



**BOUCHARD B120 RELEASE
SHORELINE SEGMENT SUMMARY**

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GeoInsight Project Number 3871-002

SEGMENT IDENTIFICATION: **W1F-02**

SEGMENT NAME: **Brandt Island West (Leisure Shores and Howard's Beach)**

SEGMENT LOCATION: **Mattapoissett, Massachusetts** (*Map attached*)

MAXIMUM DEGREE OF INITIAL OILING: Heavy (Oiling Score: 3.34)

SEGMENT INSPECTION STATUS: Did not pass IRAC criteria endpoints on 06/13/2003, but further treatment was not considered to be feasible. Passed MCP IRA Inspection on 11/05/2003.

SITE-SPECIFIC INFORMATION

PHYSICAL CHARACTERISTICS:

Primary Shoreline Type/ Geology:

- 1D: Rip rap seawalls, bulkheads, piers, docks, and pilings.

Secondary Shoreline Type/ Geology:

- 1B: Less utilized semi-public and private sand beaches;
- 1C: Mixed sand and gravel, gravel (pebble to boulder), and rip rap groins (jetties); and
- 1F: Salt marshes.

Hydrogeology:

- Nasketucket Bay is located to the southwest, an unnamed pond behind (north) of the segment, and Buzzards Bay to the south and southeast. Fringing marsh and back-barrier salt marshes are located on the western and northern portion of the segment.

Bedrock Geology:

- Bedrock underlying this segment is identified as "Alaskite" bedrock formation. This bedrock consists of mafic-poor gneissic granite commonly containing muscovite (Zen, 1983).

ENVIRONMENTAL SENSITIVE RECEPTORS (Identified within 500 feet of segment):

Aquifer: None at segment.

Protected Open Space: None at segment.

Public Ground Water Supply Wells: None at segment.

Public Surface Water Supply Wells: None at segment.

Areas of Critical Environmental Concern (ACEC): None at segment.

Vernal Pools: None at segment.

Priority Habitats of Rare Species: Adjacent to segment: Buzzards Bay aquatic environment.

Estimated Habitats of Rare Wildlife: Adjacent to segment: Buzzards Bay aquatic environment.

Floodplains: At segment: 100-year floodplain.

HUMAN SENSITIVE RECEPTORS (Identified within 500 feet of segment):

Segment Use: Private and semi-public beaches. Residential dwellings are located within 500 feet of the segment. The segment is accessible via roadway.

Frequency of Use: Seasonal and year round residential use.

SUMMARY OF INSPECTION ACTIVITIES

WRF INSPECTIONS

(Wildlife Field Reconnaissance- Shoreline or On-Water Observations; Bird Transect Study.)

WRF inspections pertaining to this segment were not conducted.

NRDA FIELD ACTIVITIES SUMMARY

(Natural Resource Damage Assessment)

Note: Includes Shoreline Cleanup Assessment Team (SCAT) inspections and activities. SCAT forms were completed by field inspection teams working under the direction of Unified Command.

DATE	SUMMARY OF INFORMATION RECORDED BY INSPECTION TEAM
05/20/2003	A concentrated area of oil (approximately 30 by 900 feet with approximately 11% to 50% surface oil coverage) was observed in middle to upper intertidal zone near southwestern portion of Brandt Island. Some tar patties were observed along the sand and gravel beaches near the northern portion of the causeway.
05/23/2003	Cleanup crew was on-site during the inspection (including high pressure washing activities). Oiled debris observed.
05/29/2003	Trace oil observed in back-barrier marsh. Areas of oiled gravel observed along shoreline. Oil-coated gravel removal and replacement recommended.
06/05/2003	Surface oil covered 1 to 10% of sandy beach areas primarily in the middle intertidal zone, and 11% to 50% in oiled gravel areas. Removal of oiled rocks on southwestern tip of Brandt Island West was conducted. Tarballs, tar patties, and oiled cobbles removed by rake and shovel.

IRAC INSPECTIONS

(Unified Command Immediate Response Action Completion inspections and activities.)

DATE	SUMMARY OF INFORMATION RECORDED BY INSPECTION TEAM
06/13/2003	Small tar patties were observed in sand adjacent to salt marsh, areas of splatter were observed near the causeway, and oil-coated rocks were observed on Brandt Island. Noted that oil was nearly dry to touch. Segment did not meet IRAC criteria endpoints but further treatment was not considered to be feasible.

MCP FIELD ACTIVITIES SUMMARY

(Massachusetts Contingency Plan inspections and activities under the direction of the Licensed Site Professional-of-Record.)

DATE	SUMMARY OF INFORMATION RECORDED BY INSPECTION TEAM
11/05/2003	Site reconnaissance and potential buried oil inspection: Tarballs and tar patties observed adjacent to a channel and along channel banks at Howard's Beach.
11/07/2003	Cleanup activities: Several tarballs and a small area of oily sand (approximately 1 inch thick and up to 6 inches deep) were removed from the channel banks on Howard's Beach.
11/10/2003	Site reconnaissance and potential buried oil inspection: Removed approximately 0.5-gallons of buried oil that was approximately 6 inches deep adjacent to a channel at Howard's Beach.

01/05/2004	Site reconnaissance and potential buried oil inspection: Evidence of oil was not observed.
03/30/2004	Site reconnaissance and potential buried oil inspection: Tarballs observed in marsh area and on beach near the channel at Leisure Shores Beach. Oil-coated cobbles were observed near the groin with one stream crossing. Some splatter scoured to stain on boulders of groin and on cobbles.
04/01/2004	Cleanup activities: Tarballs were found and removed from southern shoreline of the unnamed pond behind Leisure Shores Beach, and from the channel banks in the upper intertidal zone at Howard's Beach.
04/05/2004	Post-cleanup shoreline inspection: Several tarballs (approximately 2 to 3 inches in diameter) and tar patties (approximately 2 to 4 inches in diameter) were observed primarily along channel banks and the upper intertidal zone of Howard's Beach. Sporadic "pinches" of oil (less than approximately 1 inch in diameter) were observed on fringing marsh. Splatter (pea-size to 4 inches in diameter and primarily scoured to a stain) was observed on cobbles in the upper intertidal zone, on jetty rocks, and on rocks on or adjacent to the causeway.
04/08/2004	Cleanup activities: Buried tacky tarballs (approximately 2 to 8 inches in diameter) were removed from approximately 2 to 3 inches deep within a 40 by 70 foot area east of the channel at Howard's Beach in the upper intertidal zone. Hardened tarballs were removed from the surface adjacent to the channel at Howard's Beach. Approximately 100 pounds of oiled materials were removed.
04/16/2004	Post-cleanup and potential buried oil inspection: (1) The area where cleanup was conducted on 04/08/2004 was raked extensively and 15 trenches (approximately 10 to 50 feet long) were excavated. Trace buried oil was removed and a few surficial tarballs (up to approximately 1 inch in diameter) and splatter stuck to small shells were removed. (2) A layer of buried oil (approximately 3 square feet and 1 to 2 inches deep), west of the groin with a traversing stream, was removed. (3) Eastward from the channel to the first encountered jetty, several test pits and 25 trenches were excavated. Some surficial tarballs (up to approximately 1 inch in diameter) were found and removed. Some cobbles in the middle to upper intertidal zone had oil staining. Some cobbles where splatter covered the majority of the cobble were removed. (4) Seventeen trenches and several spot checks were excavated at Leisure Shores Beach. Some surficial tarballs (ranging from approximately 2 centimeters to 2 inches in diameter) were found and removed from the upper intertidal zone.
04/30/2004	IRA citizen report: Citizen called GeoInsight regarding a partially exposed wooden pallet thought to be left behind from initial cleanup activities.
05/05/2004	IRA citizen call field response, site reconnaissance, and potential buried oil inspection: Several tarballs (totaling approximately 20 pounds) were collected from the east side of a channel. The wooden pallet was not found.
05/07/2004	Marsh cleanup activities: GeoInsight, Entrix, MADEP, and Mattapoissett Conservation Commission removed "pinches" of oil (approximately 20 pounds) from the fringing marsh.
06/02/2004	Site reconnaissance and potential buried oil inspection: Splatter (approximately 2 to 3 inches in diameter) was observed on the cobbles in the upper intertidal zone of Leisure Shores Beach. 20 tarballs (approximately 2 centimeters to 1 inch in diameter) were removed from along the south shoreline of the pond. Tacky surficial tarballs (approximately 0.5 to 2 inches in diameter) were removed from Howard's Beach, primarily from the east side of the channel.
06/29/2004	IRA citizen report of oil: Citizen called GeoInsight to report the re-exposure of a portion of a wooden pallet from initial cleanup activities in 2003.
06/30/2004	IRA citizen call field response: The wooden pallet was found sticking out of the sand on Howard's Beach. An area approximately 4 square feet and 3.5 feet deep was dug to remove the pallet. The pallet was stained with oil and a small sheen was observed at the bottom of the hole.
07/27/2004	Site reconnaissance, potential buried oil inspection, and shellfish bed evaluation: 7 trenches were excavated 6 to 12 inches deep and 5 to 8 feet long, and 8 areas were raked offshore. Buried oil mixed with sediment and stained cobbles from 5 to 7 inches in a 2 to 3 inches diameter area was

