September 20, 2017

Via Electronic Mail: NPDES.Generalpermits@epa.gov

U.S. Environmental Protection Agency
Remediation General Permit NOI Processing
5 Post Office Square, Suite 100
Mail Code OEP06-4
Boston, Massachusetts 02109-3912

RE: EPA Remediation General Permit Notice of Intent
Vacant Lot
853 Crescent Street
Brockton, Massachusetts
MassDEP RTN 4-26559
CEA File No. 0032-16

To Whom It May Concern:

On behalf of the EDSEL Limited Partnership (EDSEL), Corporate Environmental Advisors (CEA) respectfully submits this EPA Remediation General Permit (RGP) Notice of Intent (NOI) submittal for the above-referenced location (the "Site" or "subject property"). The RGP NOI submittal is provided as **Attachment A**. The attached Site Locus (**Figure 1**) depicts the subject property with respect to surrounding topography. The Site consists of 0.951 acres of land that includes a large gravel parking area and a single story building (identified as 863 Crescent Street) constructed on a concrete slab foundation. A former residtential dwelling (identified as 853 Crescent Street) was located in the northwest portion of the property. The subject property is located in a mixed residential/commercial area of Brockton, Massachusetts. Soil and/or groundwater beneath the subject property has been impacted by a historic underground storage tank (UST) formerly located on the property.

Excavation of petroleum-impacted soil is proposed in a portion of the property where the former UST was located. It is anticipated that proposed excavation and temporary dewatering and groundwater treatment activities will be initiated at the Site in fall 2017. Proposed remediation activities are being performed at the Site assigned Massachusetts Department of Environmental Protection (MassDEP) Release Tracking Number (RTN) 4-26559 under an Immediate Response Action (IRA), in accordance with the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000.

ADDRESS Hartwell Business Park
127 Hartwell Street, Suite 2
West Boylston, MA 01583
TEL 508.835.8822 . 800.358.7960
FAX 508.835.8812
WEB www.cea-inc.com

This Notice of Intent is being submitted in order to obtain a permit for the short term (temporary) discharge of treated groundwater to surface water. Based on available information groundwater has been measured at the Site at depths ranging from approximately four (4) feet to nine (9) feet below grade. Therefore, it is anticipated that dewatering activities and corresponding treatment of such using a temporary groundwater treatment system will be necessary to depress the groundwater table at the Site during subsurface excavation activities. The attached Site Layout (**Figure 2**) depicts pertinent Site features. The attached MassDEP Bureau of Waste Site Cleanup (BWSC) Phase 1 Site Assessment Map provided as **Figure 3** depicts surface water features and sensitive receptors located within an approximate 500 foot radius and half-mile radius of the site.

GROUNDWATER TREATMENT SYSTEM DESIGN

The proposed groundwater treatment system to be located on-site shall consist of an electric submersible pump which will pump groundwater from a temporary dewatering sump or well set within the excavation area to a 21,000-gallon fractation (frac) tank for settling and temporary storage. Recovered groundwater shall be pumped from the frac tank using a submersible pump through bag filters to remove particulates and then through two (2) 1,000-pound capacity or greater liquid phase granular activated carbon adsorption (LGACA) vessels plumbed in series. The treated groundwater will pass through a flow meter and flow totalizer prior to being discharged to a storm drain catch basin located along Crescent Street. Information provided by the City of Brockton Engineering Department indicates that this storm drain is connected to the underground drainage system within the Crescent layout and discharges to Beaver Brook, located approximately 300 feet northwest of the Site. A process and instrumentation diagram (P&ID) of the proposed groundwater treatment system is provided as **Figure 4**. The proposed treated water discharge location is shown on **Figure 2**. Drainage outfall location identified on **Figure 5**.

The average flow rate of the treated water discharge from the system to the storm drain system is expected to be less than 50 gallons per minute (gpm). The pumping capacity of the groundwater treatment system is 100 gpm based upon the capacity of the submersible pumps. The groundwater treatment system shall be inspected, monitored and sampled by a Grade II Wastewater Treatment Plant Operator as required in accordance with the RGP. Groundwater samples shall be collected from the influent and effluent (treated water) at the onset of discharge for analysis by a Massachusetts-certified laboratory for contaminants of concern and any additional monitoring parameters required by the RGP. In addition, groundwater samples shall also be collected from the midpoint (between LGAC units) for analysis by a Massachusetts-certified laboratory to further monitor the groundwater treatment system for potential break through of the liquid phase carbon.

GROUNDWATER PRE-CHARACTERIZATION ANALYSIS

Groundwater samples were collected on June 27, 2017 from recently installed on-site monitoring wells MW-3 and MW-103 to evaluate concentrations of petroleum-related petroleum compounds in groundwater. Groumdwater samples were submitted to SGS Accutest of New England (Accutest) under chain-of-custody protocol and analyzed for RGP parameters including ammonia, chloride, total suspended solids (TSS), total metals, cyanide, volatile organic compounds (VOCs), semi-VOCs (SVOCs)/ polycyclic aromatic hydrocarbons (PAHs), and total petroleum hydrocarbons (TPH) via the corresponding EPA methodologies. Refer to the laboratory analytical reports included in **Attachment B** for details of the RGP parameters, EPA methodologies and groundwater analytical results.

In addition, groundwater from on-site monitoring wells have been gauged for depth to water and presence of light non-aqueous phase liquid (LNAPL) thickness data and sampled for volatile petroleum hydrocarbons (VPH) and/or extractable petroleum hydrocarbons (EPH) on a quarterly basis since installation in early 2017. The attached **Table 1** summarizes monitoring well gauging, and attached **Tables 2A and 2B** summarize the VPH and EPH analytical results for monitoring well groundwater samples, respectively. The groundwater analytical results for untreated/ unfiltered groundwater samples collected from monitoring well MW-1 on June 27, 2017 for RGP parameters are summarized in the enclosed RGP NOI data summary section (Pages 18 to 20 in the NOI, **Attachment A**). The RGP effluent limitations were obtained from the RGP Table 2 Chemical-Specific Effluent Limitations for Category I – Petroleum Related Site Remediation, found at (https://www3.epa.gov/region1/npdes/rgp.html).

Referring to the NOI data summary included in **Attachment A**, the analytical results for the untreated/ unfiltered groundwater sample (MW-3/MW-103 Composite) detected TSS, copper, iron, lead and total group II PAHs concentrations above the corresponding EPA RGP technology-based effluent limitation (TBEL) and/or water quality-based effluent limitation (WQBEL) available for this report. These exceedances of RGP effluent limitations in the untreated groundwater sample (MW-3/MW-103 Composite) are most likely attributable to silt in the unfiltered groundwater sample and not representative of actual groundwater (soluble) concentrations. However, it is anticipated that the proposed groundwater treatment system will reduce concentrations of TSS and PAHs below available RGP effluent limitations in treated groundwater prior to discharge. Based on available information, TSS and total group II PAHs should be subject to monitoring requirements. No known sources of copper, iron or lead have existed on-site other than naturally occurring in native soils.

RECEIVING WATERS INFORMATION

The receiving water for the treated groundwater discharge is Beaver Brook located approximately 300 feet northwest of the Site. CEA consulted the online United States Geological Survey (USGS) StreamStats program (http://streamstatsags.cr.usgs.gov/v3_beta/BCreport.htm) and

USGS personnel to determine the 7Q10 flow rate at the discharge location. Data obtained from the StreamStats Flow Statistics Ungaged Report indicates that the calculated 7Q10 flow rate for Beaver Brook at Crescent Street is 0.156 cubic feet per second (cfs). A copy of the StreamStats Flow Statistics Ungaged Report is provided in **Attachment C**.

RECEIVING WATER CLASSIFICATION

According to 314 CMR 4.06, Beaver Brook, where the proposed drainage system outfall is located, discharges to the Taunton River which is designated as Class B surface water. No Classification of Beaver Brook was able to be located.

THREATENED OR ENDANGERED SPECIES OR CRITICAL HABITAT

According to the Massachusetts Geographic Information Systems (MassGIS), online MassDEP Bureau of Waste Site Cleanup (BWSC) Phase 1 Site Assessment Map (http://maps.massgis.state.ma.us/images/dep/mcp/mcp.htm) and Natural Heritage Endangered Species Program (NHESP) online maps, no Priority Habitat of Rare Species or Estimated Habitats of Rare Wildlife are located within the work area or at the proposed groundwater discharge location. Also, the MassGIS maps do not depict any Areas of Critical Environmental Concern on the Site or within one-half mile of the Site. Copies of the MassDEP Phase I Site Assessment Map (**Figure 3**) is attached and the NHESP map is provided as **Attachment D**.

As part of the Endangered Species Act eligibility determination CEA contacted the United States Department of the Interior, Fish and Wildlife Services (FWS) and requested a list of threatened and endangered species that may occur in the proposed project location and/or that may be affected by the proposed project. The FWS provided the requested list which indicates that no threatened or endangered species were identified within the work area or at the proposed groundwater discharge location. Therefore, the proposed project discharge meets FWS Criterion A. A copy of the FWS report is included in **Attachment E**.

REVIEW OF NATIONAL REGISTER OF HISTORIC PLACES

A listing of all Historic Places within the City of Brockton was obtained from the Massachusetts Cultural Resources Information System (MACRIS) online database at http://mhc-macris.net/ on September 14, 2017. A copy of the MACRIS historic places report is provided as **Attachment F**. The database indicates that numerous historic places are located in the City of Brockton, however no historic places are located in the immediate vicinity of the Site. The project does not involve the demolition or rehabilitation of any of the historic places identified in the database. Also, historic properties are not affected by the discharge or identified in the path of the discharges regulated by this permit, and are not identified where installation or construction of treatment systems or best management practices to control such discharges are planned.

If you have any questions or require additional information, please do not hesitate to contact either of the undersigned via telephone at (508) 835-8822.

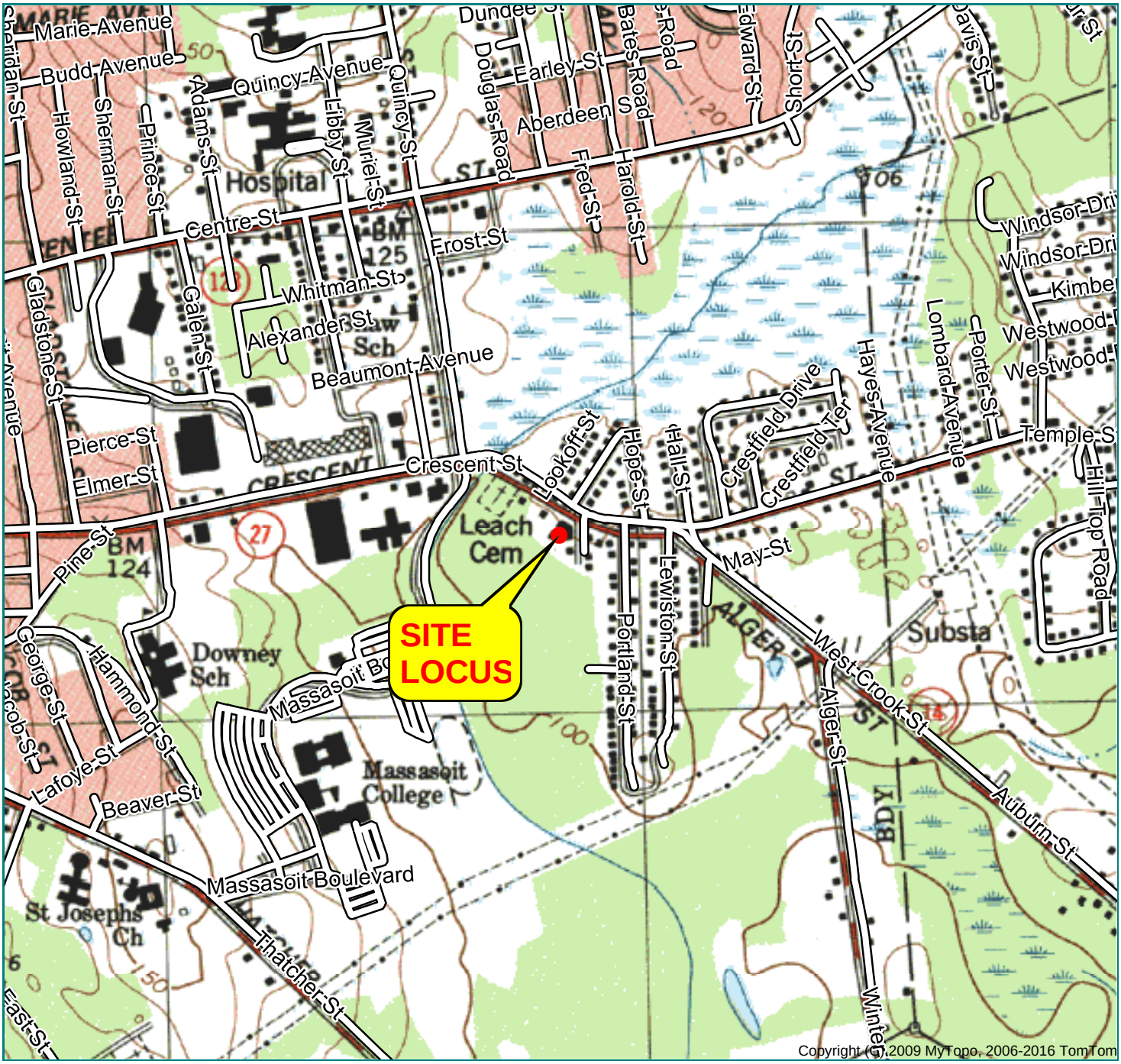
Sincerely,

Adam Guaraldi
Senior Project Geologist

Scott VanderSea
Scott E. VanderSea, LSP
Principal Hydrogeologist

cc: Ms. Shelley Puleo (via email: puleo.shelley@epa.gov)
Ms. Cathy Vakalopoulos (via email: Catherine.Vakalopoulos@state.ma.us)
Ms. Shauna Little (via email: little.shauna@epa.gov)

FIGURES



WHITMAN Topographic 1977 42070-A8-TM-025 National Geodetic Vertical Datum 1929

SCALE 1:12000

0 1000 2000
Feet

0.0 0.1 0.2 0.3 0.4 0.5
Miles

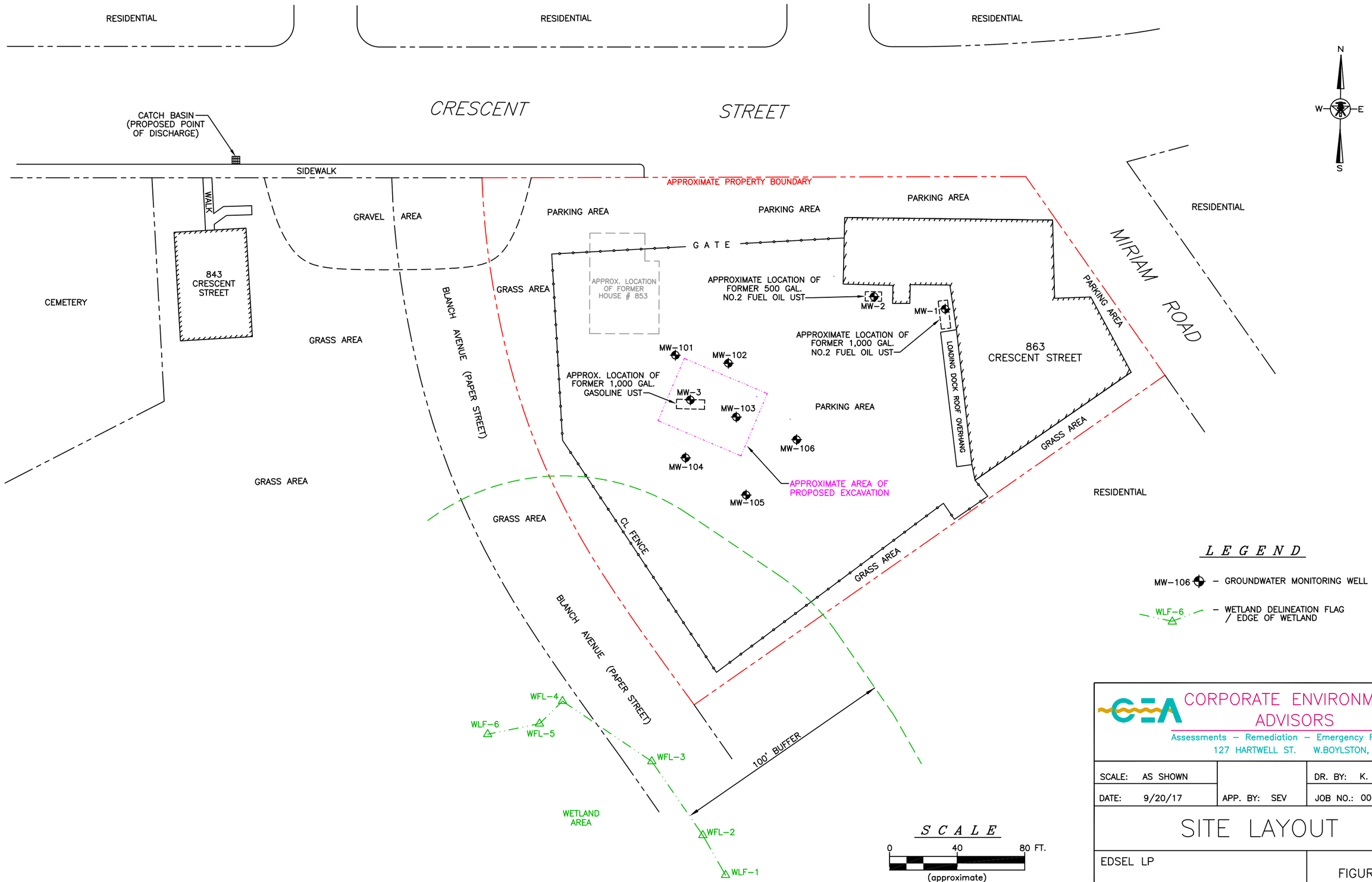
Declination
MN
MN 14.72° W

Site Location:
863 Crescent Street
Brockton, MA

Site Coordinates:
042° 04' 48.7960" N, 070° 59' 04.7768" W

Corporate Environmental Advisors
127 Hartwell Street West Boylston, MA
1-800-358-7960

Figure - 1
Site Locus Map



CORPORATE ENVIRONMENTAL ADVISORS

Assessments – Remediation – Emergency Response

127 HARTWELL ST. W.BOYLSTON, MA.

SCALE: AS SHOWN		DR. BY: K. HAZEL
DATE: 9/20/17	APP. BY: SEV	JOB NO.: 0032-16

SITE LAYOUT

EDSEL LP

863 CRESCENT STREET BROCKTON, MA

FIGURE-2

MassDEP - Bureau of Waste Site Cleanup

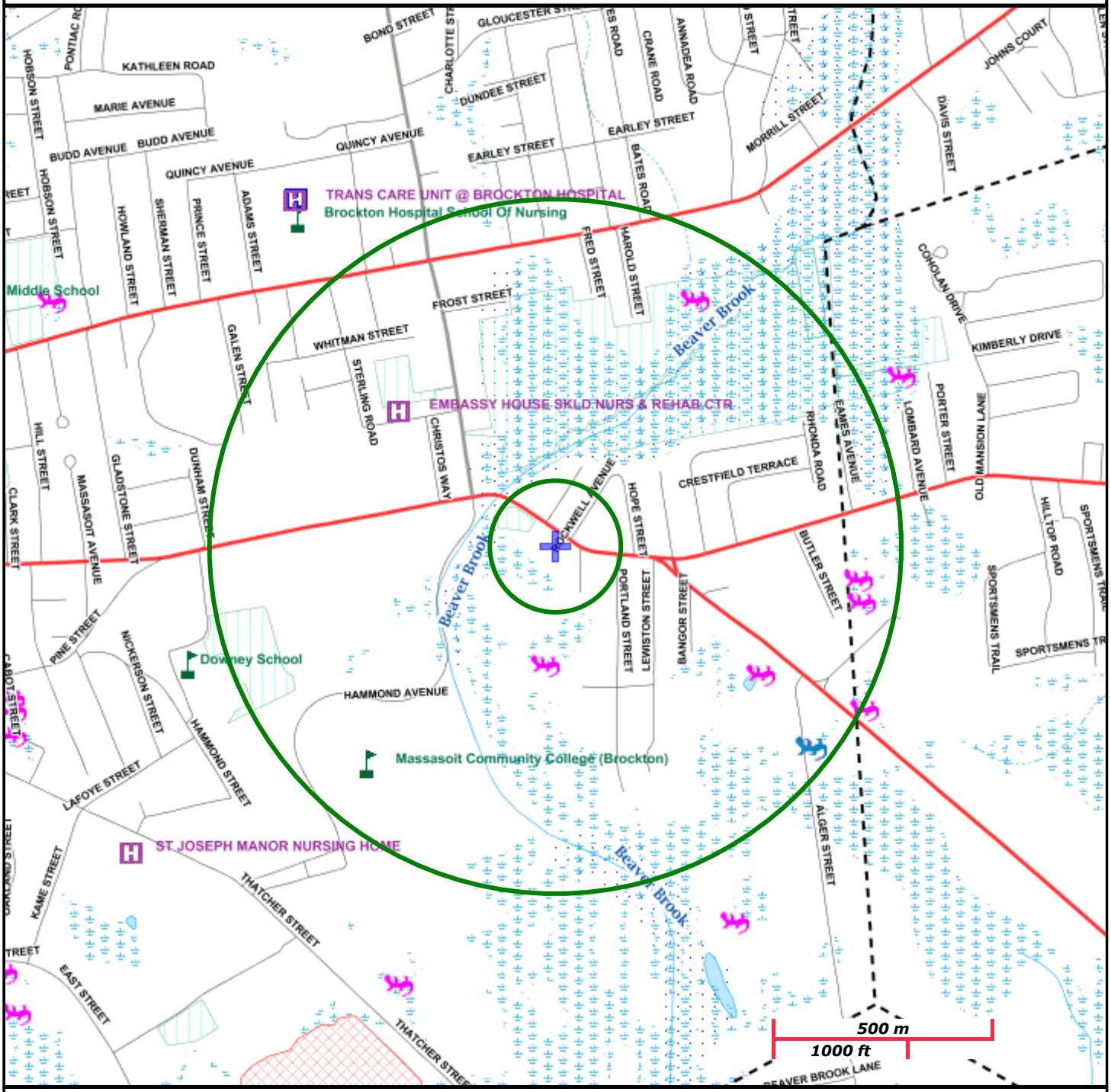
Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

