposal site identified in **Section A** is also available in files at the Massachusetts Department of Environmental Protection.

See <http://mass.gov/dep/about/region/schedule.htm> if you would like to make an appointment to see these files. Please reference the **Release Tracking Number** listed in the upper right hand corner on the reverse side of this form when making file review appointments.



Legend

——— Shoreline Within W2A-10 Segment

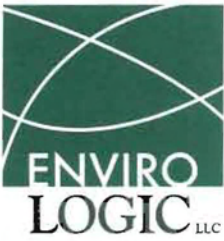
0 400 800 1,600

 Approximate Scale in Feet

		50 Nashua Road, Suite 205 Londonderry, NH 03053 <i>Technically Smart. Business Sensitive.</i>		PROJECT B120 Oil Spill	
TITLE W2A-10 Segment Boundary					
DESIGNED MGC	DRAWN MGC	CHECKED JMM	APPROVED RJW	FIGURE	
SCALE: 1"=800'	DATE: 8/1/2008	NO: Figure1	PROJECT 2002-001	1	

**Notified Property Owners
B120 Oil Spill
Buzzards Bay, Massachusetts**

<u>Segment</u>	<u>Property Owner</u>	<u>Physical Address</u>	<u>City</u>	<u>Zip</u>
W2A-10	Barbara Troland	East Beach	Fairhaven	2719
W2A-10	Barbara Troland	23 Goulart Memorial Drive	Fairhaven	2719
W2A-10	Fairhaven Beach House, LLC	21 Goulart Memorial Drive	Fairhaven	2719
W2A-10	Fernando and Diane Lemos	Goulart Memorial Drive	Fairhaven	2719
W2A-10	Joann Goulart and Jeannette Longden	Goulart Memorial Drive	Fairhaven	2719
W2A-10	Jacob's Neck Realty, LLC	Jacob's Neck	Fairhaven	2719
W2A-10	Peter Ricard	47 Goulart Memorial Drive	Fairhaven	2719
W2A-10	Rodman Taylor Jr.	53 Goulart Memorial Drive	Fairhaven	2719
W2A-10	Fairhaven Town Conservation	55 Goulart Memorial Drive	Fairhaven	2719
W2A-10	Joann and Susan Cabral	37 Goulart Memorial Drive	Fairhaven	2719
W2A-10	Robert and Donna Desroches	Goulart Memorial Drive	Fairhaven	2719
W2A-10	Grace Nopper, Trustee	Goulart Memorial Drive	Fairhaven	2719
W2A-10	Rosemary Gallagher	Goulart Memorial Drive	Fairhaven	2719
W2A-10	Ronald Manzone	Goulart Memorial Drive	Fairhaven	2719
W2A-10	Town of Fairhaven	Causeway Rd.	Fairhaven	2719
W2A-10	Michael Smith	48 Alder Street	Fairhaven	2719
W2A-10	James Moraux	46 Alder Street	Fairhaven	2719
W2A-10	Donald Giumetti	44 Alder Street	Fairhaven	2719



Environmental Consultants

October 2, 2008

Mr. Peter Deterra
Board of Health
Town of Fairhaven
40 Center Street
Fairhaven, MA 02719

Re: Notice of Document Availability
Partial Class A-2 Response Action Outcome Statement
Bouchard Barge B120 Oil Release
Buzzards Bay, Massachusetts
MassDEP Release Tracking Number 4-17786
EnviroLogic Project No. 2002-001B120

Dear Mr. Deterra:

On behalf of the Bouchard Transportation Company, Inc. (Bouchard), EnviroLogic, LLC (EnviroLogic) provides notice that the above-referenced report has concurrently been submitted to the Massachusetts Department of Environmental Protection (MassDEP) Southeast Regional office relating to the Bouchard Barge B120 oil release in Buzzards Bay, which occurred in April 2003. The attached notification summary has also been sent to owners of properties that may have been affected by the release.

The above-referenced reports are being sent to the MassDEP Southeast Regional Office, located at 20 Riverside Drive, Lakeville, MA 02347. Arrangements to review or obtain a copy of the report may be made by contacting the MassDEP at (508) 946-2718. If you have any questions regarding this notification, please do not hesitate to contact me.

Sincerely,

EnviroLogic, LLC

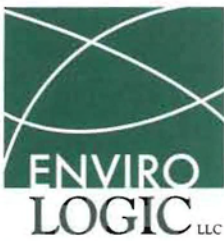
A handwritten signature in black ink, appearing to read 'R. Wozmak', is written over a horizontal line.

Richard J. Wozmak, P.E., P.H., LSP, LEP
Principal

Cc: Jeffery Osuch Town of Fairhaven

Attachment: Notification Summary

R:\Projects\2002-001B120\Hoppy's\Property owner notification\Town Notice-Board of Health.doc



Environmental Consultants

October 2, 2008

Mr. Jeffery Osuch
Executive Secretary
Town of Fairhaven
40 Center Street
Fairhaven, MA 02719

Re: Notice of Document Availability
Partial Response Action Outcome Statement, Class A-2
Bouchard Barge B120 Oil Release
Buzzards Bay, Massachusetts
MassDEP Release Tracking Number 4-17786
EnviroLogic Project No. 2002-001B120

Dear Mr. Osuch:

On behalf of the Bouchard Transportation Company, Inc. (Bouchard), EnviroLogic, LLC (EnviroLogic) provides notice that the above-referenced report has concurrently been submitted to the Massachusetts Department of Environmental Protection (MassDEP) Southeast Regional office relating to the Bouchard Barge B120 oil release in Buzzards Bay, which occurred in April 2003. The attached notification summary has also been sent to owners of properties that may have been affected by the release.

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Sincerely,

EnviroLogic, LLC

A handwritten signature in black ink, appearing to read "RWozmak", is written over the typed name.

Richard J. Wozmak, P.E., P.H., LSP, LEP
Principal

Cc: Peter Deterra Town of Fairhaven

Attachment: Notification Summary

R:\Projects\2002-001B120\Hoppy's\Property owner notification\Town Notice-Executive Secretary.doc