delineated and removed from the upper intertidal zone on Leisure Shores Beach at N41°37.724' W70°49.433'. An oil-stained cobble was observed in one of the raked offshore areas at N41°37.720' W70°49.350'. Further evidence of buried oil was not observed. Trace splatter was observed on the causeway to Brandt Island about every 20 feet. A 2-inch diameter tarball was removed at N41°37.438' W70°49.095' and further dried splatter staining observed on the southwest side of Brandt Island. Dime to quarter-size staining was observed on jetties. Trace splatter was observed cobbles surrounding a jetty, ranging from quarter-size to 4 inches in diameter. Dime-size tar patties were removed from the dune area at Leisure Shores.

08/10/2004 Site reconnaissance and potential buried oil inspection: 37 trenches (approximately 10 to 25 feet long and 6 to 15 inches deep) were excavated and 3 areas were raked (approximately 1 to 6 inches deep) on Howard's Beach. A buried, oil-stained cobble was removed from approximately 6 inches deep in the upper intertidal zone at N41°37.688' W70°49.527'. Flattened tarballs (approximately 1 to 2 inches in diameter) were removed from channel banks on Howard's Beach. One pea-size tarball was removed from 8 inches deep in the upper intertidal zone at N41°37.696' W70°49.528'. Fifteen trenches (approximately 5 to 20 feet long and 8 to 16 inches deep) were excavated on Leisure Shores Beach. A layer of buried oil mixed with sediment (consisting of pockets of oil approximately 1 to 6 inches in diameter and ranging from 6 to 14 inches deep within an approximate 20 by 3 foot area) was removed from N41°37.721' W70°49.447' in the upper intertidal zone, which was in the vicinity of a pocket of buried oil removed on 07/27/2004. A buried cobble coated in tacky oil was removed from a trench (approximately 4 inches deep) between Brandt Island Road and the Brandt Island Causeway.

08/31/2004 Pre-cleanup evaluation with MADEP: GeoInsight and MADEP returned to the area where MADEP had recently discovered liquid-like oil in the middle intertidal zone of Leisure Shores. Oil particles (ranging from pinhead-size to 2 millimeter in diameter) and a rainbow sheen were observed in the water in shallow test pits that were excavated within an approximate 20 by 10 foot area. Two samples (LS-OS-S01 and LS-OS-S02) of oil-impacted sediment were collected at N41°37.714' W70°49.432' and N41°37.710' W70°49.432' and submitted to a laboratory for fingerprint analysis. Future delineation of the extent of oil was warranted.

09/08/2004 Pre-cleanup evaluation: Excavated 113 trenches aligned in a grid pattern (between N41°37.714' W70°49.461', N41°37.699' W70°49.453', N41°37.719' W70°49.426', and N41°37.713' W70°49.421') to delineate the extent of oil. In general, the oiling was found to be discontinuous, with oil encountered in approximately 40 percent of the trenches. One to six oil particles (ranging approximately 1 to 7 millimeters in diameter) were observed floating on the water surface within the trenches and were often surrounded by a rainbow sheen. Some oil was removed with oil-absorbent pads. A weathered oil sample (composed of residual "pinches" of oil found in the fringing marsh on Howard's Beach) was collected from the lower intertidal zone between N41°37.685' W70°49.510' and N41°37.703' W70°49.475'.

09/23/2004 Cleanup activities: The intertidal zone of Leisure Shores Beach (an approximate 80 by 180 foot area) was raked (approximately 2 to 3 inches deep) to expose the oil. Several trenches were also excavated within this area. Oil-absorbent material was used to remove particles of oil (ranging from pinhead-size to 7 millimeters in diameter) and sheen that was floating in the water in some trenches and in some small depressions created by raking activities. Oil was observed sporadically in the intertidal zone. The highest oil concentration was found to be in an approximate 20 square foot area approximately 4 to 6 inches deep and primarily on the eastern portion of the beach (lower to middle intertidal zone) at N41°37.714' W70°49.432'.

09/27/2004 Post-cleanup shoreline inspection: 30 test pits were excavated on the eastern portion of the intertidal zone of Leisure Shores Beach, primarily surrounding N41°37.712' W70°49.433'. Liquid-like tarballs (approximately 2 to 3 inches in diameter) mixed with sediment were removed from an approximate 1.5 by 2 foot area and approximately 2 to 4 inches deep. Sporadic evidence of oil was observed in the test pits, and concentrated within 10 feet of the buried tarballs. Twenty-five trenches excavated. A few pinches of oil (approximately dime-size to 6

	inches in diameter) on the fringing marsh were removed in the lower intertidal zone. A trace amount of splatter and few tacky tarballs (approximately up to 1 inch in diameter) were removed from the upper intertidal zone around N41°37.655' W70°49.540' on Howard's Beach. Note: Previous IRA Status Reports indicated that these activities were conducted at segment W1F-01, however after further review, this information pertains to segment W1F-02.
10/27/2004	Site reconnaissance: A few surficial tacky tarballs (approximately 1 inch in diameter) were removed from the channel banks on Howard's Beach. Note: Previous IRA Status Reports indicated that these activities were conducted at segment W1F-01, however after further review, this information pertains to segment W1F-02. Post-cleanup shoreline inspection: Several test pits were excavated in the middle and upper intertidal zones of Leisure Shores Beach, surrounding N41°37.712' W70°49.433'. Evidence of buried oil was observed.
11/09/2004	Survey activities: Six transects perpendicular to the shoreline were surveyed using an auto level to evaluate the elevation of the existing beach profile. The transects began in the marsh grass above the intertidal zone, and through the intertidal zone to the water's edge. The elevation was measured every five feet.
12/08/2004	Survey activities: Resurveyed the six transects perpendicular to the shoreline using an auto level.
12/09/2004	Sediment sampling: Nine grab sediment samples were collected by ENTRIX from the fringing marsh at Howard's Beach.
01/11/2005	Survey activities: Resurveyed the six transects perpendicular to the shoreline using an auto level.
02/11/2005	Survey activities: Resurveyed the six transects perpendicular to the shoreline using an auto level.
03/21/2005	Survey activities: Resurveyed the six transects perpendicular to the shoreline using an auto level.
04/22/2005	Survey activities: Resurveyed the six transects perpendicular to the shoreline using an auto level. Three tarballs (approximately 1 to 2 inches in diameter) were removed from the middle intertidal zone at N41°38.565' W70°46.265' and N41°38.789' W70°46.493', and from the upper intertidal zone at N41°38.611' W70°46.301'.
05/09/2005	Site reconnaissance and potential buried oil inspection: Test pits were excavated in the lower intertidal zone of Leisure Shores, however evidence of oil was not observed. Oil-staining and small tacky tarballs were observed on cobbles.
05/18/2005	Site reconnaissance and potential buried oil inspection: 16 trenches (approximately 3 to 15 feet long and 7 to 10 inches deep) were excavated at Leisure Shores and Howard's Beach. Trace oil particles (ranging approximately 1 to 7 millimeters in diameter) and rainbow sheen in the water in 5 trenches at N41°37.715' W70°49.439' in the lower intertidal zone were observed.
06/02/2005	Site reconnaissance and potential buried oil inspection: A total of 42 test pits (approximately 1 foot wide and 6 to 12 inches deep) were excavated in the lower intertidal zone of Leisure Shores between N41°37.715' W70° 49.431', N41°37.707' W70°49.428', N41°37.712' W70°49.438', and N41°37.711' W70°49.428'. Fifteen of the 42 test pits contained oil flecks (primarily 1 to 7 millimeters in diameter) and/or rainbow sheen was observed floating on water in the trenches. One small tarball was removed.
06/08/2005	Site reconnaissance and potential buried oil inspection: 131 trenches aligned in a grid pattern were excavated to delineate the extent of oil in the intertidal zone of Leisure Shores Beach between N41°31.713' W70°49.451', N41°31.716' W70°49.425', N41°31.698' W70°49.437', and N41°31.702' W70°49.447'. In general, the oiling was found to be discontinuous, with oil encountered in approximately 32 percent of the trenches. Oil particles (ranging approximately 1 millimeter to 5 centimeters in diameter) and associated silver sheen were observed floating in the water in approximately 32 percent of the trenches. Patches of weathered residual "pinches" of pavement (approximately 1 to 4 inches in diameter) were removed from the fringing marsh at Howard's Beach.
06/21/2005	Citizen concern expressed at the 06/02/2005 Public Meeting: GeoInsight, ENTRIX, and MADEP met with local residents who indicated concerns regarding sediment distribution.
07/18/2005	Pre-cleanup survey activities: Resurveyed the 4 of the 6 established transects perpendicular to the shoreline and surveyed a new transect on the western portion of Leisure Shores Beach. The