Site Information:
SUBJECT SITE
863 CRESCENT ST BROCKTON, MA

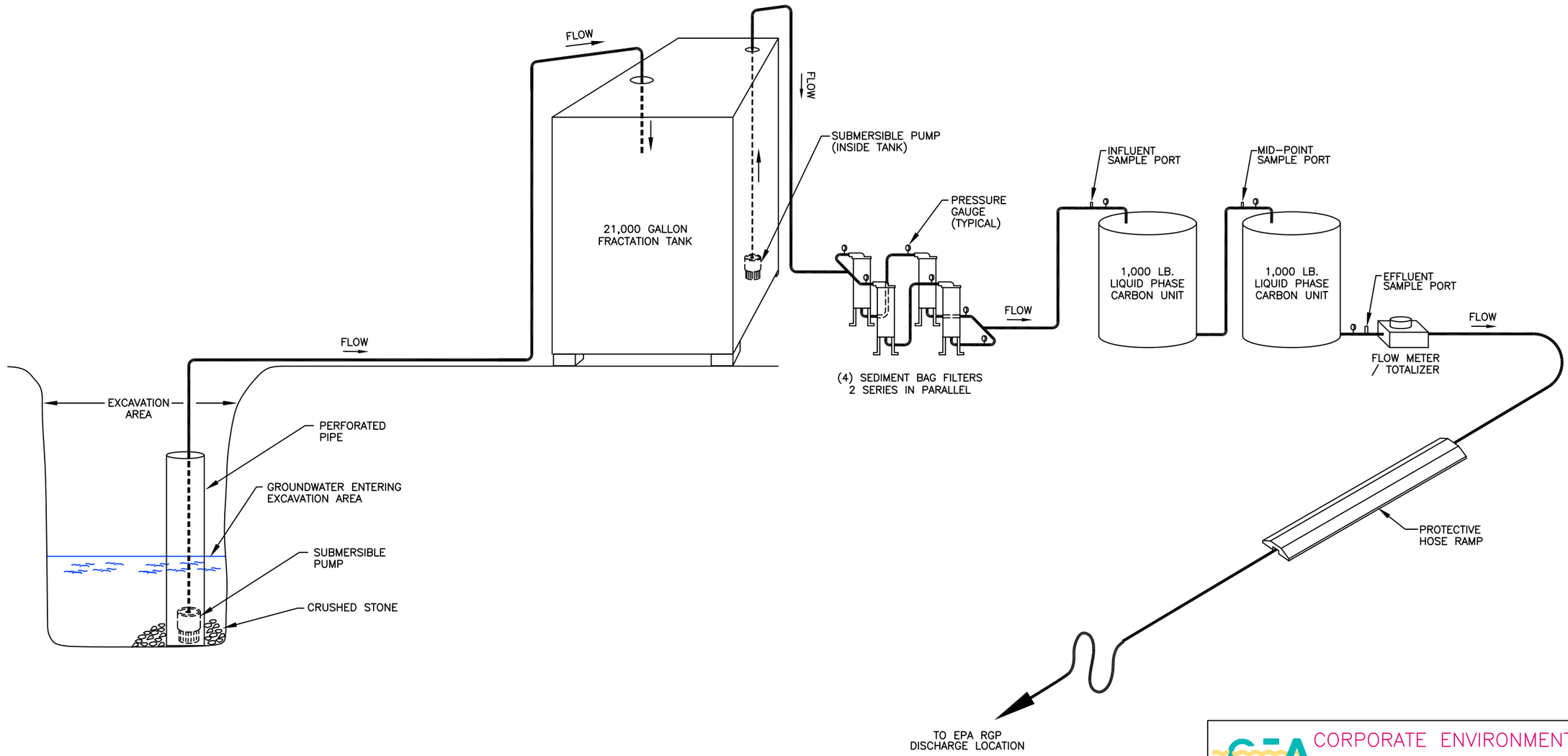
NAD83 UTM Meters:
4660639mN , 335877mE (Zone: 19)
February 15, 2017

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at: http://www.mass.gov/mgis/.

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct
Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam
Aquifers: Medium Yield, High Yield, EPA Sole Source
Non Potential Drinking Water Source Area: Medium, High (Yield)
PWS Protection Areas: Zone II, IWPA, Zone A
Hydrography: Open Water, PWS Reservoir, Tidal Flat
Wetlands: Freshwater, Saltwater, Cranberry Bog
FEMA 100yr Floodplain; Protected Open Space; ACEC
Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential
Solid Waste Landfill; PWS: Com.GW,SW, Emerg., Non-Com.



CORPORATE ENVIRONMENTAL ADVISORS

Assessments – Remediation – Emergency Response

127 HARTWELL ST. W.BOYLSTON, MA.

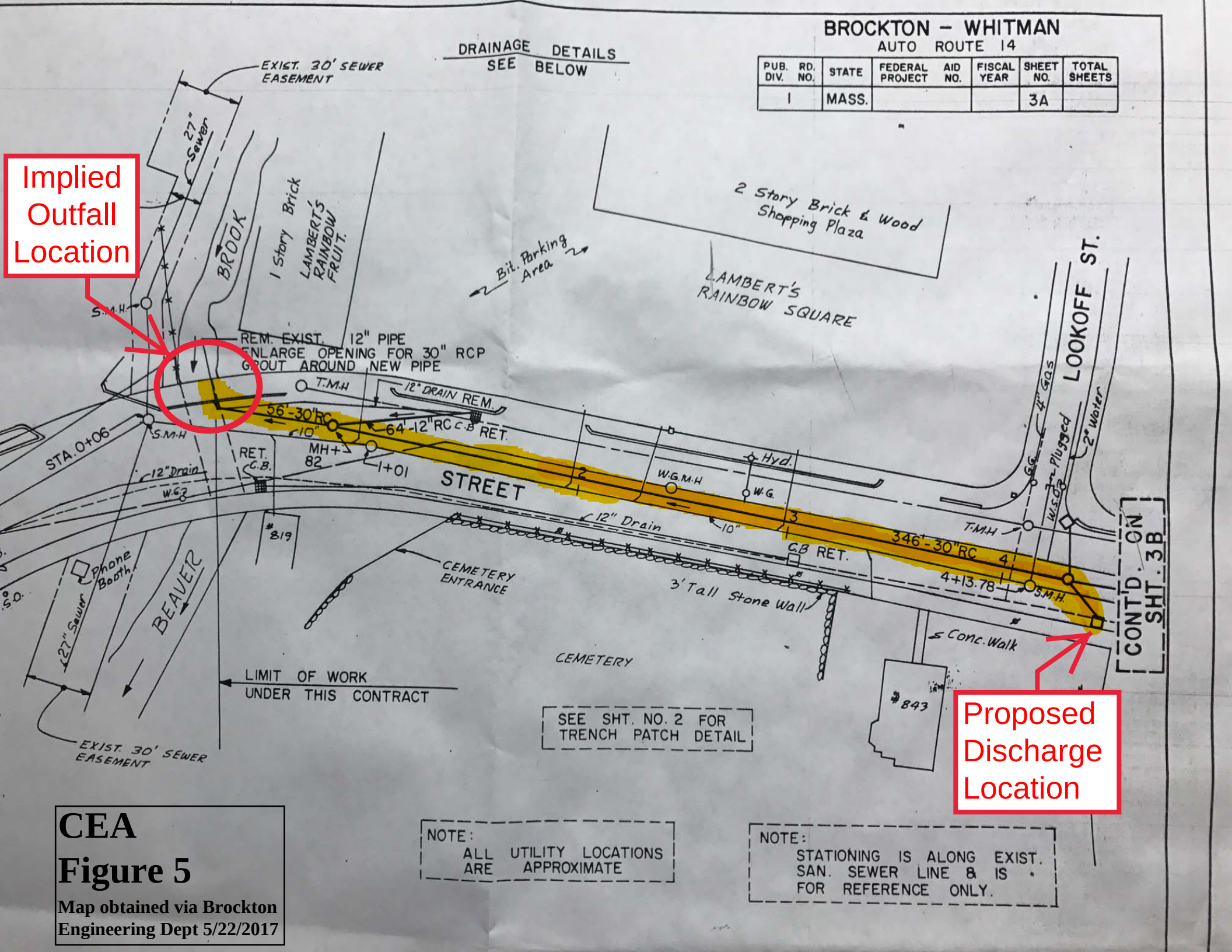
SCALE: NOT TO SCALE		DR. BY: K. HAZEL
DATE: 9/19/17	APP. BY: SEV	JOB NO.: 0032-16

EXCAVATION DEWATERING
PROCESS & INSTRUMENTATION DIAGRAM

EDSEL LP

853 CRESCENT STREET BROCKTON, MA

FIGURE-4



CEA
Figure 5
Map obtained via Brockton Engineering Dept 5/22/2017

TABLES

Table 1
Groundwater Gauging Data
853 Crescent St
Brockton, MA

Sample ID	Monitoring Date	Casing Elevation (feet)	Depth to Water (feet)	Total Well Depth (feet)	Groundwater Elevation (feet)	Comments
MW-1	2/7/17	101.85	7.85	13.80	94.00	
	4/12/17		7.01	13.80	94.84	
	8/28/17		9.32		92.53	
MW-2	2/7/17	100.39	6.36	12.80	94.03	
	4/12/17		5.56	12.70	94.83	
	8/28/17		7.85		92.54	
MW-3	2/7/17	100.00	6.08	13.00	93.92	
	4/12/17		4.81	13.00	95.19	
	8/28/17		8.31		91.69	
MW-101	4/12/17	100.30	5.42	12.60	94.88	
	8/28/17		8.14	12.60	92.16	
MW-102	4/12/17	100.03	4.76	12.52	95.27	
	8/28/17		8.15	12.55	91.88	
MW-103	4/12/17	99.72	4.69	12.38	95.03	
	8/28/17		7.75	12.38	91.97	
MW-104	4/12/17	99.49	4.67	12.45	94.82	
	8/28/17		7.62	12.45	91.87	
MW-105	4/12/17	98.84	3.96	12.12	94.88	
	8/28/17		6.98	11.90	91.86	
MW-106	4/12/17	99.12	4.16	11.88	94.96	
	8/28/17		7.10	11.75	92.02	

Table 2A
Summary of Groundwater Analytical Results - VPH
853 Crescent Street
Brockton, MA

Well ID	Date	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Naphthalene
Reportable Concentrations	RCGW-1	300	700	200	5	1,000	700	3,000	70	140
	RCGW-2	3,000	5,000	4,000	1,000	40,000	5,000	3,000	5,000	1,000
Method 1 Standards	GW-1	300	700	200	5	1,000	700	10,000	70	140
	GW-2	3,000	5,000	4,000	1,000	50,000	20,000	3,000	50,000	700
	GW-3	50,000	50,000	50,000	10,000	40,000	5,000	5,000	50,000	20,000
Method 3	UCLs	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
MW-1	2/7/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
	4/12/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
	8/28/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
MW-2	2/7/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
	4/12/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
	8/28/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
MW-3	2/7/17	**1,180**	269	**690**	**5.5**	2.8	36	31.2	19	30.9
	4/12/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
	8/28/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
MW-101	4/12/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
	8/28/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
MW-102	4/12/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
	8/28/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
MW-103	4/12/17	<50	<50	80.3	<1	<2	3.8	21.3	<1	4.0
	8/28/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
MW-104	4/12/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
	8/28/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
MW-105	4/12/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
	8/28/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
MW-106	4/12/17	<50	<50	<50	<1	<2	<2	<4	<1	<3
	8/28/17	<50	<50	<50	<1	<2	<2	<4	<1	<3

Notes:

All concentrations are in micrograms per liter (ug/L)
< indicates compound was below the laboratory reporting limit
Bold indicates concentration exceeds the Method 1 GW-1 Standard and RCGW-1 reporting threshold
Shaded indicates concentration exceeds the Method 1 GW-2 Standard
Underlined indicates concentration exceeds the Method 1 GW-3 Standard

VPH - Volatile Petroleum Hydrocarbons
MTBE - Methyl tert-butyl ether
Ref[1] 310 CMR 40 (2/14/2008) as amended on June 20, 2014.
UCL - Upper Concentration Limit

Table 2B
Summary of Groundwater Analytical Results - EPH
853 Crescent Street
Brockton, MA

Well ID	Date	C9-C18 Aliphatics	C19-C36 Aliphatics	C11-C22 Aromatics	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (g,h,i) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-c,d) pyrene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene
Reportable Concentrations	RCGW-1	700	14,000	200	20	30	30	1	0.2	1	20	1	2	0.5	90	30	0.5	10	140	40	20
	RCGW-2	5,000	50,000	5,000	10,000	40	30	1,000	500	400	20	100	70	40	200	40	100	2,000	700	10,000	20
Method 1 Standards[1]	GW-1	700	14,000	200	20	30	60	1	0.2	1	50	1	2	0.5	90	30	0.5	10	140	40	60
	GW-2	5,000	NA	50,000	NA	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,000	1,000	NA	NA
	GW-3	50,000	50,000	5,000	10,000	40	30	1,000	500	400	20	100	70	40	200	40	100	20,000	20,000	10,000	20
Method 3	UCL	100,000	100,000	100,000	100,000	100,000	600	10,000	5,000	4,000	500	1,000	700	400	2,000	400	1,000	100,000	100,000	100,000	600
MW-1	2/7/17	<100	<100	<100	<0.1	<0.1	<0.1	0.19	0.22	0.28	0.25	0.28	0.29	0.3	0.13	<0.1	0.3	<0.2	0.24	0.087	0.11
MW-2	2/7/17	<100	<100	<100	<0.1	<0.1	<0.1	<0.051	<0.1	<0.051	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.51	<0.1
MW-3	2/7/17	<100	<100	<100	<0.11	<0.11	<0.11	<0.054	<0.11	<0.054	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	1.3	11.2	<0.054	<0.11

Notes

All concentrations are in micrograms per liter (ug/L)
< indicates compound was below the laboratory reporting limit
Bold indicates concentration exceeds the Method 1 GW-2 Standard
Shaded indicates concentration exceeds the Method 1 GW-3 Standard
Underlined indicates concentration exceeds MCP Upper Concentration Limit

EPH - Extractable Petroleum Hydrocarbons
MTBE - Methyl tert-butyl ether
Ref[1] 310 CMR 40 (2/14/2008) as amended on June 20, 2014.

UCL - Upper Concentration Limit

ATTACHMENT A

EPA Remediation General Permit (RGP)
Notice of Intent (NOI) Submittal

II. Suggested Format for the Remediation General Permit Notice of Intent (NOI)

A. General site information:

<table>
<tr><td rowspan="2">1. Name of site:
Vacant Lot</td><td colspan="3">Site address: 853 Crescent Street
Street:</td></tr>
<tr><td>City: Brockton</td><td>State: MA</td><td>Zip: 02302</td></tr>
<tr><td rowspan="4">2. Site owner
EDSEL LP

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Stephen Shaer</td></tr>
<tr><td colspan="2">Telephone: 508-583-5777</td><td>Email: sshaer@mutualoil.com</td></tr>
<tr><td colspan="3">Mailing address: P.O.Box 250
Street:</td></tr>
<tr><td>City: Brockton</td><td>State: MA</td><td>Zip: 02303</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
Corporate Environmental Advisors (CEA)</td><td colspan="3">Contact Person: Scott VanderSea, LSP</td></tr>
<tr><td colspan="2">Telephone: 508-835-8822</td><td>Email: svandersea@cea-inc.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 127 Hartwell St, Suite 2</td></tr>
<tr><td>City: West Boylston</td><td>State: MA</td><td>Zip: 01583</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:

NPDES permit is (check all that apply: ■ RGP ☐ DGP ☐ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="3">5. Other regulatory program(s) that apply to the site (check all that apply):
■ MA Chapter 21e; list RTN(s): 4-26559
☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:
☐ CERCLA
☐ UIC Program
☐ POTW Pretreatment
☐ CWA Section 404</td></tr>
</table>

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Beaver Brook (Segment MA62-09)	Beaver Brook is a tributary to the Matfield River which is a tributary to the Taunton River	Taunton River (Segment MA62-01) Class B Taunton River (Segments MA62-02 to MA62-04) Class SB - Category 5

Receiving water is (check any that apply): ☐ Outstanding Resource Water ☐ Ocean Sanctuary ☐ territorial sea ■ Wild and Scenic River Taunton River

2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): ■ Yes ☐ No

Are sensitive receptors present near the site? (check one): ■ Yes ☐ No

If yes, specify: Private Water Supply Wells - Sidegradient/Upgradient of Discharge location

3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP. The Taunton River (Segments MA62-02 to MA62-04) have been placed on the Massachusetts Year 2002 Integrated List of Waters - Category 5 as not meeting Water Quality Standards for pollutants such as pathogens and organic enrichment/low dissolved oxygen.

4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.	0.156 cfs, 0.101 MGD
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.	(0.101+0.144)/0.144 = 1.7

6. Has the operator received confirmation from the appropriate State for the 7Q10and dilution factor indicated? (check one): ■ Yes ☐ No

If yes, indicate date confirmation received: 8/4/2017 by Xiaodan Ruan @ MassDEP

7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No

C. Source water information:

1. Source water(s) is (check any that apply):

■ Contaminated groundwater Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No	☐ Contaminated surface water Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ☐ Yes ☐ No	☐ The receiving water ☐ A surface water other than the receiving water; if so, indicate waterbody:	☐ Potable water; if so, indicate municipality or origin: ☐ Other; if so, specify:

2. Source water contaminants:	
a. For source waters that are contaminated groundwater or contaminated surface water, indicate are any contaminants present that are not included in the RGP? (check one): ☐ Yes ■ No If yes, indicate the contaminant(s) and the maximum concentration present in accordance with the instructions in Appendix VIII.	b. For a source water that is a surface water other than the receiving water, potable water or other, indicate any contaminants present at the maximum concentration in accordance with the instructions in Appendix VIII? (check one): ☐ Yes ☐ No
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): ☐ Yes ■ No	

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ☐ Existing discharge ■ New discharge ☐ New source	
Outfall(s): Proposed discharge to a catch basin in Crescent Street which drains west to an outfall in Crescent Street at Beaver Brook	Outfall location(s): (Latitude, Longitude) 42.0818, -70.9857
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: Proposed discharge to a catch basin in Crescent Street which drains west to an outfall in Crescent Street at Beaver Brook ☐ A private storm sewer system ■ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ☐ Yes ☐ No Has the operator has received permission from the owner to use such system for discharges? (check one): ☐ Yes ☐ No, if so, explain, with an estimated timeframe for obtaining permission: Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): ☐ Yes ☐ No	
Provide the expected start and end dates of discharge(s) (month/year): 09/2017 - 08/2018 Indicate if the discharge is expected to occur over a duration of: ■ less than 12 months ☐ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

<table>
<tr><td>2. Activity Category: (check all that apply)</td><td colspan="2">3. Contamination Type Category: (check all that apply)</td></tr>
<tr><td rowspan="5">■ I – Petroleum-Related Site Remediation
☐ II – Non-Petroleum-Related Site Remediation
■ III – Contaminated Site Dewatering
☐ IV – Dewatering of Pipelines and Tanks
☐ V – Aquifer Pump Testing
☐ VI – Well Development/Rehabilitation
☐ VII – Collection Structure Dewatering/Remediation
☐ VIII – Dredge-Related Dewatering</td><td colspan="2">a. If Activity Category I or II: (check all that apply)

☐ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
☐ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
■ F. Fuels Parameters</td></tr>
<tr><td colspan="2">b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)</td></tr>
<tr><td>■ G. Sites with Known Contamination</td><td>☐ H. Sites with Unknown Contamination</td></tr>
<tr><td>c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply)

☐ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
☐ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
■ F. Fuels Parameters</td><td>d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply</td></tr>
</table>

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia	✔		1	SM4500	20,000	<20,000		Report mg/L	---
Chloride		✔	1	300	2,000	46,100		Report µg/l	---
Total Residual Chlorine	✔		1	SM21	50	<50		0.2 mg/L	19 ug/l
Total Suspended Solids		✔	1	SM2540D	4,000	5,250		30 mg/L	30 mg/l
Antimony	✔		1	200.8	10	<10		206 µg/L	206 ug/l
Arsenic		✔	1	200.8	5	12.2		104 µg/L	104 ug/l
Cadmium	✔		1	200.8	2.5	<2.5		10.2 µg/L	10.2 ug/l
Chromium III	✔		1	6010	30	<30		323 µg/L	323 ug/l
Chromium VI	✔		1	SW846	10	<10		323 µg/L	323 ug/l
Copper		✔	1	200.8	20	47.5		242 µg/L	5.2 ug/l
Iron		✔	1	200.8	500	25,900		5,000 µg/L	1,000 ug/l
Lead		✔	1	200.8	2.5	101		160 µg/L	1.32 ug/l
Mercury	✔		1	200.8	0.6	<0.6		0.739 µg/L	0.739 ug/l
Nickel	✔		1	200.8	20	<20		1,450 µg/L	1,450 ug/l
Selenium	✔		1	200.8	5	<5		235.8 µg/L	235.8 ug/l
Silver	✔		1	200.8	10	<10		35.1 µg/L	35.1 ug/l
Zinc		✔	1	200.8	50	160		420 µg/L	420 ug/l
Cyanide	✔		1	335.4	10	<10		178 mg/L	178 ug/l
B. Non-Halogenated VOCs									
Total BTEX	✔		1	624	4	<4		100 µg/L	---
Benzene	✔		1	624	1	<1		5.0 µg/L	---
1,4 Dioxane	✔		1	624	130	<130		200 µg/L	---
Acetone	✔		1	624	5	<5		7.97 mg/L	---
Phenol	✔		1	625	2	<2		1,080 µg/L	1,080 ug/l

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✔		1	624	1	<1		4.4 µg/L	4.4 ug/l
1,2 Dichlorobenzene	✔		1	624	1	<1		600 µg/L	---
1,3 Dichlorobenzene	✔		1	624	1	<1		320 µg/L	---
1,4 Dichlorobenzene	✔		1	624	1	<1		5.0 µg/L	---
Total dichlorobenzene								763 µg/L in NH	---
1,1 Dichloroethane	✔		1	624	1	<1		70 µg/L	---
1,2 Dichloroethane	✔		1	624	1	<1		5.0 µg/L	---
1,1 Dichloroethylene								3.2 µg/L	---
Ethylene Dibromide	✔		1	624	1	<1		0.05 µg/L	---
Methylene Chloride	✔		1	624	1	<1		4.6 µg/L	---
1,1,1 Trichloroethane	✔		1	624	1	<1		200 µg/L	---
1,1,2 Trichloroethane	✔		1	624	1	<1		5.0 µg/L	---
Trichloroethylene	✔		1	624	1	<1		5.0 µg/L	---
Tetrachloroethylene	✔		1	624	1	<1		5.0 µg/L	5.0 ug/l
cis-1,2 Dichloroethylene	✔		1	624	1	<1		70 µg/L	---
Vinyl Chloride	✔		1	624	1	<1		2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates			1					190 µg/L	N/A for MA
Diethylhexyl phthalate			1					101 µg/L	101 ug/l
Total Group I PAHs			1					1.0 µg/L	---
Benzo(a)anthracene			1	8270	0.050	0.623		As Total PAHs	0.0065 ug/l
Benzo(a)pyrene			1	8270	0.050	0.588			0.0065 ug/l
Benzo(b)fluoranthene			1	8270	0.10	0.745			0.0065 ug/l
Benzo(k)fluoranthene			1	8270	0.10	0.336			0.0065 ug/l
Chrysene			1	8270	0.10	0.489			0.0065 ug/l
Dibenzo(a,h)anthracene			1	8270	0.10	0.128			0.0065 ug/l
Indeno(1,2,3-cd)pyrene			1	8270	0.10	0.409			0.0065 ug/l

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs								100 µg/L	---
Naphthalene	✔		1	8270	0.1	<0.1		20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		1	608	0.25	<0.25		0.000064 µg/L	---
Pentachlorophenol	✔		1	625	5	<5		1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons		✔	1	1664A	5 mg/L	<5mg/L		5.0 mg/L	---
Ethanol	✔		1	SW846	100	<100		Report mg/L	---
Methyl-tert-Butyl Ether	✔		1	624	1	<1		70 µg/L	70 ug/l
tert-Butyl Alcohol	✔		1	624	25	<25		120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		1	624	1	<1		90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									

E. Treatment system information

1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply)

☐ Adsorption/Absorption ☐ Advanced Oxidation Processes ☐ Air Stripping ■ Granulated Activated Carbon ("GAC")/Liquid Phase Carbon Adsorption
☐ Ion Exchange ☐ Precipitation/Coagulation/Flocculation ■ Separation/Filtration ☐ Other; if so, specify:

2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.

An electric submersible pump will pump groundwater from a temporary excavation dewatering sump to a 21,000 gallon fractionation (frac) tank. Recovered groundwater shall pass through bag filters to remove particulates and two 2,000-pound liquid phase granular activated carbon (LGAC) units plumbed in series. The treated groundwater shall be discharged into a storm drain catch basin near the northwest side of the property.

Identify each major treatment component (check any that apply):
■ Fractionation tanks☐ Equalization tank ☐ Oil/water separator ☐ Mechanical filter ☐ Media filter
☐ Chemical feed tank ☐ Air stripping unit ■ Bag filter ☐ Other; if so, specify:

Indicate if either of the following will occur (check any that apply):
☐ Chlorination ☐ De-chlorination

3. Provide the **design flow capacity** in gallons per minute (gpm) of the most limiting component. Indicate the most limiting component: 200 GPM Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	
Provide the proposed maximum effluent flow in gpm.	100 GPM
Provide the average effluent flow in gpm.	10 GPM
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	

4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one): ■ Yes ☐ No

F. Chemical and additive information

1. Indicate the type(s) of chemical or additive that will be applied to effluent prior to discharge or that may otherwise be present in the discharge(s): (check all that apply)

☐ Algaecides/biocides ☐ Antifoams ☐ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ☐ Flocculants ☐ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ☐ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ☐ Other; if so, specify:
NO ADDITIVES

2. Provide the following information for each chemical/additive, using attachments, if necessary:

a. Product name, chemical formula, and manufacturer of the chemical/additive;
b. Purpose or use of the chemical/additive or remedial agent;
c. Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
d. The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive;
e. Any material compatibility risks for storage and/or use including the control measures used to minimize such risks; and
f. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).

3. Has the operator attached an explanation which demonstrates that the addition of such chemicals/additives may be authorized under this general permit in accordance with the instructions in F, above? (check one): ☐ Yes ☐ No; if no, has the operator attached data that demonstrates each of the 126 priority pollutants in CWA Section 307(a) and 40 CFR Part 423.15(j)(1) are non-detect in discharges with the addition of the proposed chemical/additive?
(check one): ☐ Yes ☐ No

G. Endangered Species Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

■ **FWS Criterion A**: No endangered or threatened species or critical habitat are in proximity to the discharges or related activities or come in contact with the "action area".

☐ **FWS Criterion B**: Formal or informal consultation with the FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by FWS on a finding that the discharges and related activities are "not likely to adversely affect" listed species or critical habitat (informal consultation). Has the operator completed consultation with FWS? (check one): ☐ Yes ☐ No; if no, is consultation underway? (check one): ☐ Yes ☐ No

☐ **FWS Criterion C**: Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the operator and affirmed by EPA, that the discharges and related activities will have "no effect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the FWS. This determination was made by: (check one) ☐ the operator ☐ EPA ☐ Other; if so, specify:

☐ **NMFS Criterion**: A determination made by EPA is affirmed by the operator that the discharges and related activities will have "no effect" or are "not likely to adversely affect" any federally threatened or endangered listed species or critical habitat under the jurisdiction of NMFS and will not result in any take of listed species. Has the operator previously completed consultation with NMFS? (check one): ☐ Yes ☐ No

2. Has the operator attached supporting documentation of ESA eligibility in accordance with the instructions in Appendix I, and G, above? (check one): ■ Yes ☐ No

Does the supporting documentation include any written concurrence or finding provided by the Services? (check one): ■ Yes ☐ No; if yes, attach.

H. National Historic Preservation Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

■ **Criterion A**: No historic properties are present. The discharges and discharge-related activities (e.g., BMPs) do not have the potential to cause effects on historic properties.

☐ **Criterion B**: Historic properties are present. Discharges and discharge related activities do not have the potential to cause effects on historic properties.

☐ **Criterion C**: Historic properties are present. The discharges and discharge-related activities have the potential to have an effect or will have an adverse effect on historic properties.

2. Has the operator attached supporting documentation of NHPA eligibility in accordance with the instructions in H, above? (check one): ☐ Yes ■ No

Does the supporting documentation include any written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the operator will carry out to mitigate or prevent any adverse effects on historic properties? (check one): ☐ Yes ■ No

I. Supplemental information

Describe any supplemental information being provided with the NOI. Include attachments if required or otherwise necessary.

Please see attached figures, data tables, laboratory analytical reports and supporting documentation for supplemental information.

Has the operator attached data, including any laboratory case narrative and chain of custody used to support the application? (check one): ■ Yes ☐ No

Has the operator attached the certification requirement for the Best Management Practices Plan (BMPP)? (check one): ☐ Yes ■ No

According to EPA a copy of a Best Management Practices Plan (BMPP) only needs to be onsite and not included in the NOI submittal to EPA.

J. Certification requirement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

BMPP certification statement: A Best Management Practices Plan (BMPP) has been prepared and a copy will be maintained on-site.

Notification provided to the appropriate State, including a copy of this NOI, if required. Check one: Yes ■ No ☐

Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested. Check one: Yes ■ No ☐
Brockton DPW Engineering Dept was notified of the proposed discharge to storm drainage system

Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested. Check one: Yes ☐ No ☐ NA ■

Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission. Check one: Yes ☐ No ☐ NA ■

Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify: Check one: Yes ☐ No ☐ NA ■

Signature: Scott VanderSea Date: 9/19/17

Print Name and Title: Scott VanderSea, LSP, Principal Hydrogeologist

ATTACHMENT B

Laboratory Analytical Report

e-Hardcopy 2.0
Automated Report

Technical Report for

Mutual Oil Company

CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

0032-16

SGS Accutest Job Number: MC50794

Sampling Date: 06/27/17

Report to:

CEA
127 Hartwell St. Suite 2
West Boylston, MA 01583
svandersea@cea-inc.com; erachins@mutualoil.com;
ndescoteaux@cea-inc.com
ATTN: Scott Vandersea

Total number of pages in report: **91**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

H. (Brad) Madadian
Lab Director

Client Service contact: Victoria Pushkova 508-481-6200

Certifications: MA (M-MA136,SW846 NELAC) CT (PH-0109) NH (250210) RI (00071) FL (E87579) NJ (MA926) PA (6801121) LA (AI171119) ND (R-188) NC (653) IL (002337) WI (399080220) DoD ELAP (L-A-B L2235)

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Sample Summary

Mutual Oil Company

Job No: MC50794

CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA
Project No: 0032-16

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
MC50794-1	06/27/17	09:30	KH	06/27/17	AQ	Ground Water	MW-3/MW-103 COMPOSITE
MC50794-1A	06/27/17	09:30	KH	06/27/17	AQ	Ground Water	MW-3/MW-103 COMPOSITE
MC50794-2	06/27/17	10:35	KH	06/27/17	AQ	Surface Water	SW-1

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Mutual Oil Company **Job No** MC50794

Site: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA **Report Date** 7/7/2017 1:26:26 PM

2 Sample(s) were collected on 06/27/2017 and were received at SGS Accutest New England on 06/27/2017 properly preserved, at 17.1 Deg. C and intact. These Samples received a job number of MC50794. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method EPA 624

Matrix: AQ **Batch ID:** N:VN11130

- Analysis performed at SGS Accutest, Dayton, NJ.

Volatiles by GCMS By Method SW846 8260C

Matrix: AQ **Batch ID:** N:V4D3482

- MC50794-1: Analysis performed at SGS Accutest, Dayton, NJ.

Volatiles by GCMS By Method SW846 8260C BY SIM

Matrix: AQ **Batch ID:** N:V3A6747

- Analysis performed at SGS Accutest, Dayton, NJ.

Extractables by GCMS By Method EPA 625

Matrix: AQ **Batch ID:** N:OP4132

- MC50794-1: Analysis performed at SGS Accutest, Dayton, NJ.

Extractables by GCMS By Method SW846 8270D BY SIM

Matrix: AQ **Batch ID:** N:OP4132A

- MC50794-1: Analysis performed at SGS Accutest, Dayton, NJ.

Volatiles by GC By Method EPA 504.1

Matrix: AQ **Batch ID:** OP49819

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- MC50794-1 for Bromofluorobenzene (S): Outside control limits.Sample non-detect.

Extractables by GC By Method EPA 608

Matrix: AQ **Batch ID:** N:OP4120

- MC50794-1: Analysis performed at SGS Accutest, Dayton, NJ.

Metals By Method EPA 200.7

Matrix: AQ **Batch ID:** N:MP1696

- Analysis performed at SGS Accutest, Dayton, NJ.

Metals By Method EPA 200.8

Matrix: AQ **Batch ID:** N:MP1682

- Analysis performed at SGS Accutest, Dayton, NJ.

Metals By Method EPA 245.1

Matrix: AQ **Batch ID:** N:MP1710

- Analysis performed at SGS Accutest, Dayton, NJ.

Wet Chemistry By Method 6010/7196A M/200.7

Matrix: AQ **Batch ID:** R40100

- MC50794-2 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix: AQ **Batch ID:** R40101

- MC50794-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method EPA 1664A

Matrix: AQ **Batch ID:** N:GP6323

- MC50794-1 for HEM Petroleum Hydrocarbons: Analysis performed at SGS Accutest, Dayton, NJ.

Wet Chemistry By Method EPA 300/SW846 9056A

Matrix: AQ **Batch ID:** N:GP6325

- MC50794-1 for Chloride: Analysis performed at SGS Accutest, Dayton, NJ.

Wet Chemistry By Method EPA 335.4/LACHAT

Matrix: AQ **Batch ID:** N:GP6296

- MC50794-1 for Cyanide: Analysis performed at SGS Accutest, Dayton, NJ.

Wet Chemistry By Method EPA 420.4/LACHAT

Matrix: AQ **Batch ID:** N:GP6345

- MC50794-1 for Phenols: Analysis performed at SGS Accutest, Dayton, NJ.

Wet Chemistry By Method SM 2540D-11

Matrix: AQ **Batch ID:** GN55954

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SM21 4500CL F

Matrix: AQ **Batch ID:** GN55948

- All method blanks for this batch meet method specific criteria.
- MC50794-1 for Total Residual Chlorine: Analysis performed past the required 15 minutes of collection time/holding time.

Wet Chemistry By Method SM21 4500HB/EPA150.1

Matrix:	AQ	Batch ID:	GN55945

- MC50794-2 for pH: Analysis performed past the required 15 minutes of collection time/holding time.

Wet Chemistry By Method SM2340 C-11

Matrix:	AQ	Batch ID:	N:GN66386

- MC50794-2 for Hardness, Total as CaCO3: Analysis performed at SGS Accutest, Dayton, NJ.

Wet Chemistry By Method SM4500NH3 H-11LACHAT

Matrix:	AQ	Batch ID:	N:GP6302

- MC50794-2 for Nitrogen, Ammonia: Analysis performed at SGS Accutest, Dayton, NJ.
- MC50794-1 for Nitrogen, Ammonia: Analysis performed at SGS Accutest, Dayton, NJ.

Wet Chemistry By Method SW846 7196A

Matrix:	AQ	Batch ID:	GN55946

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

SGS Accutest New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Laboratory Director for SGS Accutest New England or assignee as verified by the signature on the cover page has authorized the release of this report(MC50794).

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	SGS Accutest New England	**Job No**	MC50794
Site:	MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA	**Report Date**	7/7/2017 10:06:05 AM

On 06/28/2017, 2 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS Accutest at a maximum corrected temperature of 2.3 C. Samples were intact and chemically preserved, unless noted below. A SGS Accutest Job Number of MC50794 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method EPA 624

Matrix: AQ **Batch ID:** VN11130

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- MC50794-1: (pH=6)Sample pH did not satisfy field preservation criteria.
- MC50794-1 for Acetone: This compound in the associated CCV is outside the method criteria of 20%, biased high.
- RPD from VN11130-BSD for 1,4-Dioxane: Outside in house control limits.
- VN11130-BSD for 1,2-Dubrinietgabe are outside control limits. High percent recoveries and no associated positive reported in the QC batch.

Volatiles by GCMS By Method SW846 8260C

Matrix: AQ **Batch ID:** V4D3482

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Volatiles by GCMS By Method SW846 8260C BY SIM

Matrix: AQ **Batch ID:** V3A6747

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- MC50794-1A: (pH=6) Sample is not acid preserved per method/client criteria. Sample analyzed within 7 days holding time.

Extractables by GCMS By Method EPA 625

Matrix: AQ **Batch ID:** OP4132

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- MC50794-1 for Pentachlorophenol: Quadratic regression was employed for this compound in associated ICAL.

Extractables by GCMS By Method SW846 8270D BY SIM

Matrix: AQ **Batch ID:** OP4132A

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- OP4132A-BSD12 for Acenaphthylene: Outside of program requirements.
- OP4132A-BSD12 for Naphthalene: Outside of program requirements.
- MC50794-1 for Benzo(k)fluoranthene: Quadratic regression was employed for this compound in associated ICAL.
- MC50794-1 for Acenaphthylene: This compound is outside the MCP limits in the associated BSD.
- MC50794-1 for Naphthalene: This compound is outside the MCP limits in the associated BSD.

Extractables by GC By Method EPA 608

Matrix: AQ **Batch ID:** OP4120

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- MC50794-1: Confirmation run.
- OP4120-BS1 for Aroclor 1260: Reported from the 2nd signal. The %D of the CCV on the 1st signal exceeds the method criteria of 15%, so it being used for confirmation only.
- OP4120-BSD for Aroclor 1260: Reported from the 2nd signal. The %D of the CCV on the 1st signal exceeds the method criteria of 15%, so it being used for confirmation only.

Metals By Method EPA 200.7

Matrix: AQ **Batch ID:** MP1696

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC46056-1SDL were used as the QC samples for metals.
- MC50794-1 for Iron: Elevated sample detection limit due to difficult sample matrix.

Metals By Method EPA 200.8

Matrix: AQ **Batch ID:** MP1682

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Metals By Method EPA 245.1

Matrix: AQ **Batch ID:** MP1710

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- MC50794-1 for Mercury: Elevated sample detection limit due to limited volume.
- MC50794-2 for Mercury: Elevated sample detection limit due to limited volume.

Wet Chemistry By Method EPA 1664A

Matrix: AQ **Batch ID:** GP6323

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method EPA 300/SW846 9056A

Matrix: AQ	Batch ID: GP6325

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method EPA 335.4/LACHAT

Matrix: AQ	Batch ID: GP6296

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method EPA 420.4/LACHAT

Matrix: AQ	Batch ID: GP6345

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SM2340 C-11

Matrix: AQ	Batch ID: GN66386

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AQ	Batch ID: GP6302

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

SGS Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS Accutest is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS Accutest indicated via signature on the report cover

Summary of Hits

Job Number: MC50794
Account: Mutual Oil Company
Project: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA
Collected: 06/27/17

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
MC50794-1	**MW-3/MW-103 COMPOSITE**					
Acenaphthylene [a]		0.116	0.10		ug/l	SW846 8270D BY SIM
Anthracene [b]		0.129	0.10		ug/l	SW846 8270D BY SIM
Benzo(a)anthracene [b]		0.623	0.050		ug/l	SW846 8270D BY SIM
Benzo(a)pyrene [b]		0.588	0.050		ug/l	SW846 8270D BY SIM
Benzo(b)fluoranthene [b]		0.745	0.10		ug/l	SW846 8270D BY SIM
Benzo(g,h,i)perylene [b]		0.501	0.10		ug/l	SW846 8270D BY SIM
Benzo(k)fluoranthene [c]		0.336	0.10		ug/l	SW846 8270D BY SIM
Chrysene [b]		0.489	0.10		ug/l	SW846 8270D BY SIM
Dibenzo(a,h)anthracene [b]		0.128	0.10		ug/l	SW846 8270D BY SIM
Fluoranthene [b]		0.620	0.10		ug/l	SW846 8270D BY SIM
Indeno(1,2,3-cd)pyrene [b]		0.409	0.10		ug/l	SW846 8270D BY SIM
Phenanthrene [b]		0.262	0.10		ug/l	SW846 8270D BY SIM
Pyrene [b]		0.702	0.10		ug/l	SW846 8270D BY SIM
Arsenic [b]		12.2	5.0		ug/l	EPA 200.8
Chromium [b]		29.7	20		ug/l	EPA 200.8
Copper [b]		47.5	20		ug/l	EPA 200.8
Iron [d]		25900	500		ug/l	EPA 200.7
Lead [b]		101	2.5		ug/l	EPA 200.8
Zinc [b]		160	50		ug/l	EPA 200.8
Chloride [b]		46.1	2.0		mg/l	EPA 300/SW846 9056A
Solids, Total Suspended		5250	40		mg/l	SM 2540D-11
MC50794-1A	**MW-3/MW-103 COMPOSITE**					
No hits reported in this sample.						
MC50794-2	**SW-1**					
Arsenic [b]		1.6	1.0		ug/l	EPA 200.8
Copper [b]		12.9	4.0		ug/l	EPA 200.8
Iron [b]		8820	100		ug/l	EPA 200.7
Lead [b]		21.9	0.50		ug/l	EPA 200.8
Zinc [b]		38.0	10		ug/l	EPA 200.8
Hardness, Total as CaCO3 [b]		50.0	4.0		mg/l	SM2340 C-11
pH [e]		6.3			su	SM21 4500HB/EPA150.1

(a) Analysis performed at SGS Accutest, Dayton, NJ. This compound is outside the MCP limits in the associated BSD.
(b) Analysis performed at SGS Accutest, Dayton, NJ.
(c) Analysis performed at SGS Accutest, Dayton, NJ. Quadratic regression was employed for this compound in associated ICAL.
(d) Elevated sample detection limit due to difficult sample matrix. Analysis performed at SGS Accutest, Dayton, NJ.