survey was conducted using an auto level.

- 07/19/2005 Cleanup activities: Two roto tiller machines were used to mechanically overturn the top 4 to 6 inches of beach sediment in the intertidal zone of Leisure Shores Beach. Sporadic areas with residual oil (ranging approximately pinhead-size to 1.5 inches in diameter) mixed with sediment were observed. Oil absorbent material was used to wipe rocks and shells, and remove flecks of oil floating in puddles. Oil-absorbent "snare" was placed along the lower intertidal zone overnight to remove additional floating oil particulates with the natural flushing of the tides. The oiled absorbent material was placed in polyethylene bags and removed from the beach for off-site disposal. The area where the most residual oil was encountered was at N41°37.719' W70°49.440' in the upper intertidal zone, and N41°37.716' W70° 49.427' in the middle intertidal zone. Points along the circumference of the cleanup area were N41° 37.717' W70°49.425', N41°37.703' W70°49.423', N41°37.607' W70°49.429', N41°37.690' W70°49.445', N41°37.688' W70°49.451', N41°37.705' W70°49.460', N41°37.713' W70°49.460', and N41°37.719' W70°49.449'. A sample of naturally occurring algae was collected at N41°37.688' W70°37.689'.
- 07/20/2005 Cleanup activities: Continued using two roto tiller machines and oil-absorbent material where cleanup activities were conducted on 07/19/06. The top approximate 10 to 12 inches of the intertidal zone sediment was overturned. The highest concentration of residual oil was observed in two areas: (Area 1): Between N41°37.689' W70°49.440' and N41°37.719' W70°49.447': one cobble (approximately 3 inches in diameter) mostly coated with tacky oil was removed from the upper intertidal zone; and (Area 2): Centered around N41°37.717' W70°49.436': three tacky tarballs (approximately 1 to 3 inches in diameter within in an approximate 20 square foot area) and several oil particles (approximately 1 to 7 millimeters in diameter) were removed from the middle intertidal zone.
- 07/20/2005 Site reconnaissance with MADEP: Progress of cleanup activities observed. Some sheen observed in the depressions filled with water in the middle intertidal zone of Leisure Shores Beach. Some dried splatter (up to approximately 1 inch in diameter) was observed near the western point of Brandt Island.
- 08/2/2005 Post-cleanup shoreline inspection: 257 trenches aligned in a grid pattern (between N41°37.714' W70°49.462', N41°31.719' W70°49.426', N41°31.694' W70°49.446', and N41°37.697' W70°49.435') were excavated to delineate the extent of oil within the intertidal zone of Leisure Shores Beach. Sporadic residual oil particles (primarily ranging approximately 1 to 7 millimeters in diameter) and some silver sheen were observed floating on the water surface within the trenches. A few larger particles (approximately 7 millimeters to 3 centimeters in diameter) were observed floating in some trenches. A small tarball mixed with sediment was removed from a trench at N41°37.719' W70°49.445'.
- 08/18/2005 Post-cleanup survey activities: After the completion of roto-tilling activities, the five established transects surveyed on 7/18/2005 were resurveyed at Leisure Shores Beach. The survey was conducted using an auto level to determine the elevation of the existing beach profile. The elevation was measured every five feet to measure the elevation of the existing beach profile. A surficial inspection of the cleanup area was also conducted. Two pinhead-size particles of oil and silver sheen were observed in depression in the intertidal zone on east portion of the intertidal zone at Leisure Shores Beach. In addition, a cluster of approximately 12 tacky tarballs (approximately 1 to 3 inches in diameter) at Howard's Beach were removed from the surface (within a 3 foot square area) at N41°37.700' W70°49.528' adjacent to the channel. A few test pits (up to 5 foot square and 1 inch deep) were excavated adjacent to this channel.

- 09/13/2005 Phase II characterization activities: Trace splatter (primarily dime- to quarter-size but up to 6 inches in diameter) was observed approximately every 5 to 15 feet on cobbles and boulders in the middle to upper intertidal zone between N41°37.424' W70°49.082' and N41°37.444' W70°49.133'. The splatter was weathered and hardened and did not easily come off to the touch. A piece of gravel (approximately 2 inches in diameter) approximately 90% covered with weathered splatter was found and removed at N41°37.692' and W70°49.566'. Two small areas of pavement (approximately 4 by 3 inches) were found and removed from cobbles in the middle to upper intertidal zone at N41°37.444' W70°49.133'. Two small areas of pavement were found and removed from cobbles adjacent to the causeway at N41°37.628 W70°49.256' and N41°37.644' W70°49.256'. The pavement was weathered and did not easily come off to the touch, but had a tacky center when broken apart. A slight silver sheen was observed in a puddle in the upper intertidal zone at N41°37.722' W70°49.449'. Two weathered tarballs (approximately 0.5 inches in diameter) were removed from the sandy beach at N41°37.695' W70°49.550'. An area of non-B120 tar-like hardened pavement (approximately 6 by 12 inches in diameter) was observed in between cobbles at N41°37.496' W70°49.190'. Non-B120 tarballs (up to approximately 2 inches in diameter) were observed in the upper intertidal zone of the sandy beach. The non-B120 tar-like substance was very hard, not breakable by hand, and was not removed. Intertidal sediment samples were collected from two sample locations: W1F02-P2-UIT-01 at N41°37.711' W70°49.512' and W1F02-P2-LIT-01 at N41°37.693' W70°49.468'; and W1F02-P2-UIT-02 at N41°37.724' W70°49.459' and W1F02-P2-LIT-02 at N41°37.712' W70°49.457', from the upper and lower intertidal zones, respectively. Each sample consisted of three grab samples collected approximately 30 feet apart and parallel to the shoreline, and were composited in a laboratory. A marsh sediment sample (W1F02-P2-M-01) was collected from one sample location centered around N41°37.685' W70°49.503' on fringing marsh at Howard's Beach. The sample was composited of three grab samples that were collected from within an approximate 15-foot radius of N41°40.780' W70°45.360'. In addition, subtidal sediment samples (W1F02-P2-SUB-01 through W1F02-P2-SUB-08) were collected from 8 locations adjacent to the segment. The samples were composited of three grab samples collected from within an approximate 15-foot radius of N41°37.675' W70°49.511', N41°37.687' W70°49.479', N41°37.698' W70°49.490', N41°37.711' W70°49.423', N41°37.714' W70°49.369', N41°37.647' W70°49.277', N41°37.590' W70°49.189', N41°37.438' W70°49.142', respectively. The grab samples were composited in a laboratory. The composited samples collected from or adjacent to this segment were analyzed for EPH fractions and PAH by 8270C/SIM analysis. The salt marsh appeared healthy.
- 09/29/2005 Post-cleanup survey activities: The 5 established transects were resurveyed using an auto level at Leisure Shores Beach.
- 10/18/2005 Post-cleanup survey activities: The 5 established transects were resurveyed using an auto level at Leisure Shores Beach.
- 03/14/2006 Site reconnaissance and potential buried oil inspection: 15 test pits (approximately 12 inches deep) were excavated to delineate the extent of oil in the intertidal zone of Leisure Shores Beach between N41°37.719' W70°49.445', N41°37.712' W70°49.428', and N41°37.721' W70°49.438'. Evidence of buried oil was not observed. Five test pits were excavated near the channel at Howard's Beach, surrounding N41° 37.700' W70° 49.528'. Six dime to quarter-size tarballs were removed. Evidence of buried oil was not observed.