Summary of Hits

Job Number: MC50794
Account: Mutual Oil Company
Project: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA
Collected: 06/27/17

Lab Sample ID	Client Sample ID	Result/				
Analyte		Qual	RL	MDL	Units	Method

(e) Analysis performed past the required 15 minutes of collection time/holding time.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW-3/MW-103 COMPOSITE		
Lab Sample ID:	MC50794-1	**Date Sampled:**	06/27/17
Matrix:	AQ - Ground Water	**Date Received:**	06/27/17
Method:	EPA 624	**Percent Solids:**	n/a
Project:	CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	N264051.D	1	07/03/17 16:47	ANJ	n/a	n/a	N:VN11130
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [b]	ND	5.0	ug/l	
71-43-2	Benzene	ND	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/l	
123-91-1	1,4-Dioxane	ND	130	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	1.0	ug/l	
75-65-0	Tertiary Butyl Alcohol	ND	25	ug/l	
994-05-8	tert-Amyl Methyl Ether	ND	1.0	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/l	
79-01-6	Trichloroethene	ND	1.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	101%		72-125%
2037-26-5	Toluene-D8 (SUR)	97%		78-119%
460-00-4	4-Bromofluorobenzene (SUR)	90%		74-115%
1868-53-7	Dibromofluoromethane (S)	110%		79-120%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3/MW-103 COMPOSITE		
Lab Sample ID:	MC50794-1	**Date Sampled:**	06/27/17
Matrix:	AQ - Ground Water	**Date Received:**	06/27/17
Method:	EPA 624	**Percent Solids:**	n/a
Project:	CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA		

VOA Special List

CAS No.	Compound	Result	RL	Units	Q

(a) (pH= 6)Sample pH did not satisfy field preservation criteria. Analysis performed at SGS Accutest, Dayton, NJ.
(b) This compound in the associated CCV is outside the method criteria of 20%, biased high.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3/MW-103 COMPOSITE		
Lab Sample ID:	MC50794-1	**Date Sampled:**	06/27/17
Matrix:	AQ - Ground Water	**Date Received:**	06/27/17
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	4D80677A.D	1	07/03/17 19:53	ANJ	n/a	n/a	N:V4D3482
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	Units	Q
64-17-5	Ethanol	ND	100	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		76-120%
17060-07-0	1,2-Dichloroethane-D4	101%		73-122%
2037-26-5	Toluene-D8	102%		84-119%
460-00-4	4-Bromofluorobenzene	101%		78-117%

(a) Analysis performed at SGS Accutest, Dayton, NJ.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3/MW-103 COMPOSITE		
Lab Sample ID:	MC50794-1	**Date Sampled:**	06/27/17
Matrix:	AQ - Ground Water	**Date Received:**	06/27/17
Method:	EPA 625 EPA 625	**Percent Solids:**	n/a
Project:	CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	5P40287.D	1	06/30/17 12:58	ANJ	06/29/17 16:10	N:OP4132	N:E5P1979
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	Units	Q
87-86-5	Pentachlorophenol [b]	ND	5.0	ug/l	
108-95-2	Phenol	ND	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	44%		10-110%
4165-62-2	Phenol-d5	31%		10-110%
118-79-6	2,4,6-Tribromophenol	80%		35-147%
4165-60-0	Nitrobenzene-d5	82%		32-132%
321-60-8	2-Fluorobiphenyl	77%		40-117%
1718-51-0	Terphenyl-d14	62%		33-126%

(a) Analysis performed at SGS Accutest, Dayton, NJ.
(b) Quadratic regression was employed for this compound in associated ICAL.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3/MW-103 COMPOSITE		
Lab Sample ID:	MC50794-1	**Date Sampled:**	06/27/17
Matrix:	AQ - Ground Water	**Date Received:**	06/27/17
Method:	SW846 8270D BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3P60647.D	1	06/30/17 18:21	ANJ	06/29/17 16:10	N:OP4132A	N:E3P2848
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	0.10	ug/l	
208-96-8	Acenaphthylene [b]	0.116	0.10	ug/l	
120-12-7	Anthracene	0.129	0.10	ug/l	
56-55-3	Benzo(a)anthracene	0.623	0.050	ug/l	
50-32-8	Benzo(a)pyrene	0.588	0.050	ug/l	
205-99-2	Benzo(b)fluoranthene	0.745	0.10	ug/l	
191-24-2	Benzo(g,h,i)perylene	0.501	0.10	ug/l	
207-08-9	Benzo(k)fluoranthene [c]	0.336	0.10	ug/l	
218-01-9	Chrysene	0.489	0.10	ug/l	
53-70-3	Dibenzo(a,h)anthracene	0.128	0.10	ug/l	
206-44-0	Fluoranthene	0.620	0.10	ug/l	
86-73-7	Fluorene	ND	0.10	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	0.409	0.10	ug/l	
91-20-3	Naphthalene [b]	ND	0.10	ug/l	
85-01-8	Phenanthrene	0.262	0.10	ug/l	
129-00-0	Pyrene	0.702	0.10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	68%		29-124%
321-60-8	2-Fluorobiphenyl	58%		23-122%
1718-51-0	Terphenyl-d14	45%		22-130%

(a) Analysis performed at SGS Accutest, Dayton, NJ.
(b) This compound is outside the MCP limits in the associated BSD.
(c) Quadratic regression was employed for this compound in associated ICAL.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3/MW-103 COMPOSITE		
Lab Sample ID:	MC50794-1	**Date Sampled:**	06/27/17
Matrix:	AQ - Ground Water	**Date Received:**	06/27/17
Method:	EPA 504.1 EPA 504.1	**Percent Solids:**	n/a
Project:	CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BB71953.D	1	07/01/17 16:58	AP	06/30/17 12:00	OP49819	GBB3768
Run #2							

	Initial Volume	Final Volume
Run #1	35.0 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.010	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	192% [a]		48-154%
460-00-4	Bromofluorobenzene (S)	159% [a]		48-154%

(a) Outside control limits. Sample non-detect.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3/MW-103 COMPOSITE		
Lab Sample ID:	MC50794-1	**Date Sampled:**	06/27/17
Matrix:	AQ - Ground Water	**Date Received:**	06/27/17
Method:	EPA 608 EPA 608	**Percent Solids:**	n/a
Project:	CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	XX211805.D	1	07/03/17 13:37	ANJ	06/29/17 19:10	N:OP4120	N:GXX6055
Run #2 [b]	XX211834.D	1	07/03/17 23:07	ANJ	06/29/17 19:10	N:OP4120	N:GXX6055

	Initial Volume	Final Volume
Run #1	990 ml	5.0 ml
Run #2	990 ml	5.0 ml

PCB List

CAS No.	Compound	Result	RL	Units	Q
12674-11-2	Aroclor 1016	ND	0.25	ug/l	
11104-28-2	Aroclor 1221	ND	0.25	ug/l	
11141-16-5	Aroclor 1232	ND	0.25	ug/l	
53469-21-9	Aroclor 1242	ND	0.25	ug/l	
12672-29-6	Aroclor 1248	ND	0.25	ug/l	
11097-69-1	Aroclor 1254	ND	0.25	ug/l	
11096-82-5	Aroclor 1260	ND	0.25	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	72%	74%	10-156%
877-09-8	Tetrachloro-m-xylene	77%	80%	10-156%
2051-24-3	Decachlorobiphenyl	33%	33%	10-143%
2051-24-3	Decachlorobiphenyl	44%	41%	10-143%

(a) Analysis performed at SGS Accutest, Dayton, NJ.
(b) Confirmation run. Analysis performed at SGS Accutest, Dayton, NJ.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3/MW-103 COMPOSITE		
Lab Sample ID:	MC50794-1	**Date Sampled:**	06/27/17
Matrix:	AQ - Ground Water	**Date Received:**	06/27/17
		Percent Solids:	n/a
Project:	CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Antimony [a]	< 10	10	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Arsenic [a]	12.2	5.0	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Cadmium [a]	< 2.5	2.5	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Chromium [a]	29.7	20	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Copper [a]	47.5	20	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Iron [b]	25900	500	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.7 [2]	EPA 200.7 [5]
Lead [a]	101	2.5	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Mercury [c]	< 0.60	0.60	ug/l	1	06/30/17	06/30/17	ANJ	EPA 245.1 [1]	EPA 245.1 [6]
Nickel [a]	< 20	20	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Selenium [a]	< 5.0	5.0	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Silver [a]	< 10	10	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Zinc [a]	160	50	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]

(1) Instrument QC Batch: N:MA42336
(2) Instrument QC Batch: N:MA42351
(3) Instrument QC Batch: N:MA42353
(4) Prep QC Batch: N:MP1682
(5) Prep QC Batch: N:MP1696
(6) Prep QC Batch: N:MP1710

(a) Analysis performed at SGS Accutest, Dayton, NJ.
(b) Elevated sample detection limit due to difficult sample matrix. Analysis performed at SGS Accutest, Dayton, NJ.
(c) Elevated sample detection limit due to limited volume. Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-3/MW-103 COMPOSITE		
Lab Sample ID:	MC50794-1	**Date Sampled:**	06/27/17
Matrix:	AQ - Ground Water	**Date Received:**	06/27/17
		Percent Solids:	n/a
Project:	CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride [a]	46.1	2.0	mg/l	1	06/29/17 15:53	ANJ	EPA 300/SW846 9056A
Chromium, Hexavalent	< 0.010	0.010	mg/l	1	06/28/17 09:00	EAL	SW846 7196A
Chromium, Trivalent [b]	< 0.030	0.030	mg/l	1	07/03/17 14:53	ANJ	6010/7196A M/200.7
Cyanide [a]	< 0.010	0.010	mg/l	1	06/29/17 15:19	ANJ	EPA 335.4/LACHAT
HEM Petroleum Hydrocarbo [a]	< 5.0	5.0	mg/l	1	06/29/17 14:15	ANJ	EPA 1664A
Nitrogen, Ammonia [a]	< 0.20	0.20	mg/l	1	06/29/17 10:33	ANJ	SM4500NH3 H-11LACHAT
Phenols [a]	< 0.20	0.20	mg/l	1	07/03/17 15:23	ANJ	EPA 420.4/LACHAT
Solids, Total Suspended	5250	40	mg/l	1	06/30/17	EAL	SM 2540D-11
Total Residual Chlorine [c]	< 0.050	0.050	mg/l	1	06/27/17 18:25	VY	SM21 4500CL F

(a) Analysis performed at SGS Accutest, Dayton, NJ.
(b) Calculated as: (Chromium) - (Chromium, Hexavalent)
(c) Analysis performed past the required 15 minutes of collection time/holding time.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-3/MW-103 COMPOSITE		
Lab Sample ID:	MC50794-1A	**Date Sampled:**	06/27/17
Matrix:	AQ - Ground Water	**Date Received:**	06/27/17
Method:	SW846 8260C BY SIM	**Percent Solids:**	n/a
Project:	CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3A156539.D	1	07/03/17 16:59	ANJ	n/a	n/a	N:V3A6747
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	Units	Q
123-91-1	1,4-Dioxane	ND	0.40	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	129%		51-175%

(a) (pH= 6) Sample is not acid preserved per method/client criteria. Sample analyzed within 7 days holding time. Analysis performed at SGS Accutest, Dayton, NJ.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SW-1		
Lab Sample ID:	MC50794-2	**Date Sampled:**	06/27/17
Matrix:	AQ - Surface Water	**Date Received:**	06/27/17
		Percent Solids:	n/a
Project:	CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Antimony [a]	< 2.0	2.0	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Arsenic [a]	1.6	1.0	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Cadmium [a]	< 0.50	0.50	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Chromium [a]	< 4.0	4.0	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Copper [a]	12.9	4.0	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Iron [a]	8820	100	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.7 [2]	EPA 200.7 [5]
Lead [a]	21.9	0.50	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Mercury [b]	< 0.60	0.60	ug/l	1	06/30/17	06/30/17	ANJ	EPA 245.1 [1]	EPA 245.1 [6]
Nickel [a]	< 4.0	4.0	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Selenium [a]	< 1.0	1.0	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Silver [a]	< 2.0	2.0	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]
Zinc [a]	38.0	10	ug/l	1	06/30/17	07/03/17	ANJ	EPA 200.8 [3]	EPA 200.8 [4]

(1) Instrument QC Batch: N:MA42336
(2) Instrument QC Batch: N:MA42351
(3) Instrument QC Batch: N:MA42353
(4) Prep QC Batch: N:MP1682
(5) Prep QC Batch: N:MP1696
(6) Prep QC Batch: N:MP1710

(a) Analysis performed at SGS Accutest, Dayton, NJ.
(b) Elevated sample detection limit due to limited volume. Analysis performed at SGS Accutest, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SW-1		
Lab Sample ID:	MC50794-2	**Date Sampled:**	06/27/17
Matrix:	AQ - Surface Water	**Date Received:**	06/27/17
		Percent Solids:	n/a
Project:	CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.010	0.010	mg/l	1	06/28/17 09:00	EAL	SW846 7196A
Chromium, Trivalent [a]	< 0.014	0.014	mg/l	1	07/03/17 14:58	ANJ	6010/7196A M/200.7
Hardness, Total as CaCO3 [b]	50.0	4.0	mg/l	1	06/30/17 16:20	ANJ	SM2340 C-11
Nitrogen, Ammonia [b]	< 0.20	0.20	mg/l	1	06/29/17 10:34	ANJ	SM4500NH3 H-11LACHAT
pH [c]	6.3		su	1	06/27/17 16:08	EAL	SM21 4500HB/EPA150.1

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)
(b) Analysis performed at SGS Accutest, Dayton, NJ.
(c) Analysis performed past the required 15 minutes of collection time/holding time.

RL = Reporting Limit

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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Parameter Certifications (MA)
- Chain of Custody
- MCP Form
- MCP Form (SGS Accutest New Jersey)
- Sample Tracking Chronicle
- QC Evaluation: MA MCP Limits

Parameter Certifications

Job Number: MC50794
Account: MO Mutual Oil Company
Project: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

The following parameters included in this report are certified by the state of MA.

Parameter	CAS#	Method	Mat	Certification Status
1,2-Dibromoethane	106-93-4	**EPA 504.1**	AQ	Accutest is certified for this parameter.
pH		**SM21 4500HB/EPA150.1**	AQ	Accutest is certified for this parameter.
Solids, Total Suspended		**SM 2540D-11**	AQ	Accutest is certified for this parameter.
Total Residual Chlorine		**SM21 4500CL F**	AQ	Accutest is certified for this parameter.

ACCUTEST Laboratories

CHAIN OF CUSTODY

495 TECHNOLOGY CENTER WEST * BUILDING ONE
MARLBOROUGH, MA 01752
TEL: 508-481-6200 * FAX: 508-481-7753

Accutest Job #: MC 50794
Accutest Quote #:

Client / Reporting Information

Company Name: Mutual Oil Co., Inc.
Address: 863 Crescent Street P.O. Box 250
City: Brockton State: MA Zip: 02303
Project Contact: Ed Rachins E-mail:
Phone #:
Samplers's Name:

Project Information

Project Name: Edsel LP
Street: 853 Crescent St
City: Brockton State: MA
Project #: 0032-16
Fax #:
Client Purchase Order #:

Matrix Codes: DW- Drinking Water, GW- Ground Water, WW- Water, SW- Surface Water, SO- Soil, SL-Sludge, OI-Oil, LIQ- Other Liquid, AIR- Air, SOL-Other Solid, WP-Wipe

Accutest Sample #	Field ID / Point of Collection	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	EPA RGP Parameters (See Attached List)	Lab pH	Lab Temp	Lab Hardness	Ammonia	total Recoverable metals (antimony, arsenic, cadmium, chromium III, chromium VI, copper, iron, lead, mercury, nickel, selenium, silver, zinc)				LAB USE ONLY
1	MW-3/MW-103 Composite	6/27/17	0930	KH	GW	15	2	1	1	2	9			X									
2	SW-1	〃	1035	KH	SW	4			1	1	2				X	X	X	X	X				

INITIAL ASSESSMENT: [initials]
LABEL VERIFICATION: [initials]
SAMPLES RECEIVED DIRECTLY FROM FIELD SAMPLING

Turnaround Time (Business days)

- [X] Std. Mutual 5 Business Days
- [ ] 10 Day RUSH
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [ ] Other - Mutual Oil 7 day TAT

Approved By:/ Date:

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [x] Standard Com "A"
- [ ] Commercial "B"
- [ ] Disk Deliverable
- [ ] State Forms
- [ ] Other ________

Comments / Remarks

Include Dilution Factors of any metals analysis

E-mail results to svandersea@cea-inc.com

Must meet MADEP GW-1 Standards

Field temp for SW-1 = 18.06°C, ph = 6.82

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	6/27/17 1200	1 [signature]	2		2
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable ☐	On Ice ☐ Cooler Temp. 17.6

MC50794: Chain of Custody
Page 1 of 2

SGS Accutest NE Sample Receipt Summary

Job Number: MC50794 **Client:** CEA **Project:** EDSEL LP

Date / Time Received: 6/27/2017 12:00:00 PM **Delivery Method:** Client **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (17.6/17.1);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☐		☑	3. COC Present:	☑		☐
2. Custody Seals Intact:	☐		☑	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	IRGUN1;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

MC50794: Chain of Custody
Page 2 of 2

Massachusetts Department of Environmental Protection Bureau of Waste Site Cleanup	WSC-CAM	Exhibit VII A
	July 1, 2010	Revision No. 1
	Final	

Exhibit VII A-2: MassDEP Analytical Protocol Certification Form

MassDEP Analytical Protocol Certification Form

Laboratory Name:	SGS Accutest- Marlborough	Project #:	MC50794
Project Location:	CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA	MADEP RTN	None

This form provides certifications for the following data set: list Laboratory Sample ID Numbers(s)
MC50794-1,MC50794-1A,MC50794-2

Test method: Refer to case narrative.

Matrices: Groundwater/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other ( )

CAM Protocol (check all that apply below):

8260 VOC (X) CAM IIA	7470/7471 Hg ( ) CAM III B	MassDEP VPH ( ) CAM IV A	8081 Pesticides ( ) CAM V B	7196 Hex Cr (X) CAM VI B	Mass DEP APH ( ) CAM IX A
8270 SVOC (X) CAM II B	7010 Metals ( ) CAM III C	MassDEP EPH ( ) CAM IV B	8151 Herbicides ( ) CAM V C	8330 Explosives ( ) CAM VIII A	TO-15 VOC ( ) CAM IX B
6010 Metals (X) CAM III A	6020 Metals ( ) CAM III D	8082 PCB ( ) CAM V A	9014 Total Cyanide/PAC ( ) CAM VI A	6860 Perchlorate ( ) CAM VIII B	

Affirmative Responses to Questions A Through F are required for "Presumptive Certainty status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☐ Yes	☑ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes	☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes	☐ No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☑ Yes ☑ Yes	☐ No ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes	☐ No

Responses to questions G, H, and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols	☑ Yes	☐ No [1]
	Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data useability and representativeness requirements described in 310 CMR 40.1056(2)(k) and WSC-07-350.		
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes	☑ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes	☑ No [1]

[1] ***All Negative responses must be addressed in an attached Environmental Laboratory case narrative.***

I the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ **Position:** **Laboratory Director**

Printed Name: **H. (Brad) Madadian** **Date:** **07-Jul-17**

Massachusetts Department of Environmental Protection Bureau of Waste Site Cleanup	WSC-CAM	Exhibit VII A
	July 1, 2010	Revision No. 1
	Final	

Exhibit VII A-2: MassDEP Analytical Protocol Certification Form

MassDEP Analytical Protocol Certification Form

Laboratory Name:	Accutest Mid-Atlantic	Project #:	MC50794
Project Location:#01074,	MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA	MADEP RTN	None

This form provides certifications for the following data set: list Laboratory Sample ID Numbers(s)
MC50794-1,MC50794-1A,MC50794-2

Matrices: Groundwater/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other ( )

CAM Protocol (check all that apply below):

8260 VOC (X) CAM IIA	7470/7471 Hg ( ) CAM III B	MassDEP VPH ( ) CAM IV A	8081 Pesticides ( ) CAM V B	7196 Hex Cr ( ) CAM VI B	Mass DEP APH ( ) CAM IX A
8270 SVOC (X) CAM II B	7010 Metals ( ) CAM III C	MassDEP EPH ( ) CAM IV B	8151 Herbicides ( ) CAM V C	8330 Explosives ( ) CAM VIII A	TO-15 VOC ( ) CAM IX B
6010 Metals ( ) CAM III A	6020 Metals ( ) CAM III D	8082 PCB ( ) CAM V A	9014 Total Cyanide/PAC ( ) CAM VI A	6860 Perchlorate ( ) CAM VIII B	

Affirmative Responses to Questions A Through F are required for "Presumptive Certainty status

A	Were all samples received in a condition consistent with those described on the Chain-of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☐ Yes	☑ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes	☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes	☐ No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes ☐ Yes	☐ No ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes	☐ No

Responses to questions G, H, and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols	☑ Yes	☐ No [1]
	Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data useability and representativeness requirements described in 310 CMR 40.1056(2)(k) and WSC-07-350.		
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes	☑ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes	☑ No [1]

[1] ***All Negative responses must be addressed in an attached Environmental Laboratory case narrative.***

I the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Nancy F. Cole **Position:** **Laboratory Director**

Printed Name: **Nancy F. Cole** **Date:** **07-Jul-17**

Internal Sample Tracking Chronicle

Mutual Oil Company

Job No: MC50794

CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA
Project No: 0032-16

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
MC50794-1	Collected: 27-JUN-17 09:30 By: KH		Received: 27-JUN-17 By: TF			
MW-3/MW-103 COMPOSITE						
MC50794-1	SM21 4500CL F	27-JUN-17 18:25	VY			TRC
MC50794-1	SW846 7196A	28-JUN-17 09:00	EAL			XCR
MC50794-1	SM4500NH3 H-11LACHAT	29-JUN-17 10:33	ANJ	29-JUN-17	ANJ	AMN
MC50794-1	EPA 1664A	29-JUN-17 14:15	ANJ	29-JUN-17	ANJ	PHC1664
MC50794-1	EPA 335.4/LACHAT	29-JUN-17 15:19	ANJ	28-JUN-17	ANJ	CN
MC50794-1	EPA 300/SW846 9056A	29-JUN-17 15:53	ANJ	29-JUN-17		CHL
MC50794-1	SM 2540D-11	30-JUN-17	EAL			TSS
MC50794-1	EPA 245.1	30-JUN-17 09:36	ANJ	30-JUN-17	ANJ	HG
MC50794-1	EPA 625	30-JUN-17 12:58	ANJ	29-JUN-17	ANJ	AB625SL
MC50794-1	SW846 8270D BY SIM	30-JUN-17 18:21	ANJ	29-JUN-17	ANJ	B8270SIMPAH
MC50794-1	EPA 504.1	01-JUL-17 16:58	AP	30-JUN-17	IC	V504EDB
MC50794-1	EPA 608	03-JUL-17 13:37	ANJ	29-JUN-17	ANJ	P608PCB
MC50794-1	EPA 200.8	03-JUL-17 14:53	ANJ	30-JUN-17	ANJ	AGMS, ASMS, CDMS, CRMS, CUMS, NIMS, PBMS, SBMS, SEMS, ZNMS
MC50794-1	6010/7196A M/200.7	03-JUL-17 14:53	ANJ			CR3
MC50794-1	EPA 420.4/LACHAT	03-JUL-17 15:23	ANJ	30-JUN-17	ANJ	PN
MC50794-1	EPA 624	03-JUL-17 16:47	ANJ			V624SL
MC50794-1	SW846 8260C	03-JUL-17 19:53	ANJ			V8260ETHL
MC50794-1	EPA 200.7	03-JUL-17 21:13	ANJ	30-JUN-17	ANJ	FE
MC50794-1	EPA 608	03-JUL-17 23:07	ANJ	29-JUN-17	ANJ	P608PCB
MC50794-2	Collected: 27-JUN-17 10:35 By: KH		Received: 27-JUN-17 By: TF			
SW-1						
MC50794-2	SM21 4500HB/EPA150.2	27-JUN-17 16:08	EAL			PH
MC50794-2	SW846 7196A	28-JUN-17 09:00	EAL			XCR
MC50794-2	SM4500NH3 H-11LACHAT	29-JUN-17 10:34	ANJ	29-JUN-17	ANJ	AMN
MC50794-2	EPA 245.1	30-JUN-17 09:37	ANJ	30-JUN-17	ANJ	HG
MC50794-2	SM2340 C-11	30-JUN-17 16:20	ANJ			HRD
MC50794-2	EPA 200.8	03-JUL-17 14:58	ANJ	30-JUN-17	ANJ	AGMS, ASMS, CDMS, CRMS, CUMS, NIMS, PBMS, SBMS, SEMS, ZNMS
MC50794-2	6010/7196A M/200.7	03-JUL-17 14:58	ANJ			CR3
MC50794-2	EPA 200.7	03-JUL-17 21:18	ANJ	30-JUN-17	ANJ	FE
MC50794-1A	Collected: 27-JUN-17 09:30 By: KH		Received: 27-JUN-17 By: TF			
MW-3/MW-103 COMPOSITE						

Internal Sample Tracking Chronicle

Mutual Oil Company

Job No: MC50794

CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA
Project No: 0032-16

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
MC50794-1A	SW846 8260C BY SIM	03-JUL-17 16:59	ANJ			V8260SIMDIOX

QC Evaluation: MA MCP Limits

Job Number: MC50794
Account: Mutual Oil Company
Project: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA
Collected: 06/27/17

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits

No Exceptions found.

* Sample used for QC is not from job MC50794

GC Volatiles

6

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: MC50794
Account: MO Mutual Oil Company
Project: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP49819-MB	BB71948.D	1	07/01/17	AP	06/30/17	OP49819	GBB3768

The QC reported here applies to the following samples: **Method:** EPA 504.1

MC50794-1

CAS No.	Compound	Result	RL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.010	ug/l	

CAS No.	Surrogate Recoveries		Limits
460-00-4	Bromofluorobenzene (S)	116%	48-154%
460-00-4	Bromofluorobenzene (S)	119%	48-154%

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC50794
Account: MO Mutual Oil Company
Project: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP49819-BS	BB71950.D	1	07/01/17	AP	06/30/17	OP49819	GBB3768
OP49819-BSD	BB71951.D	1	07/01/17	AP	06/29/17	OP49819	GBB3768

The QC reported here applies to the following samples: **Method:** EPA 504.1

MC50794-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
106-93-4	1,2-Dibromoethane	0.071	0.069	97	0.061	86	12	70-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	Bromofluorobenzene (S)	133%	123%	48-154%
460-00-4	Bromofluorobenzene (S)	120%	115%	48-154%

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: MC50794
Account: MO Mutual Oil Company
Project: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Method: EPA 504.1 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]	S1 [b]
MC50794-1	BB71953.D	192* [c]	159* [c]
OP49819-BS	BB71950.D	133	120
OP49819-BSD	BB71951.D	123	115
OP49819-MB	BB71948.D	116	119

Surrogate Compounds	Recovery Limits
S1 = Bromofluorobenzene (S)	48-154%

(a) Recovery from GC signal #2
(b) Recovery from GC signal #1
(c) Outside control limits. Sample non-detect.

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: MC50794
Account: MO - Mutual Oil Company
Project: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN55946	0.010	0.0	mg/l	.1	0.10	100.0	85-115%
Solids, Total Suspended	GN55954	4.0	0.0	mg/l				
Total Residual Chlorine	GN55948	0.050	0.0	mg/l	1.0	1.1	110.0	80-120%

Associated Samples:
Batch GN55946: MC50794-1, MC50794-2
Batch GN55948: MC50794-1
Batch GN55954: MC50794-1
(*) Outside of QC limits

BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: MC50794
Account: MO - Mutual Oil Company
Project: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
Chromium, Hexavalent	GN55946	mg/l	.1	0.10	0.0	20%

Associated Samples:
Batch GN55946: MC50794-1, MC50794-2
(*) Outside of QC limits

Misc. Forms

Custody Documents and Other Forms

(SGS Accutest New Jersey)

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- QC Evaluation: MA MCP Limits

CHAIN OF CUSTODY

SGS ACCUTEST
50 D'Angelo Drive, 495 Technology Center West, Bldg One, Marlborough, MA 01752
TEL: 508-481-6200 FAX: 508-481-7753
www.sgs.com

FED-EX Tracking # 7273 7516 3731 | Bottle Order Control #
SGS Accutest Quote # | SGS Accutest Job # MC50794

Client / Reporting Information

Company Name: SGS Accutest
Street Address: 50 D'Angelo Drive, 495 Technolgy Center West, BLDG One
City: Marlbourough, State: MA, Zip: 0175?
Project Contact: DAN AXELROD@Accutest.com, E-mail
Phone #: 508-481-6200, Fax #
Sampler(s) Name(s): KH, Phone

Project Information

Project Name: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA
Street
City, State
Project #
Client Purchase Order #
Project Manager

Billing Information (if different from Report to)

Company Name
Street Address
City, State, Zip
Attention:

Requested Analysis (see TEST CODE sheet)

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	AB625SL,AGMS,AMN,ASMS,B827OSIMPAH,CDMS,CHL,CN,CRMS,CUMS,FEMS,HG,NIMS,P608PCB,PBMS,PHC1664,PN,SBMS,SEMS,V624SL,ZNMS	AGMS,AMN,ASMS,CDMS,CRMS,CUMS,FEMS,HG,HRD,NIMS,PBMS,SBMS,SEMS,ZNMS,	V8260SIMDIOX,VMS+UNPR	LAB USE ONLY
1	MW-3/MW-103 COMPOSITE		6/27/17	9:30:00 AM	KH	AQ	11	x	x	x	x	x				X			L26
1A	MW-3/MW-103 COMPOSITE		6/27/17	9:30:00 AM	KH	AQ	2					x						X	G78
2	SW-1		6/27/17	10:35:00 AM	KH	AQ	2			x	x						X		A25
																			C49
																			V178

INITIAL ASESSMENT 6/28
LABEL VERIFICATION

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Turnaround Time (Business days)

Approved By (SGS Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other Due 7/4/2017

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other MAMCP

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Ship to ALNJ -- 5 Day TAT

MCP / NPDES RGP: See attached for SL lists and RLs needed

Metals by 200.8 / 245.1

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler: 1	Date Time: 6-27-17	Received By: 1 FED EX	Relinquished By: 2 FEDEX	Date Time: 6-28-17 925	Received By: 2		
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4		
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # 617	[X] Intact [ ] Not intact	Preserved where applicable [ ]	On Ice [ ]	Cooler Temp. 1.0° IR

SGS Accutest Sample Receipt Summary

Job Number: MC50794 **Client:** SGS Marlbourough **Project:** CORPMAWB

Date / Time Received: 6/28/2017 9:25:00 AM **Delivery Method:** FedEx **Airbill #'s:** 727375163731

Cooler Temps (Raw Measured) °C: Cooler 1: (1.0);

Cooler Temps (Corrected) °C: Cooler 1: (2.3);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments 1) -1 Please note limited volume of 1 HCL vial for V624.
2) -1 CN volume preserved with NAOH only.

SM089-02
Rev. Date 12/1/16

8.1

8

Responded to by: CSR: N/A

Response Date: Response Date: 6/28/2017

Response:

Response: Proceed with analysis

Job Change Order: MC50794

Requested Date:	7/5/2017	**Received Date:**	6/27/2017
Account Name:	Mutual Oil Company	**Due Date:**	7/4/2017
Project Description:	CORPMAWB: Edsel LP, 863 Crescent Street, Broc	**Deliverable:**	MAMCP
CSR:	thelmaf	**TAT (Days):**	7

==========

Sample #: MC50794-1

Dept:

TAT: 7

MW-3/MW-103 COMPOSITE

Change:

Add V8260ETHL

==========

Above Changes Per:

Date/Time: 7/5/2017 5:33:35 PM

To Client: This Change Order is confirmation of the revisions, previously discussed with the SGS Accutest Client Service Representative.

8.1

MC50794: Chain of Custody
Page 4 of 4

Internal Sample Tracking Chronicle

SGS Accutest New England

Job No: MC50794

MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA
Project No: 0032-16

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
MC50794-1	Collected: 27-JUN-17 09:30 By: KH			Received: 27-JUN-17 By: AS		
MW-3/MW-103 COMPOSITE						
MC50794-1	SM4500NH3 H-11LACHAT	29-JUN-17 10:33	TG	29-JUN-17	TG	AMN
MC50794-1	EPA 1664A	29-JUN-17 14:15	TT	29-JUN-17	TT	PHC1664
MC50794-1	EPA 335.4/LACHAT	29-JUN-17 15:19	TG	28-JUN-17	HS	CN
MC50794-1	EPA 300/SW846 9056A	29-JUN-17 15:53	YR	29-JUN-17	YR	CHL
MC50794-1	EPA 245.1	30-JUN-17 09:36	JA	30-JUN-17	JA	HG
MC50794-1	EPA 625	30-JUN-17 12:58	SB	29-JUN-17	ZR	AB625SL
MC50794-1	SW846 8270D BY SIM	30-JUN-17 18:21	KM	29-JUN-17	ZR	B8270SIMPAH
MC50794-1	EPA 608	03-JUL-17 13:37	JR	29-JUN-17	AF	P608PCB
MC50794-1	EPA 200.8	03-JUL-17 14:53	MS	30-JUN-17	RM	AGMS, ASMS, CDMS, CRMS, CUMS, NIMS, PBMS, SBMS, SEMS, ZNMS
MC50794-1	EPA 420.4/LACHAT	03-JUL-17 15:23	BM	30-JUN-17	MP	PN
MC50794-1	EPA 624	03-JUL-17 16:47	PR			V624SL
MC50794-1	SW846 8260C	03-JUL-17 19:53	BK			V8260ETHL
MC50794-1	EPA 200.7	03-JUL-17 21:13	ND	30-JUN-17	RM	FE
MC50794-1	EPA 608	03-JUL-17 23:07	JR	29-JUN-17	AF	P608PCB
MC50794-2	Collected: 27-JUN-17 10:35 By: KH			Received: 27-JUN-17 By: AS		
SW-1						
MC50794-2	SM4500NH3 H-11LACHAT	29-JUN-17 10:34	TG	29-JUN-17	TG	AMN
MC50794-2	EPA 245.1	30-JUN-17 09:37	JA	30-JUN-17	JA	HG
MC50794-2	SM2340 C-11	30-JUN-17 16:20	ST			HRD
MC50794-2	EPA 200.8	03-JUL-17 14:58	MS	30-JUN-17	RM	AGMS, ASMS, CDMS, CRMS, CUMS, NIMS, PBMS, SBMS, SEMS, ZNMS
MC50794-2	EPA 200.7	03-JUL-17 21:18	ND	30-JUN-17	RM	FE
MC50794-1A	Collected: 27-JUN-17 09:30 By: KH			Received: 27-JUN-17 By: AS		
MW-3/MW-103 COMPOSITE						
MC50794-1A	SW846 8260C BY SIM	03-JUL-17 16:59	PR			V8260SIMDIOX

QC Evaluation: MA MCP Limits

Job Number: MC50794
Account: SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA
Collected: 06/27/17

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V4D3482	SW846 8260C						
V4D3482-BS	64-17-5	Ethanol	BSP	REC	94	%	70-130
V4D3482-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	103	%	70-130
V4D3482-BS	2037-26-5	Toluene-D8	BSP	SURR	98	%	70-130
V4D3482-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	97	%	70-130
V4D3482-BSD	64-17-5	Ethanol	BSD	REC	100	%	70-130
V4D3482-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	104	%	70-130
V4D3482-BSD	2037-26-5	Toluene-D8	BSD	SURR	99	%	70-130
V4D3482-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	100	%	70-130
V4D3482-MB	1868-53-7	Dibromofluoromethane	MB	SURR	103	%	70-130
V4D3482-MB	2037-26-5	Toluene-D8	MB	SURR	101	%	70-130
V4D3482-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	100	%	70-130
MC50794-1	1868-53-7	Dibromofluoromethane	SAMP	SURR	102	%	70-130
MC50794-1	2037-26-5	Toluene-D8	SAMP	SURR	102	%	70-130
MC50794-1	460-00-4	4-Bromofluorobenzene	SAMP	SURR	101	%	70-130
OP4132A	SW846 8270D BY SIM						
OP4132A-BS12	83-32-9	Acenaphthene	BSP	REC	84	%	40-140
OP4132A-BS12	208-96-8	Acenaphthylene	BSP	REC	85	%	40-140
OP4132A-BS12	120-12-7	Anthracene	BSP	REC	88	%	40-140
OP4132A-BS12	56-55-3	Benzo(a)anthracene	BSP	REC	99	%	40-140
OP4132A-BS12	50-32-8	Benzo(a)pyrene	BSP	REC	84	%	40-140
OP4132A-BS12	205-99-2	Benzo(b)fluoranthene	BSP	REC	92	%	40-140
OP4132A-BS12	191-24-2	Benzo(g,h,i)perylene	BSP	REC	76	%	40-140
OP4132A-BS12	207-08-9	Benzo(k)fluoranthene	BSP	REC	78	%	40-140
OP4132A-BS12	218-01-9	Chrysene	BSP	REC	84	%	40-140
OP4132A-BS12	53-70-3	Dibenzo(a,h)anthracene	BSP	REC	75	%	40-140
OP4132A-BS12	206-44-0	Fluoranthene	BSP	REC	91	%	40-140
OP4132A-BS12	86-73-7	Fluorene	BSP	REC	83	%	40-140
OP4132A-BS12	193-39-5	Indeno(1,2,3-cd)pyrene	BSP	REC	75	%	40-140
OP4132A-BS12	91-20-3	Naphthalene	BSP	REC	77	%	40-140
OP4132A-BS12	85-01-8	Phenanthrene	BSP	REC	88	%	40-140
OP4132A-BS12	129-00-0	Pyrene	BSP	REC	96	%	40-140
OP4132A-BS12	4165-60-0	Nitrobenzene-d5	BSP	SURR	72	%	30-130
OP4132A-BS12	321-60-8	2-Fluorobiphenyl	BSP	SURR	60	%	30-130
OP4132A-BS12	1718-51-0	Terphenyl-d14	BSP	SURR	68	%	30-130
OP4132A-BSD12	83-32-9	Acenaphthene	BSD	REC	63	%	40-140
OP4132A-BSD12	83-32-9	Acenaphthene	BSD	RPD	29	%	30
OP4132A-BSD12	208-96-8	Acenaphthylene	BSD	REC	59	%	40-140
OP4132A-BSD12	208-96-8	Acenaphthylene	BSD	RPD	36 [a]	%	30
OP4132A-BSD12	120-12-7	Anthracene	BSD	REC	67	%	40-140
OP4132A-BSD12	120-12-7	Anthracene	BSD	RPD	27	%	30

* Sample used for QC is not from job MC50794

QC Evaluation: MA MCP Limits

Job Number: MC50794
Account: SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA
Collected: 06/27/17

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP4132A-BSD12	56-55-3	Benzo(a)anthracene	BSD	REC	81	%	40-140
OP4132A-BSD12	56-55-3	Benzo(a)anthracene	BSD	RPD	19	%	30
OP4132A-BSD12	50-32-8	Benzo(a)pyrene	BSD	REC	71	%	40-140
OP4132A-BSD12	50-32-8	Benzo(a)pyrene	BSD	RPD	17	%	30
OP4132A-BSD12	205-99-2	Benzo(b)fluoranthene	BSD	REC	73	%	40-140
OP4132A-BSD12	205-99-2	Benzo(b)fluoranthene	BSD	RPD	23	%	30
OP4132A-BSD12	191-24-2	Benzo(g,h,i)perylene	BSD	REC	72	%	40-140
OP4132A-BSD12	191-24-2	Benzo(g,h,i)perylene	BSD	RPD	6	%	30
OP4132A-BSD12	207-08-9	Benzo(k)fluoranthene	BSD	REC	67	%	40-140
OP4132A-BSD12	207-08-9	Benzo(k)fluoranthene	BSD	RPD	16	%	30
OP4132A-BSD12	218-01-9	Chrysene	BSD	REC	72	%	40-140
OP4132A-BSD12	218-01-9	Chrysene	BSD	RPD	14	%	30
OP4132A-BSD12	53-70-3	Dibenzo(a,h)anthracene	BSD	REC	73	%	40-140
OP4132A-BSD12	53-70-3	Dibenzo(a,h)anthracene	BSD	RPD	2	%	30
OP4132A-BSD12	206-44-0	Fluoranthene	BSD	REC	74	%	40-140
OP4132A-BSD12	206-44-0	Fluoranthene	BSD	RPD	20	%	30
OP4132A-BSD12	86-73-7	Fluorene	BSD	REC	62	%	40-140
OP4132A-BSD12	86-73-7	Fluorene	BSD	RPD	29	%	30
OP4132A-BSD12	193-39-5	Indeno(1,2,3-cd)pyrene	BSD	REC	70	%	40-140
OP4132A-BSD12	193-39-5	Indeno(1,2,3-cd)pyrene	BSD	RPD	8	%	30
OP4132A-BSD12	91-20-3	Naphthalene	BSD	REC	54	%	40-140
OP4132A-BSD12	91-20-3	Naphthalene	BSD	RPD	35 [a]	%	30
OP4132A-BSD12	85-01-8	Phenanthrene	BSD	REC	66	%	40-140
OP4132A-BSD12	85-01-8	Phenanthrene	BSD	RPD	28	%	30
OP4132A-BSD12	129-00-0	Pyrene	BSD	REC	78	%	40-140
OP4132A-BSD12	129-00-0	Pyrene	BSD	RPD	20	%	30
OP4132A-BSD12	4165-60-0	Nitrobenzene-d5	BSD	SURR	55	%	30-130
OP4132A-BSD12	321-60-8	2-Fluorobiphenyl	BSD	SURR	47	%	30-130
OP4132A-BSD12	1718-51-0	Terphenyl-d14	BSD	SURR	67	%	30-130
OP4132A-MB1	4165-60-0	Nitrobenzene-d5	MB	SURR	63	%	30-130
OP4132A-MB1	321-60-8	2-Fluorobiphenyl	MB	SURR	56	%	30-130
OP4132A-MB1	1718-51-0	Terphenyl-d14	MB	SURR	61	%	30-130
MC50794-1	4165-60-0	Nitrobenzene-d5	SAMP	SURR	68	%	30-130
MC50794-1	321-60-8	2-Fluorobiphenyl	SAMP	SURR	58	%	30-130
MC50794-1	1718-51-0	Terphenyl-d14	SAMP	SURR	45	%	30-130

(a) Outside of program requirements.