04/26/2006	Site reconnaissance and buried oil inspection: 2 test pits (approximately 1 foot square) were excavated at N41°62.852' W70°82.38'3 and N41°62.849' W70°82.383'. Evidence of buried oil was not observed. Splatter was observed on 3 cobbles in the upper intertidal zone of Leisure Shores Beach. The splatter was weathered and hardened and did not come off easily to the touch. The oiled cobbles were not removed.
07/12/2006	Site reconnaissance: Excavated 20 test pits, found particles (generally 2 millimeters in diameter) and a sheen in 6 test pits.

Notes:

1. EPH = Extractable Petroleum Hydrocarbons.
2. PAH = Polynuclear Aromatic Hydrocarbons.
3. SIM = Selected Ion Monitoring.
4. MADEP = Massachusetts Department of Environmental Protection.

**TABLE 1
SAMPLE SUMMARY
BUZZARDS BAY, MASSACHUSETTS
SEGMENT: W1F-02
Brandt Island West, Mattapoisset**

Sample ID	Date Collected	Matrix	Analysis	Laboratory	Sampling Program	Sample Location Coordinates		Sample Location Description	Comments						
						Latitude	Longitude								
BI-SED-UI-01	5/7/2003	Sediment	PAH, TPH, TOC EPH	B&B GAI	NRDA Pre-Assessment	N41°37.702'	W70°49.324'	Upper Intertidal Zone	Composite Sample						
BI-SED-LI-01								Lower Intertidal Zone							
WMN-SED	5/13/2003	Sediment	PAH, TPH, TOC EPH	B&B GAI	NRDA Pre-Assessment	N41°37.15'	W70°49.59'	Subtidal Sediment	Composite Sample						
HB-SED-01	12/9/2004	Sediment	PAH Fingerprinting EPH	B&B GAI	MCP-IRA	N41°37.712'	W70°49.433'	Lower Intertidal Zone	Grab Sample						
HB-SED-02						N41°37.714'	W70°49.437'								
HB-SED-03						N41°37.714'	W70°49.428'								
HB-SED-04						N41°37.717'	W70°49.432'								
HB-SED-05						N41°37.715'	W70°49.433'								
HB-SED-06						N41°37.713'	W70°49.437'								
HB-SED-07						N41°37.717'	W70°49.436'								
HB-SED-08						N41°37.718'	W70°49.427'								
HB-SED-09						N41°37.714'	W70°49.422'								
HB-DUP-01						N41°37.712'	W70°49.433'			Duplicate (HB-SED-01)					
W1F02-P2-SUB-01	9/14/2005	Sediment	EPH PAH	GAI	MCP-Phase II Site Assessment	N41°37.675'	W70°49.510'	Subtidal Sediment	Composite Sample						
W1F02-P2-SUB-02	9/13/2005					N41°37.687'	W70°49.480'								
W1F02-P2-SUB-03						N41°37.696'	W70°49.492'								
W1F02-P2-SUB-04						N41°37.712'	W70°49.425'								
W1F02-P2-SUB-05						N41°37.725'	W70°49.371'								
W1F02-P2-SUB-06						N41°37.647'	W70°49.276'								
W1F02-P2-SUB-07	N41°37.590'					W70°49.189'									
W1F02-P2-SUB-08	N41°37.438'					W70°49.144'									
W1F02-P2-UIT-01	9/14/2005					N41°37.707'	W70°49.514'			Upper Intertidal Zone					
W1F02-P2-LIT-01						N41°37.693'	W70°49.470'			Lower Intertidal Zone					
W1F02-P2-UIT-02						N41°37.723'	W70°49.462'			Upper Intertidal Zone					
W1F02-P2-LIT-02						N41°37.710'	W70°49.462'			Lower Intertidal Zone					
W1F02-P2-M-01						N41°37.685'	W70°49.500'			Marsh					
DDD-P2-06						N41°37.685'	W70°49.500'			Marsh (duplicate)	Composite Sample (Duplicate W1F02-P2-M-01)				
LS-OS-S01	8/31/2004					sediment	PAH Fingerprinting			B&B	MCP-Phase II Site Assessment	N41°37.714'	W70°49.432'	Middle Intertidal Zone	Grab Sample
LS-OS-S01												N41°37.710'	W70°49.432'		

NOTES:

1. B&B: B&B Laboratories.
2. GAI: Groundwater Analytical, Inc.

TABLE 2
SUMMARY OF ANALYTICAL RESULTS
BUZZARDS BAY, MASSACHUSETTS
SEGMENT: W1F-02
Brandt Island West, Mattapoissett

Analyte	BI-SED-UI-01	BI-SED-LI-01	WMN-SED	HB-SED-01	HB-SED-02	HB-SED-03	MCP Method 1 Standards			Effects Range-Low Benchmarks Marine Sediments
	Upper Intertidal Sediment	Lower Intertidal Sediment	Subtidal Sediment	Intertidal Sediment	Intertidal Sediment	Intertidal Sediment	S-1 / GW-1	S-1 / GW-2	S-1 / GW-3	ER-L
	5/7/2003	5/7/2003	5/13/2003	12/9/2004	12/9/2004	12/9/2004				
EPH										
C ₉ -C ₁₈ Aliphatic Hydrocarbons	ND(31)	ND(34)	ND(36)	ND(33)	ND(34)	ND(34)	1,000	1,000	1,000	NA
C ₁₉ -C ₃₆ Aliphatic Hydrocarbons	32	ND(34)	ND(36)	ND(33)	ND(34)	ND(34)	2,500	2,500	2,500	NA
C ₁₁ -C ₂₂ Aromatic Hydrocarbons	40	ND(34)	ND(36)	ND(33)	ND(34)	ND(34)	200	800	800	NA
PAH by GC/MS-SIM by method 8270C										
Naphthalene	0.0005	0.0008	0.002	0.0001j	0.0002	0.0002	4	40	500	0.160
2-Methylnaphthalene	0.0008	0.0004	0.0008	0.0001j	0.0001j	0.0002j	4	500	500	0.070
Acenaphthylene	0.0002	0.0002	0.0007	0.0001j	ND(0.0002)	ND(0.0002)	100	100	100	0.044
Acenaphthene	0.0002	0.0002	0.0003	0.0001j	0.0001j	0.0001j	20	1,000	1,000	0.016
Fluorene	0.0005	0.0014	0.0004	0.0001j	ND(0.0002)	0.0001j	400	1,000	1,000	0.019
Phenanthrene	0.0072	0.0298	0.0024	0.0002	0.0001j	0.0007	700	1,000	100	0.240
Anthracene	0.0014	0.0046	0.0008	0.0001j	ND(0.0002)	0.0001j	1,000	1,000	1,000	0.085
Fluoranthene	0.0065	0.0064	0.0043	0.0005	0.0002j	0.0007	1,000	1,000	1,000	0.600
Pyrene	0.0247	0.0459	0.0042	0.0007	0.0003	0.0029	1,000	1,000	1,000	0.665
Benzo(a)anthracene	0.0321	0.0258	0.0023	0.0004	0.0001j	0.0017	7	7	7	0.261
Chrysene	0.0742	0.0444	0.0037	0.0013	0.0004	0.0036	7	7	7	0.384
Benzo(b)fluoranthene	0.0109	0.0068	0.0043	0.0005	0.0004	0.0009	7	7	7	NA
Benzo(k)fluoranthene	0.0038	0.0021	0.002	0.0002j	0.0001j	0.0002j	70	70	70	NA
Benzo(a)pyrene	0.0222	0.0144	0.003	0.0003	0.0003	0.0010	2	2	2	0.430
Indeno(1,2,3-c,d)pyrene	0.0040	0.0024	0.0038	0.0002j	0.0001j	0.0002j	7	7	7	NA
Dibenzo(a,h)anthracene	0.0039	0.0022	0.0005	0.0001j	0.0001j	0.0001j	0.7	0.7	0.7	0.063
Benzo(g,h,i)perylene	0.0072	0.0041	0.0032	0.0002	0.0002	0.0003	1,000	1,000	1,000	NA
Total Organic Carbon (%)	0.08	0.06	NS	NS	NS	NS	NA	NA	NA	NA
Total Petroleum Hydrocarbons	27	17	NS	NS	NS	NS	200	800	800	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. Bold values exceed laboratory PQL.
7. ER-L: Effects Range Low (Long and Morgan 1991).
8. NA: Not Applicable.
9. MCP: Massachusetts Contingency Plan.
10. NS: Not Sampled.