* Sample used for QC is not from job MC50794

GC/MS Volatiles

QC Data Summaries

(SGS Accutest New Jersey)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VN11130-MB	N264047.D	1	07/03/17	PR	n/a	n/a	VN11130

The QC reported here applies to the following samples: **Method:** EPA 624

MC50794-1

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	5.0	ug/l	
71-43-2	Benzene	ND	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/l	
123-91-1	1,4-Dioxane	ND	130	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	1.0	ug/l	
75-65-0	Tertiary Butyl Alcohol	ND	25	ug/l	
994-05-8	tert-Amyl Methyl Ether	ND	1.0	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/l	
79-01-6	Trichloroethene	ND	1.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	101%	72-125%
2037-26-5	Toluene-D8 (SUR)	98%	78-119%
460-00-4	4-Bromofluorobenzene (SUR)	92%	74-115%
1868-53-7	Dibromofluoromethane (S)	111%	79-120%

Method Blank Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VN11130-MB	N264047.D	1	07/03/17	PR	n/a	n/a	VN11130

The QC reported here applies to the following samples: **Method:**

MC50794-1

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	3.12	18	ug/l	J
	system artifact	3.29	29	ug/l	J
	Total TIC, Volatile		0	ug/l	

Method Blank Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3A6747-MB	3A156532.D	1	07/03/17	PR	n/a	n/a	V3A6747

The QC reported here applies to the following samples: **Method:** SW846 8260C BY SIM

MC50794-1A

CAS No.	Compound	Result	RL	Units	Q
123-91-1	1,4-Dioxane	ND	0.40	ug/l	

CAS No.	Surrogate Recoveries		Limits
17647-74-4	1,4-Dioxane-d8	112%	51-175%

Method Blank Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V4D3482-MB	4D80665.D	1	07/03/17	BK	n/a	n/a	V4D3482

The QC reported here applies to the following samples: **Method:** SW846 8260C

MC50794-1

CAS No.	Compound	Result	RL	Units	Q
64-17-5	Ethanol	ND	100	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	103%	76-120%
17060-07-0	1,2-Dichloroethane-D4	103%	73-122%
2037-26-5	Toluene-D8	101%	84-119%
460-00-4	4-Bromofluorobenzene	100%	78-117%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VN11130-BS	N264048.D	1	07/03/17	PR	n/a	n/a	VN11130
VN11130-BSD	N264049.D	1	07/03/17	PR	n/a	n/a	VN11130

The QC reported here applies to the following samples: **Method:** EPA 624

MC50794-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	80	89.0	111	106	133	17	49-139/30
71-43-2	Benzene	20	18.6	93	22.9	115	21	78-122/30
56-23-5	Carbon tetrachloride	20	17.9	90	21.2	106	17	71-138/30
106-93-4	1,2-Dibromoethane	20	21.7	109	25.6	128* [a]	16	76-124/30
95-50-1	1,2-Dichlorobenzene	20	19.4	97	21.8	109	12	78-120/30
541-73-1	1,3-Dichlorobenzene	20	18.8	94	21.5	108	13	76-119/30
106-46-7	1,4-Dichlorobenzene	20	19.0	95	21.9	110	14	77-118/30
75-34-3	1,1-Dichloroethane	20	17.7	89	20.8	104	16	75-129/30
107-06-2	1,2-Dichloroethane	20	18.2	91	21.7	109	18	76-132/30
75-35-4	1,1-Dichloroethene	20	13.0	65	15.7	79	19	57-128/30
156-59-2	cis-1,2-Dichloroethene	20	17.2	86	20.6	103	18	73-124/30
123-91-1	1,4-Dioxane	500	402	80	579	116	36* [b]	56-139/30
100-41-4	Ethylbenzene	20	18.1	91	21.2	106	16	77-120/30
1634-04-4	Methyl Tert Butyl Ether	40	37.0	93	43.9	110	17	72-119/30
75-09-2	Methylene chloride	20	17.7	89	20.9	105	17	68-122/30
75-65-0	Tertiary Butyl Alcohol	100	85.8	86	105	105	20	73-129/30
994-05-8	tert-Amyl Methyl Ether	20	19.2	96	23.4	117	20	72-120/30
127-18-4	Tetrachloroethene	20	18.8	94	22.5	113	18	61-152/30
108-88-3	Toluene	20	18.2	91	21.4	107	16	78-121/30
71-55-6	1,1,1-Trichloroethane	20	16.2	81	19.2	96	17	72-131/30
79-00-5	1,1,2-Trichloroethane	20	20.4	102	23.6	118	15	78-124/30
79-01-6	Trichloroethene	20	17.7	89	21.9	110	21	78-123/30
75-01-4	Vinyl chloride	20	15.2	76	18.2	91	18	57-134/30
1330-20-7	Xylenes (total)	60	57.3	96	67.8	113	17	79-122/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	93%	96%	72-125%
2037-26-5	Toluene-D8 (SUR)	102%	98%	78-119%
460-00-4	4-Bromofluorobenzene (SUR)	93%	88%	74-115%
1868-53-7	Dibromofluoromethane (S)	104%	105%	79-120%

(a) High percent recoveries and no associated positive reported in the QC batch.
(b) Outside in house control limits.

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3A6747-BS	3A156533.D	1	07/03/17	PR	n/a	n/a	V3A6747
V3A6747-BSD	3A156537.D	1	07/03/17	PR	n/a	n/a	V3A6747

The QC reported here applies to the following samples: **Method:** SW846 8260C BY SIM

MC50794-1A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
123-91-1	1,4-Dioxane	20	20.9	105	20.7	104	1	58-138/20

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
17647-74-4	1,4-Dioxane-d8	112%	110%	51-175%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V4D3482-BS	4D80666.D	1	07/03/17	BK	n/a	n/a	V4D3482
V4D3482-BSD	4D80672A.D	1	07/03/17	BK	n/a	n/a	V4D3482

The QC reported here applies to the following samples: **Method:** SW846 8260C

MC50794-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
64-17-5	Ethanol	5000	4710	94	5010	100	6	50-151/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	103%	104%	76-120%
17060-07-0	1,2-Dichloroethane-D4	102%	102%	73-122%
2037-26-5	Toluene-D8	98%	99%	84-119%
460-00-4	4-Bromofluorobenzene	97%	100%	78-117%

* = Outside of Control Limits.

Volatile Internal Standard Area Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Check Std:	V3A6747-CC6742	**Injection Date:**	07/03/17
Lab File ID:	3A156530.D	**Injection Time:**	12:09
Instrument ID:	GCMS3A	**Method:**	SW846 8260C BY SIM

	IS 1 AREA	RT
Check Std	3125	15.89
Upper Limit [a]	6250	16.39
Lower Limit [b]	1563	15.39

Lab Sample ID	IS 1 AREA	RT
V3A6747-MB	3047	15.89
V3A6747-BS	3132	15.89
ZZZZZZ	2965	15.89
JC46104-1	2715	15.89
V3A6747-BSD	2974	15.89
MC50794-1A [c]	2978	15.89
ZZZZZZ	2975	15.89
ZZZZZZ	2908	15.89
ZZZZZZ	2974	15.89
JC46104-1MS [d]	2852	15.89
JC46104-1MSD [d]	2894	15.89
ZZZZZZ	2939	15.89
ZZZZZZ	2910	15.89
ZZZZZZ	2908	15.89
ZZZZZZ	2905	15.89

IS 1 = 4-Bromofluorobenzene

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) (pH= 6) Sample is not acid preserved per method/client criteria. Sample analyzed within 7 days holding time.
(d) (pH= 7) Sample is not acid preserved per method/client criteria. Sample analyzed within 7 days holding time.

Volatile Internal Standard Area Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Check Std:	V4D3482-CC3413	**Injection Date:**	07/03/17
Lab File ID:	4D80663.D	**Injection Time:**	12:26
Instrument ID:	GCMS4D	**Method:**	SW846 8260C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	329930	7.54	464311	10.09	673505	11.04	570453	14.19	300073	16.57
Upper Limit [a]	659860	8.04	928622	10.59	1347010	11.54	1140906	14.69	600146	17.07
Lower Limit [b]	164965	7.04	232156	9.59	336753	10.54	285227	13.69	150037	16.07

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V4D3482-MB	291661	7.55	442529	10.10	638902	11.04	541315	14.19	280691	16.57
V4D3482-BS	269297	7.55	411711	10.10	596978	11.04	517130	14.19	277562	16.57
ZZZZZZ	232697	7.56	391081	10.10	568366	11.04	486794	14.19	259757	16.57
ZZZZZZ	282071	7.55	426089	10.10	617362	11.04	516803	14.19	269995	16.57
ZZZZZZ	265701	7.56	417682	10.10	609916	11.04	508942	14.19	263065	16.57
ZZZZZZ	249380	7.55	406215	10.10	587932	11.04	496029	14.19	258448	16.58
V4D3482-BSD	230142	7.55	375974	10.10	547813	11.04	470461	14.19	249681	16.57
JC46230-3MS	265787	7.55	406972	10.10	596424	11.04	515803	14.19	274422	16.57
JC46230-3MSD	271615	7.55	435506	10.10	635281	11.04	546134	14.19	287812	16.57
ZZZZZZ	286706	7.55	494684	10.10	726480	11.04	609934	14.19	312177	16.57
ZZZZZZ	274076	7.55	460342	10.10	670176	11.04	565755	14.19	283416	16.57
MC50794-1	283770	7.54	462171	10.10	677105	11.04	567082	14.19	293320	16.57
JC46230-3	265518	7.54	426303	10.10	609081	11.04	521953	14.19	276678	16.57
ZZZZZZ	296829	7.55	483488	10.10	707761	11.04	591098	14.19	306982	16.57
ZZZZZZ	301320	7.55	475111	10.10	682474	11.04	588171	14.19	310642	16.57
ZZZZZZ	302477	7.55	451160	10.10	657332	11.04	576605	14.19	303003	16.57
ZZZZZZ	275852	7.55	466597	10.10	680112	11.04	573707	14.19	296245	16.57
ZZZZZZ	281145	7.55	457076	10.10	664158	11.04	575717	14.19	304005	16.57
ZZZZZZ	274504	7.55	453802	10.10	665993	11.04	554167	14.19	289914	16.57

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Internal Standard Area Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Check Std: VN11130-CC11104 **Injection Date:** 07/03/17
Lab File ID: N264045.D **Injection Time:** 13:31
Instrument ID: GCMSN **Method:** EPA 624

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	328480	7.41	302591	9.71	467339	10.62	273780	16.36	437922	13.90
Upper Limit [a]	656960	7.91	605182	10.21	934678	11.12	547560	16.86	875844	14.40
Lower Limit [b]	164240	6.91	151296	9.21	233670	10.12	136890	15.86	218961	13.40

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VN11130-MB	321513	7.41	314552	9.71	474628	10.62	264411	16.36	438209	13.90
VN11130-BS	399653	7.41	402211	9.71	604709	10.62	319067	16.36	541217	13.89
VN11130-BSD	351175	7.41	362288	9.71	528113	10.62	305435	16.36	487825	13.89
MC50794-1 [c]	310819	7.41	312179	9.71	470057	10.62	263751	16.36	431617	13.90
ZZZZZZ	335119	7.41	282148	9.71	433991	10.62	298601	16.36	424282	13.89
JC46337-6MS [d]	359046	7.41	405853	9.71	572793	10.62	332658	16.36	525008	13.89
JC46337-6MSD [d]	342354	7.42	346199	9.71	506118	10.62	290811	16.36	467027	13.90
ZZZZZZ	331156	7.40	336213	9.71	491355	10.62	278595	16.36	451588	13.90
ZZZZZZ	333504	7.41	359808	9.71	519682	10.62	292203	16.37	473235	13.90
ZZZZZZ	335218	7.42	378184	9.71	528220	10.62	305250	16.36	481866	13.90
JC46337-6	320715	7.42	320734	9.71	476222	10.62	267753	16.36	433941	13.89
ZZZZZZ	323858	7.41	322775	9.71	474943	10.63	266935	16.36	434116	13.89
ZZZZZZ	320332	7.40	343733	9.71	491722	10.62	279557	16.36	454294	13.89
ZZZZZZ	294468	7.41	286180	9.71	431032	10.62	238948	16.36	394806	13.90
ZZZZZZ	301524	7.42	320059	9.71	471044	10.63	260427	16.36	427644	13.90
ZZZZZZ	368905	7.41	285978	9.71	431725	10.63	243454	16.36	393248	13.89
ZZZZZZ	350207	7.41	323181	9.71	457518	10.63	257698	16.36	420667	13.89
ZZZZZZ	321027	7.40	311664	9.71	452822	10.62	255628	16.36	414622	13.89
ZZZZZZ	322410	7.42	284190	9.71	428717	10.62	235264	16.37	386737	13.90
ZZZZZZ	293864	7.40	310790	9.71	460011	10.63	255300	16.36	420886	13.89
ZZZZZZ	273099	7.42	255697	9.71	388896	10.62	211876	16.36	359585	13.90
ZZZZZZ	295546	7.41	300689	9.71	447140	10.62	244289	16.37	407405	13.90
ZZZZZZ	287156	7.41	271535	9.71	410194	10.62	224505	16.36	375381	13.90
ZZZZZZ	300461	7.41	296985	9.71	445486	10.62	241116	16.36	407205	13.89

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = 1,4-Dichlorobenzene-d4
IS 5 = Chlorobenzene-D5

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) (pH= 6)Sample pH did not satisfy field preservation criteria.
(d) (pH= 7) Sample is not acid preserved per method/client criteria. Sample analyzed within 3 days holding time as

Volatile Internal Standard Area Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Check Std:	VN11130-CC11104	**Injection Date:**	07/03/17
Lab File ID:	N264045.D	**Injection Time:**	13:31
Instrument ID:	GCMSN	**Method:**	EPA 624

Lab Sample ID	IS 1 AREA	IS 1 RT	IS 2 AREA	IS 2 RT	IS 3 AREA	IS 3 RT	IS 4 AREA	IS 4 RT	IS 5 AREA	IS 5 RT

required for acrolein and acrylonitrile. Other compounds within 7 days as required by the method.

Volatile Surrogate Recovery Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Method: EPA 624 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
MC50794-1	N264051.D	101	97	90	110
VN11130-BS	N264048.D	93	102	93	104
VN11130-BSD	N264049.D	96	98	88	105
VN11130-MB	N264047.D	101	98	92	111

Surrogate Compounds	Recovery Limits
S1 = 1,2-Dichloroethane-D4 (SUR)	72-125%
S2 = Toluene-D8 (SUR)	78-119%
S3 = 4-Bromofluorobenzene (SUR)	74-115%
S4 = Dibromofluoromethane (S)	79-120%

Volatile Surrogate Recovery Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Method: SW846 8260C BY SIM **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1
MC50794-1A	3A156539.D	129
V3A6747-BS	3A156533.D	112
V3A6747-BSD	3A156537.D	110
V3A6747-MB	3A156532.D	112

Surrogate Compounds	Recovery Limits
S1 = 1,4-Dioxane-d8	51-175%

Volatile Surrogate Recovery Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Method: SW846 8260C **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
MC50794-1	4D80677A.D	102	101	102	101
V4D3482-BS	4D80666.D	103	102	98	97
V4D3482-BSD	4D80672A.D	104	102	99	100
V4D3482-MB	4D80665.D	103	103	101	100

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	76-120%
S2 = 1,2-Dichloroethane-D4	73-122%
S3 = Toluene-D8	84-119%
S4 = 4-Bromofluorobenzene	78-117%

GC/MS Semi-volatiles

QC Data Summaries

(SGS Accutest New Jersey)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4132-MB1	5P40262.D	1	06/30/17	CS	06/29/17	OP4132	E5P1978

The QC reported here applies to the following samples: **Method:** EPA 625

MC50794-1

CAS No.	Compound	Result	RL	Units	Q
87-86-5	Pentachlorophenol	ND	5.0	ug/l	
108-95-2	Phenol	ND	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	41%	10-110%
4165-62-2	Phenol-d5	27%	10-110%
118-79-6	2,4,6-Tribromophenol	72%	35-147%
4165-60-0	Nitrobenzene-d5	75%	32-132%
321-60-8	2-Fluorobiphenyl	73%	40-117%
1718-51-0	Terphenyl-d14	79%	33-126%

Method Blank Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4132A-MB1	3P60644.D	1	06/30/17	KM	06/29/17	OP4132A	E3P2848

The QC reported here applies to the following samples: **Method:** SW846 8270D BY SIM

MC50794-1

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	0.10	ug/l	
208-96-8	Acenaphthylene	ND	0.10	ug/l	
120-12-7	Anthracene	ND	0.10	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	ug/l	
218-01-9	Chrysene	ND	0.10	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	ug/l	
206-44-0	Fluoranthene	ND	0.10	ug/l	
86-73-7	Fluorene	ND	0.10	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	ug/l	
91-20-3	Naphthalene	ND	0.10	ug/l	
85-01-8	Phenanthrene	ND	0.10	ug/l	
129-00-0	Pyrene	ND	0.10	ug/l	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	63%	29-124%
321-60-8	2-Fluorobiphenyl	56%	23-122%
1718-51-0	Terphenyl-d14	61%	22-130%

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4132-BS1	5P40263.D	1	06/30/17	CS	06/29/17	OP4132	E5P1978
OP4132-BSD	5P40264.D	1	06/30/17	CS	06/29/17	OP4132	E5P1978

The QC reported here applies to the following samples: **Method:** EPA 625

MC50794-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
87-86-5	Pentachlorophenol	50	40.8	82	41.5	83	2	25-128/25
108-95-2	Phenol	50	18.2	36	18.1	36	1	20-110/22
117-81-7	bis(2-Ethylhexyl)phthalate	50	51.7	103	50.8	102	2	50-120/22

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
367-12-4	2-Fluorophenol	51%	55%	10-110%
4165-62-2	Phenol-d5	36%	39%	10-110%
118-79-6	2,4,6-Tribromophenol	86%	83%	35-147%
4165-60-0	Nitrobenzene-d5	77%	83%	32-132%
321-60-8	2-Fluorobiphenyl	71%	72%	40-117%
1718-51-0	Terphenyl-d14	89%	88%	33-126%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4132A-BS12	3P60645.D	1	06/30/17	KM	06/29/17	OP4132A	E3P2848
OP4132A-BSD12	3P60646.D	1	06/30/17	KM	06/29/17	OP4132A	E3P2848

The QC reported here applies to the following samples: **Method:** SW846 8270D BY SIM

MC50794-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	1	0.842	84	0.627	63	29	31-135/38
208-96-8	Acenaphthylene	1	0.847	85	0.590	59	36 [a]	28-130/42
120-12-7	Anthracene	1	0.879	88	0.668	67	27	40-125/32
56-55-3	Benzo(a)anthracene	1	0.986	99	0.814	81	19	38-132/31
50-32-8	Benzo(a)pyrene	1	0.837	84	0.708	71	17	31-110/37
205-99-2	Benzo(b)fluoranthene	1	0.917	92	0.726	73	23	31-113/37
191-24-2	Benzo(g,h,i)perylene	1	0.764	76	0.720	72	6	18-110/54
207-08-9	Benzo(k)fluoranthene	1	0.782	78	0.666	67	16	31-119/43
218-01-9	Chrysene	1	0.837	84	0.724	72	14	43-119/33
53-70-3	Dibenzo(a,h)anthracene	1	0.746	75	0.730	73	2	20-112/50
206-44-0	Fluoranthene	1	0.905	91	0.744	74	20	48-118/27
86-73-7	Fluorene	1	0.829	83	0.618	62	29	42-123/34
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.754	75	0.695	70	8	18-113/49
91-20-3	Naphthalene	1	0.770	77	0.541	54	35 [a]	30-114/40
85-01-8	Phenanthrene	1	0.881	88	0.662	66	28	45-125/31
129-00-0	Pyrene	1	0.955	96	0.780	78	20	48-125/29

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
4165-60-0	Nitrobenzene-d5	72%	55%	29-124%
321-60-8	2-Fluorobiphenyl	60%	47%	23-122%
1718-51-0	Terphenyl-d14	68%	67%	22-130%

(a) Outside of program requirements.