TABLE 2 (continued)
SUMMARY OF ANALYTICAL RESULTS
BUZZARDS BAY, MASSACHUSETTS
SEGMENT: W1F-02
Brandt Island West, Mattapoissett

Analyte	HB-SED-04	HB-SED-05	HB-SED-06	HB-SED-07	HB-SED-08	HB-SED-09	HB-DUP-01	MCP Method 1 Standards			Effects Range-Low Benchmarks Marine Sediments
	Intertidal Sediment	Intertidal Sediment	Intertidal Sediment	Intertidal Sediment	Intertidal Sediment	Intertidal Sediment	Intertidal Sediment	S-1 / GW-1	S-1 / GW-2	S-1 / GW-3	ER-L
	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004	12/9/2004				
EPH											
C ₉ -C ₁₈ Aliphatic Hydrocarbons	ND(34)	ND(33)	ND(33)	ND(34)	ND(35)	ND(35)	ND(51)	1,000	1,000	1,000	NA
C ₁₉ -C ₃₆ Aliphatic Hydrocarbons	ND(34)	ND(33)	ND(33)	ND(34)	ND(35)	ND(35)	ND(51)	2,500	2,500	2,500	NA
C ₁₁ -C ₂₂ Aromatic Hydrocarbons	ND(34)	ND(33)	ND(33)	ND(34)	ND(35)	ND(35)	ND(51)	200	800	800	NA
PAH by GC/MS-SIM method 8270C											
Naphthalene	0.0001j	0.0001j	0.0001j	0.0002	0.0002	0.0002	0.0002	4	40	500	0.160
2-Methylnaphthalene	0.0001j	0.0001j	0.0002j	0.0002j	0.0002j	0.0002j	0.0002j	4	500	500	0.070
Acenaphthylene	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	0.0001j	ND(0.0002)	0.0001j	100	100	100	0.044
Acenaphthene	ND(0.0001)	0.0001j	0.0001j	ND(0.0002)	ND(0.0001)	0.0002	0.0002	20	1,000	1,000	0.016
Fluorene	ND(0.0002)	ND(0.0002)	0.0001j	ND(0.0002)	0.0003	0.0001j	ND(0.0002)	400	1,000	1,000	0.019
Phenanthrene	0.0002	0.0002	0.0003	0.0003	0.0007	0.0005	0.0003	700	1,000	100	0.240
Anthracene	ND(0.0002)	ND(0.0002)	ND(0.0002)	0.0001j	0.0007	ND(0.0002)	ND(0.0002)	1,000	1,000	1,000	0.085
Fluoranthene	0.0002j	0.0005	0.0002	0.0006	0.0023	0.0004	0.0006	1,000	1,000	1,000	0.600
Pyrene	0.0004	0.0005	0.0004	0.0035	0.0126	0.0005	0.0013	1,000	1,000	1,000	0.665
Benzo(a)anthracene	0.0002	0.0002	0.0002	0.0055	0.0094	0.0002	0.0007	7	7	7	0.261
Chrysene	0.0009	0.0010	0.0005	0.0123	0.0182	0.0004	0.0011	7	7	7	0.384
Benzo(b)fluoranthene	0.0004	0.0006	0.0004	0.0031	0.0040	0.0005	0.0009	7	7	7	NA
Benzo(k)fluoranthene	0.0001j	0.0001j	0.0001j	0.0004	0.0004	0.0001j	0.0001j	70	70	70	NA
Benzo(a)pyrene	0.0005	0.0003	0.0003	0.0043	0.0059	0.0003	0.0007	2	2	2	0.430
Indeno(1,2,3-c,d)pyrene	0.0002j	0.0002j	0.0002j	0.0005	0.0008	0.0002j	0.0004	7	7	7	NA
Dibenzo(a,h)anthracene	0.0002	0.0001j	0.0001j	0.0006	0.0007	ND(0.0002)	0.0001j	0.7	0.7	0.7	0.063
Benzo(g,h,i)perylene	0.0003	0.0002	0.0003	0.0011	0.0014	0.0002	0.0005	1,000	1,000	1,000	NA
Total Organic Carbon (%)	NS	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NS	NS	NS	NS	NS	NS	NS	200	800	800	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. Bold values exceed laboratory PQL.
7. ER-L: Effects Range Low (Long and Morgan 1991).
8. NA: Not Applicable.
9. MCP: Massachusetts Contingency Plan.
10. NS: Not Sampled.

TABLE 2 (continued)
SUMMARY OF ANALYTICAL RESULTS
BUZZARDS BAY, MASSACHUSETTS
SEGMENT: W1F-02
Brandt Island West, Mattapoisett

Analyte	W1F02-P2-SUB-01	W1F02-P2-SUB-02	W1F02-P2-SUB-03	W1F02-P2-SUB-04	MCP Method 1 Standards			Effects Range-Low Benchmarks Marine Sediments
	Subtidal Sediment	Subtidal Sediment	Subtidal Sediment	Subtidal Sediment	S-1 / GW-1	S-1 / GW-2	S-1 / GW-3	
	9/14/2005	9/14/2005	9/13/2005	9/13/2005				ER-L
EPH								
C ₉ -C ₁₈ Aliphatic Hydrocarbons	ND(38)	ND(36)	ND(35)	ND(36)	1,000	1,000	1,000	NA
C ₁₉ -C ₃₆ Aliphatic Hydrocarbons	ND(38)	ND(36)	ND(35)	ND(36)	2,500	2,500	2,500	NA
C ₁₁ -C ₂₂ Aromatic Hydrocarbons	ND(38)	ND(36)	ND(35)	ND(36)	200	800	800	NA
PAH by GC/MS-SIM by method 8270C								
Naphthalene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	4	40	500	0.160
2-Methylnaphthalene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	4	500	500	0.070
Acenaphthylene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	100	100	100	0.044
Acenaphthene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	20	1,000	1,000	0.016
Fluorene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	400	1,000	1,000	0.019
Phenanthrene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	700	1,000	100	0.240
Anthracene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	1,000	1,000	1,000	0.085
Fluoranthene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	1,000	1,000	1,000	0.600
Pyrene	0.009j	ND(0.017)	ND(0.017)	ND(0.017)	1,000	1,000	1,000	0.665
Benzo(a)anthracene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	7	7	7	0.261
Chrysene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	7	7	7	0.384
Benzo(b)fluoranthene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	7	7	7	NA
Benzo(k)fluoranthene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	70	70	70	NA
Benzo(a)pyrene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	2	2	2	0.430
Indeno(1,2,3-c,d)pyrene	0.010j	ND(0.017)	ND(0.017)	ND(0.017)	7	7	7	NA
Dibenzo(a,h)anthracene	0.014	ND(0.017)	ND(0.017)	ND(0.017)	0.7	0.7	0.7	0.063
Benzo(g,h,i)perylene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	1,000	1,000	1,000	NA
Total Organic Carbon (%)	NS	NS	NS	NS	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NS	NS	NS	NS	200	800	800	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. Bold values exceed laboratory PQL.
7. ER-L: Effects Range Low (Long and Morgan 1991).
8. NA: Not Applicable.
9. MCP: Massachusetts Contingency Plan.
10. NS: Not Sampled.

TABLE 2 (continued)
SUMMARY OF ANALYTICAL RESULTS
BUZZARDS BAY, MASSACHUSETTS
SEGMENT: W1F-02
Brandt Island West, Mattapoisett

Analyte	W1F02-P2-SUB-05	W1F02-P2-SUB-06	W1F02-P2-SUB-07	W1F02-P2-SUB-08	W1F02-P2-UIT-01	MCP Method 1 Standards			Effects Range-Low Benchmarks Marine Sediments
	Subtidal Sediment	Subtidal Sediment	Subtidal Sediment	Subtidal Sediment	Upper Intertidal Sediment	S-1 / GW-1	S-1 / GW-2	S-1 / GW-3	ER-L
	9/13/2005	9/14/2005	9/14/2005	9/14/2005	9/14/2005				
EPH									
C ₉ -C ₁₈ Aliphatic Hydrocarbons	ND(34)	ND(35)	ND(36)	ND(37)	ND(30)	1,000	1,000	1,000	NA
C ₁₉ -C ₃₆ Aliphatic Hydrocarbons	ND(34)	ND(35)	ND(36)	ND(37)	ND(30)	2,500	2,500	2,500	NA
C ₁₁ -C ₂₂ Aromatic Hydrocarbons	ND(34)	ND(35)	ND(36)	ND(37)	ND(30)	200	800	800	NA
PAH by GC/MS-SIM by method 8270C									
Naphthalene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	4	40	500	0.160
2-Methylnaphthalene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	4	500	500	0.070
Acenaphthylene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	100	100	100	0.044
Acenaphthene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	20	1,000	1,000	0.016
Fluorene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	400	1,000	1,000	0.019
Phenanthrene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	700	1,000	100	0.240
Anthracene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	1,000	1,000	1,000	0.085
Fluoranthene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	1,000	1,000	1,000	0.600
Pyrene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	1,000	1,000	1,000	0.665
Benzo(a)anthracene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	7	7	7	0.261
Chrysene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	7	7	7	0.384
Benzo(b)fluoranthene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	7	7	7	NA
Benzo(k)fluoranthene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	70	70	70	NA
Benzo(a)pyrene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	2	2	2	0.430
Indeno(1,2,3-c,d)pyrene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	7	7	7	NA
Dibenzo(a,h)anthracene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	0.7	0.7	0.7	0.063
Benzo(g,h,i)perylene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	1,000	1,000	1,000	NA
Total Organic Carbon (%)	NS	NS	NS	NS	NS	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NS	NS	NS	NS	NS	200	800	800	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. Bold values exceed laboratory PQL.
7. ER-L: Effects Range Low (Long and Morgan 1991).
8. NA: Not Applicable.
9. MCP: Massachusetts Contingency Plan.
10. NS: Not Sampled.

TABLE 2 (continued)
SUMMARY OF ANALYTICAL RESULTS
BUZZARDS BAY, MASSACHUSETTS
SEGMENT: W1F-02
Brandt Island West, Mattapoisett

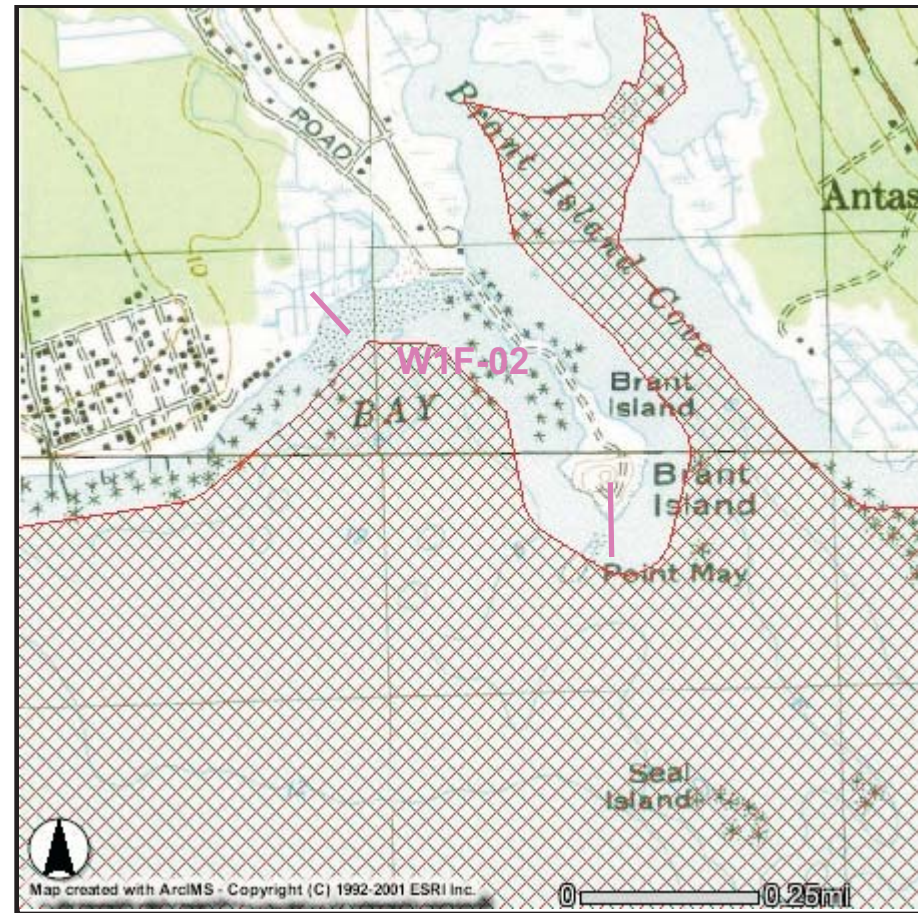
Analyte	W1F02-P2-LIT-01	W1F02-P2-UIT-02	W1F02-P2-LIT-02	W1F02-P2-M-01	DDD-P2-06 ¹⁰	MCP Method 1 Standards			Effects Range-Low Benchmarks Marine Sediments
	Lower Intertidal Sediment	Upper Intertidal Sediment	Lower Intertidal Sediment	Marsh Sediment	Marsh Sediment	S-1 / GW-1	S-1 / GW-2	S-1 / GW-3	ER-L
	9/14/2005	9/14/2005	9/14/2005	9/14/2005	9/14/2005				
EPH									
C ₉ -C ₁₈ Aliphatic Hydrocarbons	ND(34)	ND(31)	ND(32)	ND(50)	ND(48)	1,000	1,000	1,000	NA
C ₁₉ -C ₃₆ Aliphatic Hydrocarbons	ND(34)	ND(31)	ND(32)	ND(50)	ND(48)	2,500	2,500	2,500	NA
C ₁₁ -C ₂₂ Aromatic Hydrocarbons	ND(34)	ND(31)	ND(32)	ND(50)	ND(48)	200	800	800	NA
PAH by GC/MS-SIM by method 8270C									
Naphthalene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	4	40	500	0.160
2-Methylnaphthalene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	4	500	500	0.070
Acenaphthylene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	100	100	100	0.044
Acenaphthene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	20	1,000	1,000	0.016
Fluorene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	400	1,000	1,000	0.019
Phenanthrene	ND(0.017)	ND(0.017)	ND(0.017)	0.010j	ND(0.017)	700	1,000	100	0.240
Anthracene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	1,000	1,000	1,000	0.085
Fluoranthene	ND(0.017)	ND(0.017)	ND(0.017)	0.023	ND(0.017)	1,000	1,000	1,000	0.600
Pyrene	ND(0.017)	ND(0.017)	ND(0.017)	0.019	ND(0.017)	1,000	1,000	1,000	0.665
Benzo(a)anthracene	ND(0.017)	ND(0.017)	ND(0.017)	0.010j	ND(0.017)	7	7	7	0.261
Chrysene	ND(0.017)	ND(0.017)	ND(0.017)	0.010j	ND(0.017)	7	7	7	0.384
Benzo(b)fluoranthene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	7	7	7	NA
Benzo(k)fluoranthene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	70	70	70	NA
Benzo(a)pyrene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	2	2	2	0.430
Indeno(1,2,3-c,d)pyrene	ND(0.017)	ND(0.017)	ND(0.017)	0.015j	ND(0.017)	7	7	7	NA
Dibenzo(a,h)anthracene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	0.7	0.7	0.7	0.063
Benzo(g,h,i)perylene	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.017)	1,000	1,000	1,000	NA
Total Organic Carbon (%)	NS	NS	NS	NS	NS	NA	NA	NA	NA
Total Petroleum Hydrocarbons	NS	NS	NS	NS	NS	200	800	800	NA

NOTES:

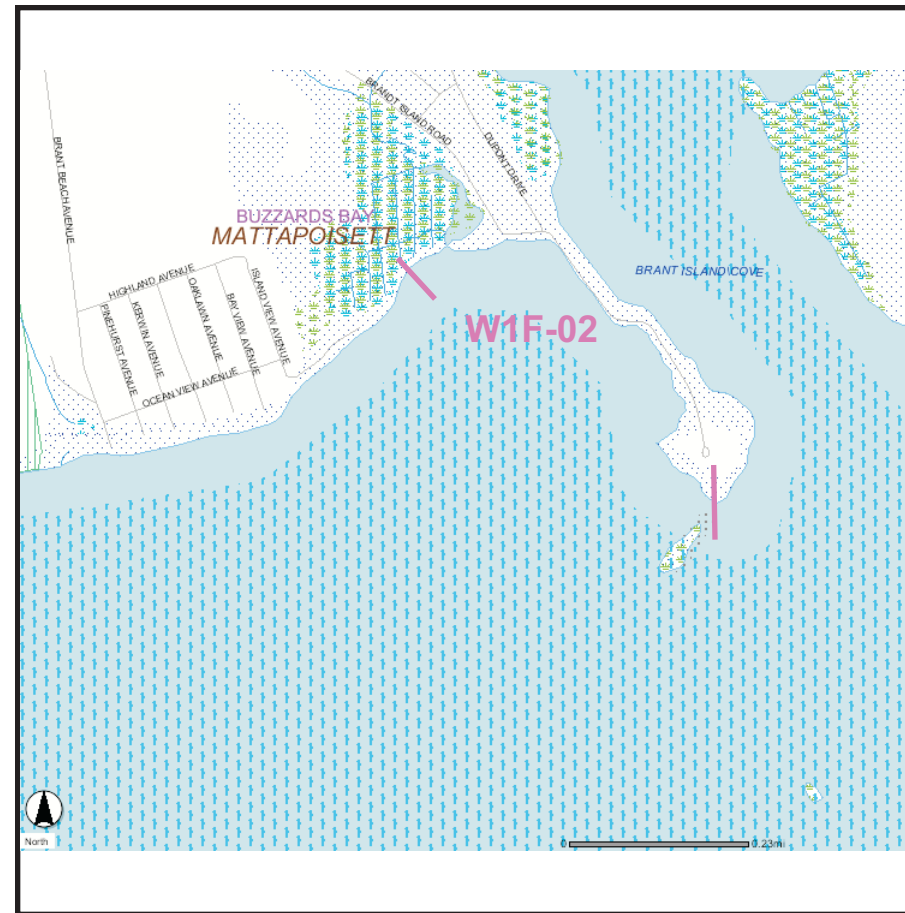
1. Results in mg/Kg (milligrams per kilogram).
2. EPH: Extractable Petroleum Hydrocarbons.
3. ND(x): Constituent not detected at practical quantitation limits (PQL) noted in parentheses.
4. PAH by GC/MS-SIM: Polynuclear Aromatic Hydrocarbon analysis by Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring.
5. j: Estimated concentration/ detected below standard laboratory reporting limits.
6. Bold values exceed laboratory PQL.
7. Labeled as DDD-P2-05 on original chain of custody. DDD-P2-06 is a duplicate sample of W1F02-P2-M-01.
8. NA: Not Applicable.
9. ER-L: Effect Range LOW (Long and Morgan 1991).
10. MCP: Massachusetts Contingency Plan.
11. NS: Not Sampled.



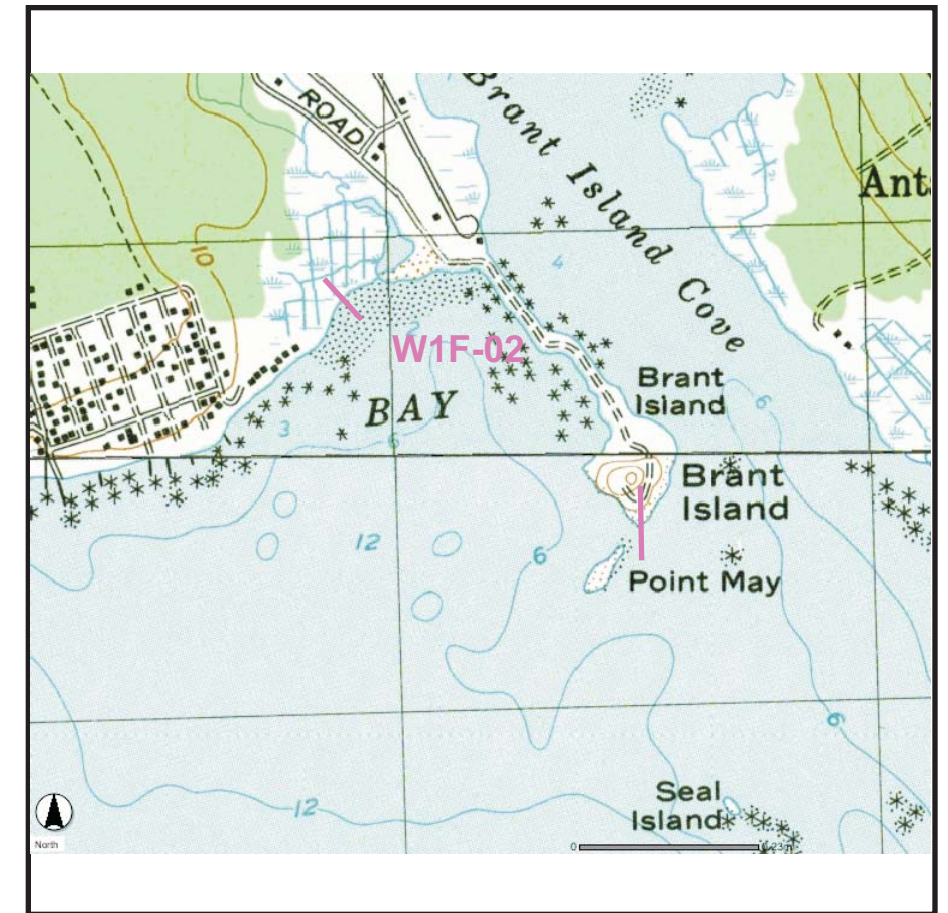
NATURAL HERITAGE AND ENDANGERED SPECIES MAP





2IE PRIORITY RESOURCE MAP










































TOPOGRAPHIC MAP




LEGEND

-  NHESP 2005 MA PRIORITY HABITATS FOR STATE-PROTECTED RARE SPECIES
-  NHESP 2005 MA ESTIMATED HABITATS OF RARE WILDLIFE

DEP MCP 21e Map Legend




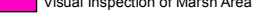
-  Zone IIs
 -  IWPAs
 -  Zone A
 -  Sole Source Aquifers
 -  Solid Waste Sites
 -  Protected Openspace
 -  ACECs
 -  NHESP Estimated Habitat of Rare Wildlife in Wetland Areas
 -  Certified Vernal Pools 2003 NHESP
 -  Subbasins
 -  Mass Major Basins
 -  DEP Region
 - Town Arcs
 - County Boundaries
-  HIGH YIELD
 -  MEDIUM YIELD
-  HIGH YIELD
 -  MEDIUM YIELD
-  FEMA Floodplains
 -  100 YEAR FLOODPLAIN
-  WATER
 -  RESERVOIR
 -  WETLANDS
 -  SALT WATER WETLANDS
 -  FLATS SHOALS
-  PERENNIAL
 -  INTERMITTENT
 -  SHORELINE
 -  MAN MADE SHORE
 -  DAM
 -  AQUEDUCT
-  LIMITED ACCESS HIGHWAY
 -  MULTILANE HWY, NOT LIMITED ACCESS
 -  OTHER NUMBERED HWY
 -  MAJOR ROAD - COLLECTOR
 -  MINOR STREET OR ROAD, RAMP
-  TRACK
 -  TRAIL
-  PIPELINE
 -  POWERLINE
 -  TRAIN

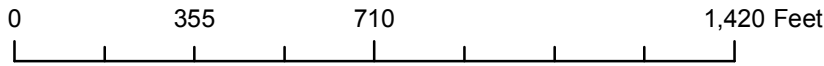


		PROJECT:		
		B120 OIL SPILL		
TITLE:		LOCATION:		
		BRANDT ISLAND WEST (HOWARDS BEACH) BUZZARDS BAY, MA		
PHASE II SUPPORTING MAPS				
DESIGNED:	DRAWN:	CHECKED:	APPROVED:	FIGURE #:
LAC	JKB	KDT	MJW	
SCALE:	DATE:	FILE:	PROJECT #:	WIF-02
AS SHOWN	01/25/06	3871WIF-02	3871-002	



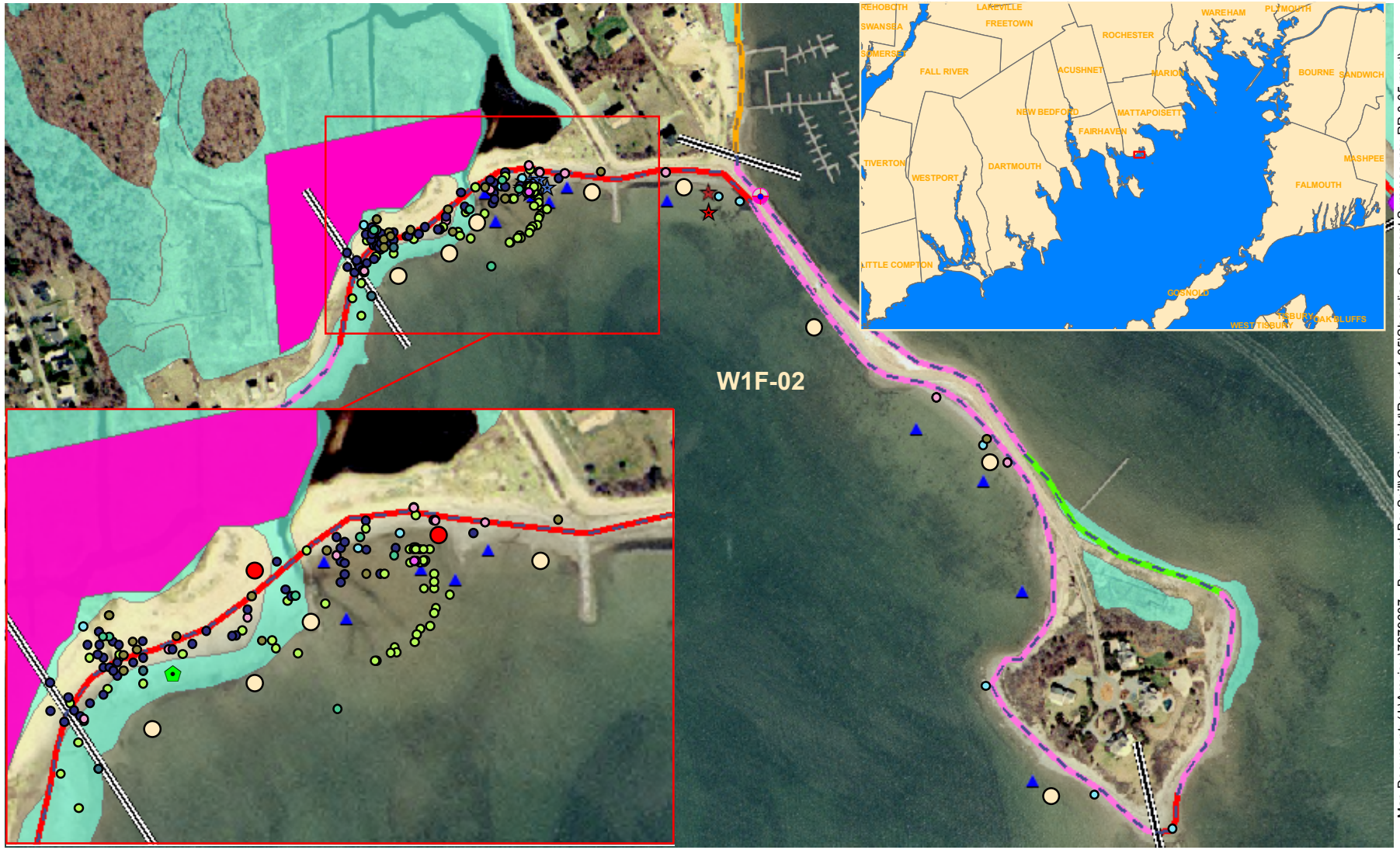
Legend

-  Intertidal Sampling Location
-  Marsh Sampling Location
-  Subtidal Sampling Location
-  Visual Inspection of Marsh Area



ENTRIX

**Phase II Sampling
W1F-02
Brandt Island West
Bouchard B No. 120 Oil Spill
Buzzards Bay, MA**



Map Document: (J:\Ar\view\7079607 - BuzzardsBay/Spill\Geoinsight\Report 1-05\Shoreline Segment Summary rev RR 3-05.mxd)

W1F-02

0 250 500 Feet



E N T R I X

**W1F-02
Brandt Island West,
Mattapoissett
Comprehensive Activities
Bouchard B No. 120 Oil Spill
Buzzards Bay, MA**

- Trench Location**
- 11/2004
 - 10/2004
 - 09/2004
 - 08/2004
 - 07/2004
 - 06/2004
 - 04/2004
 - 03/2004
 - 01/2004
 - 12/2003
 - 11/2003
 - 10/2003
 - 09/2003
- Nearshore Subtidal Sediment Sampling Location 2004
 Deep Subtidal Sediment Sampling Location 2004
 Subtidal Sediment Sampling Location 2003
 Qualitative Shellfish Surveys 2004
 Marsh Sampling Location 2004
 Marsh Core Sampling Location 2004
 Water Sampling Location 2004
 Water Sampling Location 2003
 Intertidal Sediment Sampling Location 2003
 Intertidal Sediment Sampling Location 2004
- Shellfish Sampling Location
 Chain Drag Location 2003
 Chain Drag Location 2004
 Lobster Pot Sampling Location 2003
 Absorbent Pad Sampling Location 2003
 Dive Sites
 Wetlands
 Nests
 Vernal Pool
 NHESP 2003 Priority Habitats for State-Protected Rare Species

- OILING**
- NO DATA
 - CLEAN
 - VERY LIGHT
 - LIGHT
 - MEDIUM
 - HEAVY
- IRAC ESI**
- Public-Private Sand Beach (1A/1B)
 - Mixed Sand and Gravel (1C)
 - Marsh (1F)
 - Rocky Shoreline (1E)
 - Riprap, Groin, Jetty (1D)
 - Subtidal Sampling Location
 - Visual Inspection of Marsh Area

Segment: W1F-02 Brandt Island West
Mattapoisett, MA
Phase II Sampling: September 13-14, 2005



Photo 1: Overview of shoreline type.



Photo 2: Overview of shoreline type.

Segment: W1F-02 Brandt Island West
Mattapoissett, MA
Phase II Sampling: September 13-14, 2005



Photo 3: Patches of pavement within rocks and cobble.



Photo 4: Shoreline scarp.