* = Outside of Control Limits.

Semivolatile Internal Standard Area Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Check Std:	E3P2848-CC2822	**Injection Date:**	06/30/17
Lab File ID:	3P60630.D	**Injection Time:**	09:30
Instrument ID:	GCMS3P	**Method:**	SW846 8270D BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
Check Std	21153	9.59	27261	12.51	43654	16.69	33070	21.29
Upper Limit [a]	42306	10.09	54522	13.01	87308	17.19	66140	21.79
Lower Limit [b]	10577	9.09	13631	12.01	21827	16.19	16535	20.79

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
ZZZZZZ	19544	9.59	24074	12.52	40261	16.71	32211	21.29
ZZZZZZ	29579	9.59	39299	12.52	61301	16.71	47409	21.29
ZZZZZZ	29892	9.59	40142	12.52	66857	16.71	52963	21.29
ZZZZZZ	23674	9.59	30842	12.52	49596	16.71	40986	21.31
ZZZZZZ	32267	9.59	42450	12.52	68285	16.71	51761	21.31
ZZZZZZ	24786	9.59	31637	12.52	51640	16.71	39613	21.31
ZZZZZZ	30294	9.59	39699	12.52	62396	16.71	47232	21.31
ZZZZZZ	32246	9.59	42244	12.52	67258	16.71	51203	21.31
ZZZZZZ	20144	9.59	25619	12.52	41596	16.71	31974	21.31
ZZZZZZ	15877	9.61	17376	12.55	27292	16.72	29042	21.31
OP4067A-MB1	23104	9.59	29632	12.52	50408	16.71	41113	21.31
OP4067A-BS12	19260	9.59	25069	12.52	40824	16.71	32862	21.31
OP4132A-MB1	24290	9.59	30566	12.52	46969	16.71	38435	21.31
OP4132A-BS12	22597	9.59	29731	12.52	47821	16.71	36758	21.31
OP4132A-BSD12	17128	9.59	21852	12.52	36627	16.71	29543	21.31
MC50794-1	24057	9.59	29473	12.52	44290	16.71	34075	21.31
JC45939-2	18536	9.59	24187	12.52	38007	16.71	30434	21.31
OP4067A-MS	21380	9.59	28133	12.52	45244	16.71	36353	21.31
OP4067A-MSD	18428	9.59	23450	12.52	38844	16.71	32378	21.31

IS 1 = 1-Methylnaphthalene-d10
IS 2 = Fluorene-d10
IS 3 = Fluoranthene-d10
IS 4 = Benzo(a)pyrene-d12

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Semivolatile Internal Standard Area Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Check Std:	E5P1978-CC1922	**Injection Date:**	06/29/17
Lab File ID:	5P40259.D	**Injection Time:**	23:48
Instrument ID:	GCMS5P	**Method:**	EPA 625

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	408790	4.56	1551733	5.77	938448	7.46	1615605	8.95	1656809	12.43	1445229	14.45
Upper Limit [a]	817580	5.06	3103466	6.27	1876896	7.96	3231210	9.45	3313618	12.93	2890458	14.95
Lower Limit [b]	204395	4.06	775867	5.27	469224	6.96	807803	8.45	828405	11.93	722615	13.95

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP4132-MB1	301777	4.56	1147022	5.76	690229	7.46	1183129	8.95	1240205	12.42	1181826	14.45
OP4132-BS1	290923	4.56	1092390	5.76	648909	7.46	1115387	8.95	1178425	12.43	1109589	14.45
OP4132-BSD	281564	4.56	1056098	5.77	635753	7.46	1087759	8.95	1124833	12.43	1068359	14.45
OP4123-MB1	307489	4.56	1187411	5.76	705855	7.46	1217267	8.95	1294784	12.42	1224782	14.45
OP4123-BS1	289184	4.57	1087508	5.77	649768	7.46	1116059	8.95	1159982	12.43	1112200	14.45
OP4123-BSD	292831	4.57	1079639	5.76	641917	7.46	1103171	8.95	1175535	12.43	1107563	14.45
OP4122-MB1	333328	4.56	1268912	5.76	756508	7.46	1285989	8.95	1304785	12.42	1222965	14.45
OP4122-BS1	330141	4.57	1222044	5.76	727083	7.46	1229159	8.95	1192555	12.43	1133215	14.45
OP4122-MS	293673	4.57	1086656	5.76	646071	7.46	1119128	8.95	1181725	12.43	1119442	14.45
OP4122-MSD	304244	4.57	1128189	5.76	674851	7.46	1160679	8.95	1179888	12.43	1104091	14.45
JC46012-1	328666	4.56	1246327	5.76	735569	7.46	1269118	8.95	1257259	12.42	1163488	14.45
ZZZZZZ	283893	4.56	1115267	5.76	666624	7.46	1153376	8.95	1174379	12.42	1094583	14.45
ZZZZZZ	319611	4.56	1239560	5.76	727918	7.46	1231207	8.95	1233056	12.42	1164545	14.45
ZZZZZZ	286440	4.56	1130359	5.76	670453	7.46	1120799	8.95	1093003	12.42	935523	14.45

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Semivolatile Internal Standard Area Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Check Std:	E5P1979-CC1922	**Injection Date:**	06/30/17
Lab File ID:	5P40283.D	**Injection Time:**	11:13
Instrument ID:	GCMS5P	**Method:**	EPA 625

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	330302	4.56	1292621	5.76	784550	7.46	1393083	8.95	1423599	12.43	1060300	14.45
Upper Limit [a]	660604	5.06	2585242	6.26	1569100	7.96	2786166	9.45	2847198	12.93	2120600	14.95
Lower Limit [b]	165151	4.06	646311	5.26	392275	6.96	696542	8.45	711800	11.93	530150	13.95

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP4043-MB1	289691	4.56	1093049	5.76	681383	7.46	1166687	8.95	1204514	12.42	1134874	14.44
MC50794-1	308058	4.56	1167186	5.76	689821	7.46	1154158	8.95	988899	12.42	760584	14.44
OP3855A-MB1	293708	4.56	1154298	5.76	700631	7.46	1192223	8.95	1128666	12.42	712789	14.45
ZZZZZZ	335887	4.56	1285550	5.76	771357	7.46	1315761	8.95	1348485	12.42	1108171	14.44

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Semivolatile Surrogate Recovery Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Method: EPA 625 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
MC50794-1	5P40287.D	44	31	80	82	77	62
OP4132-BS1	5P40263.D	51	36	86	77	71	89
OP4132-BSD	5P40264.D	55	39	83	83	72	88
OP4132-MB1	5P40262.D	41	27	72	75	73	79

Surrogate Compounds	Recovery Limits
S1 = 2-Fluorophenol	10-110%
S2 = Phenol-d5	10-110%
S3 = 2,4,6-Tribromophenol	35-147%
S4 = Nitrobenzene-d5	32-132%
S5 = 2-Fluorobiphenyl	40-117%
S6 = Terphenyl-d14	33-126%

Semivolatile Surrogate Recovery Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Method: SW846 8270D BY SIM **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC50794-1	3P60647.D	68	58	45
OP4132A-BS12	3P60645.D	72	60	68
OP4132A-BSD12	3P60646.D	55	47	67
OP4132A-MB1	3P60644.D	63	56	61

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	29-124%
S2 = 2-Fluorobiphenyl	23-122%
S3 = Terphenyl-d14	22-130%

GC Semi-volatiles

QC Data Summaries

(SGS Accutest New Jersey)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4120-MB1	XX211742.D	1	06/30/17	RK	06/29/17	OP4120	GXX6054

The QC reported here applies to the following samples: **Method:** EPA 608

MC50794-1

CAS No.	Compound	Result	RL	Units	Q
12674-11-2	Aroclor 1016	ND	0.25	ug/l	
11104-28-2	Aroclor 1221	ND	0.25	ug/l	
11141-16-5	Aroclor 1232	ND	0.25	ug/l	
53469-21-9	Aroclor 1242	ND	0.25	ug/l	
12672-29-6	Aroclor 1248	ND	0.25	ug/l	
11097-69-1	Aroclor 1254	ND	0.25	ug/l	
11096-82-5	Aroclor 1260	ND	0.25	ug/l	

CAS No.	Surrogate Recoveries		Limits
877-09-8	Tetrachloro-m-xylene	73%	10-156%
877-09-8	Tetrachloro-m-xylene	79%	10-156%
2051-24-3	Decachlorobiphenyl	22%	10-143%
2051-24-3	Decachlorobiphenyl	25%	10-143%

Blank Spike/Blank Spike Duplicate Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4120-BS1	XX211802.D	1	07/03/17	JR	06/29/17	OP4120	GXX6055
OP4120-BSD	XX211803.D	1	07/03/17	JR	06/29/17	OP4120	GXX6055

The QC reported here applies to the following samples: **Method:** EPA 608

MC50794-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
12674-11-2	Aroclor 1016	2	1.8	90	1.9	95	5	42-160/37
11104-28-2	Aroclor 1221		ND		ND		nc	70-130/30
11141-16-5	Aroclor 1232		ND		ND		nc	70-130/30
53469-21-9	Aroclor 1242		ND		ND		nc	70-130/30
12672-29-6	Aroclor 1248		ND		ND		nc	70-130/30
11097-69-1	Aroclor 1254		ND		ND		nc	70-130/30
11096-82-5	Aroclor 1260	2	1.9	95 [a]	2.0	100 [a]	5 [a]	41-158/40

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
877-09-8	Tetrachloro-m-xylene	66%	71%	10-156%
877-09-8	Tetrachloro-m-xylene	70%	73%	10-156%
2051-24-3	Decachlorobiphenyl	27%	27%	10-143%
2051-24-3	Decachlorobiphenyl	29%	29%	10-143%

(a) Reported from the 2nd signal. The %D of the CCV on the 1st signal exceeds the method criteria of 15%, so it being used for confirmation only.

* = Outside of Control Limits.

Semivolatile Surrogate Recovery Summary

Job Number: MC50794
Account: ALNE SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Method: EPA 608 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]	S1 [b]	S2 [a]	S2 [b]
MC50794-1	XX211805.D	72	77	33	44
MC50794-1	XX211834.D	74	80	33	41
OP4120-BS1	XX211802.D	66	70	27	29
OP4120-BSD	XX211803.D	71	73	27	29
OP4120-MB1	XX211742.D	73	79	22	25

Surrogate Compounds	Recovery Limits
S1 = Tetrachloro-m-xylene	10-156%
S2 = Decachlorobiphenyl	10-143%

(a) Recovery from GC signal #1
(b) Recovery from GC signal #2

Metals Analysis

QC Data Summaries

(SGS Accutest New Jersey)

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: MC50794
Account: ALNE - SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

QC Batch ID: MP1682
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 06/30/17

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.96	4		
Antimony	2.0	.03	1.2	0.11	<2.0
Arsenic	1.0	.03	.22	0.0036	<1.0
Barium	1.0	.014	.27		
Beryllium	0.50	.0021	.016		
Boron	50	.81	18		
Cadmium	0.50	.0065	.063	-0.0013	<0.50
Calcium	250	2.4	30		
Chromium	4.0	.025	.34	0.0045	<4.0
Cobalt	0.50	.0034	.019		
Copper	4.0	.02	.77	0.43	<4.0
Iron	50	.86	13		
Lead	0.50	.0045	.16	0.022	<0.50
Magnesium	250	.78	3.1		
Manganese	1.0	.013	.2		
Molybdenum	1.0	.032	.14		
Nickel	4.0	.012	.48	0.022	<4.0
Potassium	250	2.1	46		
Selenium	1.0	.029	.24	-0.0014	<1.0
Silver	2.0	.0042	.051	0.0019	<2.0
Sodium	250	2	77		
Strontium	5.0	.022	.34		
Thallium	0.50	.0028	.036		
Tin	5.0	.057	.85		
Titanium	1.0	.056	.49		
Vanadium	4.0	.03	.24		
Zinc	10	.055	1.5	0.77	<10

Associated samples MP1682: MC50794-1, MC50794-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: MC50794
Account: ALNE - SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

QC Batch ID: MP1682
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date:		06/30/17				06/30/17			
Metal	BSP Result	Spikelot MPX200.8A% Rec	QC Limits	BSD Result	Spikelot MPX200.8A% Rec	BSD RPD	QC Limit		
Aluminum	anr								
Antimony	107	100	107.0	85-115	108	100	108.0	0.9	20
Arsenic	98.2	100	98.2	85-115	100	100	100.0	1.8	20
Barium									
Beryllium									
Boron									
Cadmium	98.2	100	98.2	85-115	99.6	100	99.6	1.4	20
Calcium									
Chromium	99.7	100	99.7	85-115	101	100	101.0	1.3	20
Cobalt									
Copper	97.5	100	97.5	85-115	98.1	100	98.1	0.6	20
Iron	anr								
Lead	102	100	102.0	85-115	102	100	102.0	0.0	20
Magnesium									
Manganese									
Molybdenum									
Nickel	100	100	100.0	85-115	101	100	101.0	1.0	20
Potassium									
Selenium	184	200	92.0	85-115	187	200	93.5	1.6	20
Silver	83.5	80	104.4	85-115	83.4	80	104.3	0.1	20
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc	93.9	100	93.9	85-115	95.0	100	95.0	1.2	20

Associated samples MP1682: MC50794-1, MC50794-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: MC50794
Account: ALNE - SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

QC Batch ID: MP1696
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 06/30/17

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	7.1	32		
Antimony	6.0	1.9	3		
Arsenic	3.0	1.5	2.6		
Barium	200	.2	1		
Beryllium	1.0	.1	.31		
Bismuth	20	2.6	5.5		
Boron	100	1.2	7.8		
Cadmium	3.0	.3	.69		
Calcium	5000	3.3	48		
Chromium	10	.8	1.6		
Cobalt	50	.5	.7		
Copper	10	.9	6.5		
Iron	100	2.7	20	5.8	<100
Lead	3.0	2.2	2.6		
Lithium	50	3.1	11		
Magnesium	5000	17	59		
Manganese	15	.1	.78		
Molybdenum	20	.4	5.7		
Nickel	10	.4	5.2		
Phosphorus	50	2.1	14		
Potassium	10000	47	290		
Selenium	10	2.5	7.2		
Silicon	200	2.2	32		
Silver	10	1	3		
Sodium	10000	16	170		
Strontium	10	.1	.3		
Sulfur	50	4	14		
Thallium	2.0	1.9	1.5		
Tin	50	1.3	7.6		
Titanium	10	.6	1.3		
Tungsten	50	2	7.8		
Vanadium	50	.8	.95		
Zinc	20	.2	2.2		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: MC50794
Account: ALNE - SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

QC Batch ID: MP1696
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 06/30/17

Metal	RL	IDL	MDL	MB raw	final
Zirconium	10	.5	1.2		

Associated samples MP1696: MC50794-1, MC50794-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: MC50794
Account: ALNE - SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

QC Batch ID: MP1696
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 06/30/17 06/30/17

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits	BSD Result	Spikelot MPSPK2	% Rec	BSD RPD	QC Limit
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Bismuth									
Boron									
Cadmium									
Calcium	anr								
Chromium	anr								
Cobalt									
Copper	anr								
Iron	26400	25000	105.6	85-115	25800	25000	103.2	2.3	20
Lead	anr								
Lithium									
Magnesium	anr								
Manganese									
Molybdenum									
Nickel									
Phosphorus									
Potassium	anr								
Selenium									
Silicon									
Silver									
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc	anr								

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: MC50794
Account: ALNE - SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

QC Batch ID: MP1696
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 06/30/17 06/30/17

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits	BSD Result	Spikelot MPSPK2	% Rec	BSD RPD	QC Limit
Zirconium									

Associated samples MP1696: MC50794-1, MC50794-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: MC50794
Account: ALNE - SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

QC Batch ID: MP1696
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 06/30/17

Metal	JC46056-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron	11300	11900	5.0	0-10
Lead	anr			
Lithium				
Magnesium	anr			
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium	anr			
Selenium				
Silicon				
Silver				
Sodium	anr			
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc	anr			

SERIAL DILUTION RESULTS SUMMARY

Login Number: MC50794
Account: ALNE - SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

QC Batch ID: MP1696
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 06/30/17

Metal	JC46056-1 Original SDL 1:5	%DIF	QC Limits
Zirconium			

Associated samples MP1696: MC50794-1, MC50794-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: MC50794
Account: ALNE - SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

QC Batch ID: MP1710
Matrix Type: AQUEOUS

Methods: EPA 245.1
Units: ug/l

Prep Date: 06/30/17

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.20	.058	.082	0.030	<0.20

Associated samples MP1710: MC50794-1, MC50794-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: MC50794
Account: ALNE - SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

QC Batch ID: MP1710
Matrix Type: AQUEOUS

Methods: EPA 245.1
Units: ug/l

Prep Date: 06/30/17 06/30/17

Metal	BSP Result	Spikelot HGPW3	% Rec	QC Limits	BSD Result	Spikelot HGPW3	% Rec	BSD RPD	QC Limit
Mercury	2.0	2	100.0	85-115	2.1	2	105.0	4.9	

Associated samples MP1710: MC50794-1, MC50794-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

General Chemistry

QC Data Summaries

(SGS Accutest New Jersey)

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: MC50794
Account: ALNE - SGS Accutest New England
Project: MO: CORPMAWB: Edsel LP, 863 Crescent Street, Brockton, MA

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP6325/GN66308	2.0	0.30	mg/l	80	80.5	100.6	90-110%
Cyanide	GP6296/GN66314	0.010	0.0	mg/l	0.0833	0.0913	109.6	90-110%
HEM Petroleum Hydrocarbons	GP6323/GN66307	5.0	2.8	mg/l	20.04	14.5	72.4	64-132%
Hardness, Total as CaCO3	GN66386	4.0	0.0	mg/l	80	82.0	102.5	80-120%
Hardness, Total as CaCO3	GN66386			mg/l	160	160	100.0	80-120%
Nitrogen, Ammonia	GP6302/GN66295	0.20	0.0	mg/l	1	1.03	103.0	80-120%
Phenols	GP6345/GN66476	0.20	0.0	mg/l	0.5	0.547	109.4	90-110%
Sulfate	GP6325/GN66308	2.0	0.0	mg/l	80	78.8	98.5	90-110%

Associated Samples:
Batch GP6296: MC50794-1
Batch GP6302: MC50794-1, MC50794-2
Batch GP6323: MC50794-1
Batch GP6325: MC50794-1
Batch GP6345: MC50794-1
Batch GN66386: MC50794-2
(*) Outside of QC limits

ATTACHMENT C

StreamStats Flow Statics Report

StreamStats Report

Region ID:

MA

Workspace ID:

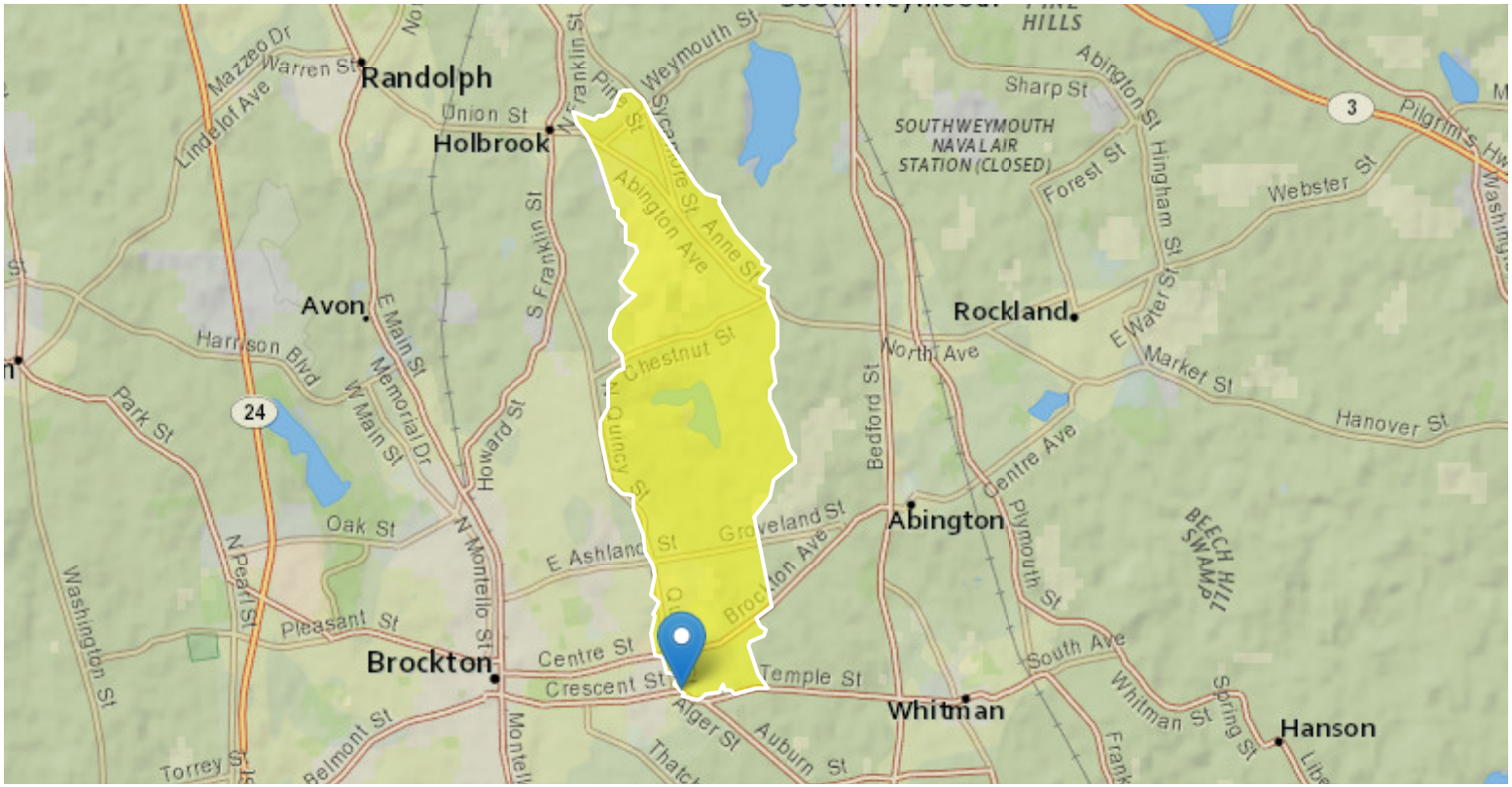
MA20170608172533802000

Clicked Point (Latitude, Longitude):

42.08176, -70.98567

Time:

2017-06-08 17:26:11 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	6.06	square miles
DRFTPERSTR	Area of stratified drift per unit of stream length	0.14	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless
BSLDEM250	Mean basin slope computed from 1:250K DEM	1.612	percent
BSLDEM10M	Mean basin slope computed from 10 m DEM	3.439	percent
PCTSNDGRV	Percentage of land surface underlain by sand and gravel deposits	13.45	percent
FOREST	Percentage of area covered by forest	25	percent

Low-Flow Statistics Parameters [100 Percent (6.05 square miles) Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	6.06	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	1.612	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.14	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Flow Report [100 Percent (6.05 square miles) Statewide Low Flow WRIR00 4135]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PIl	PIu	SE	SEp
7 Day 2 Year Low Flow	0.443	ft^3/s	0.159	1.19	49.5	49.5
7 Day 10 Year Low Flow	0.156	ft^3/s	0.0431	0.528	70.8	70.8

Low-Flow Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

August Flow-Duration Statistics Parameters [100 Percent (6.05 square miles) Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	6.06	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	1.612	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.14	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

August Flow-Duration Statistics Flow Report [100 Percent (6.05 square miles) Statewide Low Flow WRIR00 4135]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PIl	PIu	SE	SEp
August 50 Percent Duration	1.1	ft^3/s	0.469	2.52	33.2	33.2

August Flow-Duration Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

Bankfull Statistics Parameters [100 Percent (6.05 square miles) Bankfull Statewide SIR2013 5155]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	6.06	square miles	0.6	329
BSLDEM10M	Mean Basin Slope from 10m DEM	3.439	percent	2.2	23.9

Bankfull Statistics Flow Report [100 Percent (6.05 square miles) Bankfull Statewide SIR2013 5155]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
Bankfull Width	26.9	ft	21.3
Bankfull Depth	1.45	ft	19.8
Bankfull Area	38.6	ft^2	29
Bankfull Streamflow	82.7	ft^3/s	55

Bankfull Statistics Citations

Bent, G.C., and Waite, A.M.,2013, Equations for estimating bankfull channel geometry and discharge for streams in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2013–5155, 62 p., (http://pubs.usgs.gov/sir/2013/5155/)

Probability Statistics Parameters [100 Percent (6.05 square miles) Perennial Flow Probability]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	6.06	square miles	0.01	1.99
PCTSNDGRV	Percent Underlain By Sand And Gravel	13.45	percent	0	100
FOREST	Percent Forest	25	percent	0	100
MAREGION	Massachusetts Region	0	dimensionless	0	1

Probability Statistics Disclaimers [100 Percent (6.05 square miles) Perennial Flow Probability]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Probability Statistics Flow Report [100 Percent (6.05 square miles) Perennial Flow Probability]

Statistic	Value	Unit
Probability Stream Flowing Perennially	0.985	dim

Probability Statistics Citations

Bent, G.C., and Steeves, P.A.,2006, A revised logistic regression equation and an automated procedure for mapping the probability of a stream flowing perennially in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2006–5031, 107 p. (http://pubs.usgs.gov/sir/2006/5031/pdfs/SIR_2006-5031rev.pdf)

Flow-Duration Statistics Parameters [100 Percent (6.05 square miles) Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	6.06	square miles	1.61	149
DRFTPERSTR	Stratified Drift per Stream Length	0.14	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1
BSLDEM250	Mean Basin Slope from 250K DEM	1.612	percent	0.32	24.6

Flow-Duration Statistics Flow Report [100 Percent (6.05 square miles) Statewide Low Flow WRIR00 4135]

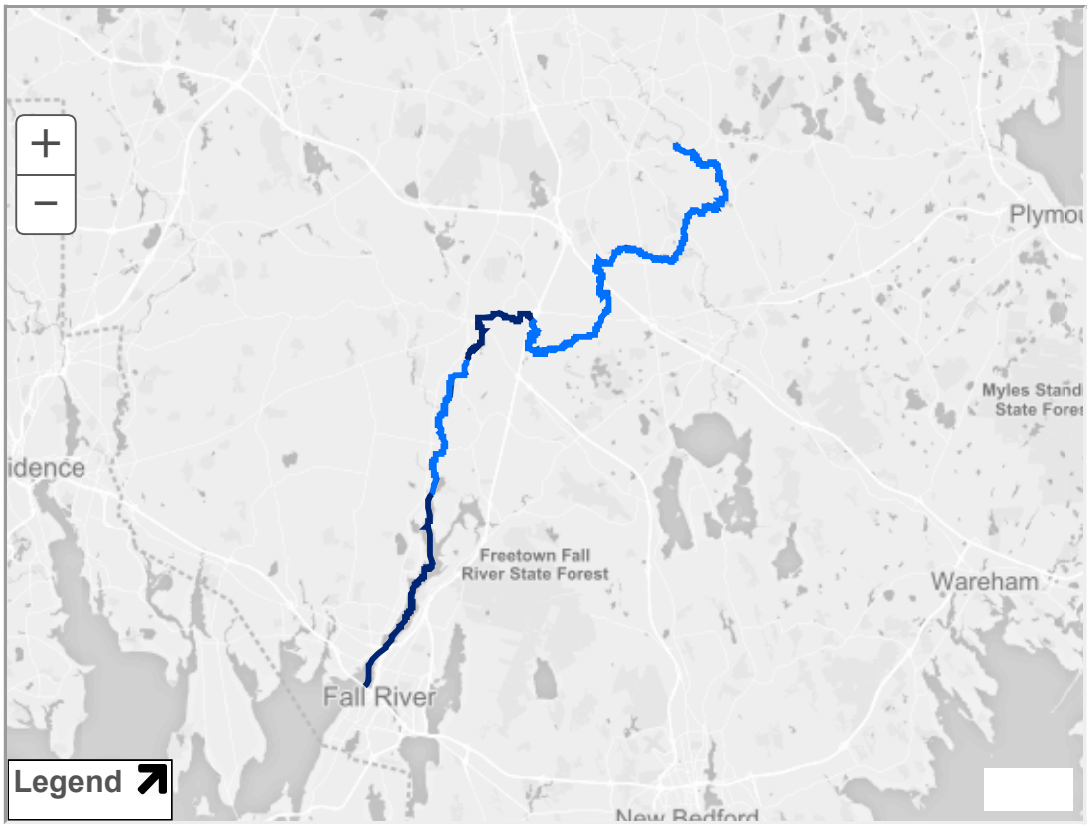
PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PIl	PIu	SE	SEp
50 Percent Duration	6	ft^3/s	3.1	11.5	17.6	17.6
60 Percent Duration	4.25	ft^3/s	2.26	7.94	19.8	19.8
70 Percent Duration	2.51	ft^3/s	1.24	5.03	23.5	23.5
75 Percent Duration	1.92	ft^3/s	0.944	3.87	25.8	25.8
80 Percent Duration	1.39	ft^3/s	0.64	3	28.4	28.4
85 Percent Duration	0.995	ft^3/s	0.428	2.27	31.9	31.9
90 Percent Duration	0.682	ft^3/s	0.278	1.64	36.6	36.6
95 Percent Duration	0.385	ft^3/s	0.142	1.01	45.6	45.6
98 Percent Duration	0.249	ft^3/s	0.0792	0.739	60.3	60.3
99 Percent Duration	0.182	ft^3/s	0.0541	0.574	65.1	65.1

Flow-Duration Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

TAUNTON RIVER, MASSACHUSETTS



Choose A State ▼ Go

Choose A River ▼ Go

Still, white winters, subtle shades of spring green, lazy summer days, autumns lit with color, rivers in the Northeast showcase the seasons.

+ View larger map

Managing Agency:

National Park Service, Northeast Regional Office

Designated Reach:

March 30, 2009. The main stem of the Taunton River from its headwaters at the confluence of the Town and Matfield Rivers in the Town of Bridgewater downstream 40 miles to its confluence with the Quequechan River at the Route 195 Bridge in the city of Fall River.

Classification/Mileage:

Scenic — 26.0 miles; Recreational — 14.0 miles; Total — 40.0 miles.

RELATED LINKS

Taunton River (National Park Service)

Taunton River Stewardship Council

Taunton River

The Taunton River is the longest undammed coastal river in New England. It supports 154 species of birds and 45 species of fish, including the bald eagle and the Atlantic sturgeon. The corridor is home to seven rare reptiles and amphibians, river otters, mink, gray foxes, and deer. One of the earliest and largest settlement areas in the Northeast for early Native People is found in the watershed.

MAINSTEM TAUNTON RIVER

The Taunton River is formed by the confluence of the Matfield and Town rivers in Bridgewater and follows an approximately 40-mile course to Mount Hope Bay. The Mainstem Taunton River flows through the communities of Bridgewater, Raynham, Taunton, Dighton, Berkley, Fall River, Freetown and Somerset and includes the following four segments (Figure 8):

Taunton River (Segment MA62-01)
Taunton River (Segment MA62-02)
Taunton River (Segment MA62-03)
Taunton River (Segment MA62-04)

Land along the Mainstem Taunton River is mostly undeveloped with approximately 50% of the land in forest and 25% in residential use. The impervious cover is all less than 10% indicating that there is a low potential for adverse water quality impacts from impervious surface water runoff. Because the watershed topography is flat to low hilly, the Taunton River has one of the flattest courses in Massachusetts. Streamflow fluctuates slowly due to the low gradient; extensive wetland areas and underlying stratified drift. There are only a few short sections of rapids along the river. The absence of dams make it an important anadromous fish run by allowing fish species to reach their native spawning grounds (Nemasket River Stream Team 2003).

The Taunton River Stewardship Program, established in 1996 to promote the preservation of the upper Taunton River corridor and its major tributaries as an intact resource, has been instrumental in helping to facilitate land protection efforts along the corridor over the past six years. Thanks to the combined efforts of the Stewardship Program's partners, including the Towns of Bridgewater, Halifax, Middleborough, and Raynham, the City of Taunton, the Massachusetts Division of Fisheries and Wildlife, The Wildlands Trust of Southeastern Massachusetts, the Natural Resources Trust of Bridgewater, SRPEDD, and other contributors (notably the Massachusetts Department of Environmental Management), 695 acres have been protected in the towns of Bridgewater, Halifax, Middleborough, and Raynham.

The Taunton River has been proposed for a Wild and Scenic designation under the National Parks Service and the Department of the Interior. A study team comprised of representatives from local and state governments, river conservation groups, regional planning agencies and other concerned citizens has been formed. Through this process a conservation plan to protect the river's free-flowing character and significant resources will be developed.

Segment MA62-01 of the Taunton River is classified in the Surface Water Quality Standards as a Class B, Warm Water Fishery. The lower downstream portions are classified as Class SB and are identified as impacted by the discharge of CSOs. All three downstream segments of the Taunton River have been placed on the Massachusetts Year 2002 Integrated List of Waters – Category 5 as not meeting Water Quality Standards for pollutants such as pathogens and organic enrichment/low dissolved oxygen. The DMF Shellfish Status Report of 2003 indicates that shellfish harvesting is prohibited in all growing areas within these downstream segments of the Taunton River.

Three facilities have WMA permits with authorized surface and groundwater withdrawals totaling 3.27 million gallons per day (MGD). Of these three facilities, the largest withdrawal at 3.03 MGD is for the municipal public water source. The USGS has noted that flow in the upper segment of the Taunton River is affected by diversions to and from the basin for municipal water supplies.

The Taunton River receives discharges from six facilities permitted through the NPDES program, which include four municipal major, one industrial major and two minor NPDES permits. Both the Taunton Wastewater Treatment Plant and the City of Fall River are authorized to discharge stormwater/wastewater from combined sewer outfalls. Both facilities have taken steps to address pollution from the combined sewer outfalls. The Taunton WWTP completed upgrades to its system in 2001/2002 and the City of Fall River has developed a three-phase program under a management plan to deal with combined sewer overflows. Additionally, there are numerous Multi-sector General Stormwater Permits for facilities in the communities of Bridgewater, Raynham, Dighton, Berkley, Somerset, Taunton

and Fall River. These communities and the Town of Freetown are Phase II stormwater communities. Each community was issued a stormwater general permit from EPA and MassDEP in 2003/2004 and is authorized to discharge stormwater from their municipal drainage system. Over the five-year permit term, the communities will develop, implement, and enforce a stormwater management program to reduce the discharge of pollutants from the storm sewer system to protect water quality (Domizio 2004).

Water quality data were collected at three sites on the Taunton River during the ENSR International study. As part of the NAWQA Program the USGS also conducted monthly water quality sampling at one site. Additionally, the TRWA conducts water quality sampling at three sites and the Bridgewater State WAL does water quality monitoring at one site. Results indicated elevated phosphorus concentrations, somewhat low dissolved oxygen and % saturation levels and elevated levels of bacteria.

To summarize the detailed assessments that follow this section, the *Aquatic Life Use* is assessed as support in Segments MA62-01 and MA62-02 and as impaired in Segment MA 62-04 due to a reduced abundance and diversity of fish. The Shellfish Harvesting Use is assessed as impaired in all three downstream segments due to elevated bacteria counts. None of the other uses (Primary Contact and Secondary Contact Recreation and Aesthetics) have enough information to make assessments so they are not assessed.

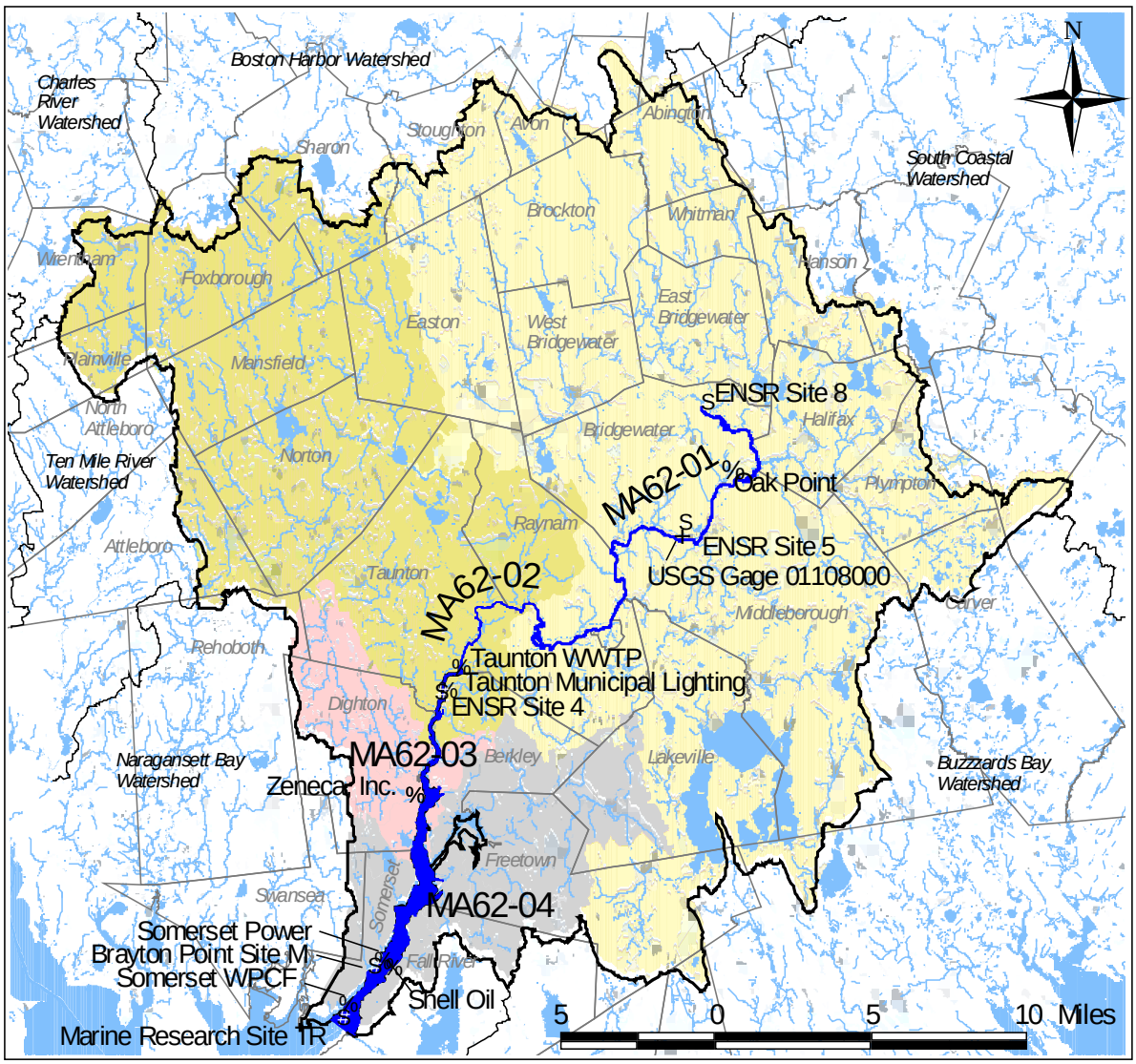


Figure 8. Taunton River Watershed

TAUNTON RIVER (SEGMENT MA62-01)

Location: Confluence of Town and Matfield rivers, Bridgewater to Route 24 bridge, Taunton/Raynham.
Segment Length: 20.4 miles
Classification: Class B, Warm Water Fishery

The drainage area of this segment is approximately 302.3 square miles. Land-use estimates (top three) for the subwatershed:

Forest 48.2%
Open land 9.0%
Residential 22.1%

The impervious cover area for this subwatershed is less than 10%.

This segment is on the Massachusetts Year 2002 Integrated List of Waters – Category 3 (MassDEP 2003).

There is one site awaiting a NPL decision located in this subwatershed. The site description was excerpted from the EPA website (EPA 2005b).

> The Middleborough Rockland Inc. property was operated by Rockland as a dye manufacturing facility from 1966 to 1982. The facility manufactured "dye assist" products for the textile industry. Allegedly, wastes from manufacturing processes were disposed of within a former lagoon, former filter beds, the septic system, and floor drains in one of the buildings. Analytical results of groundwater samples collected from the property in 1989 indicated the presence of 12 volatile organic compounds (VOCs). In 1993 drinking water samples were taken from a nearby private well and no VOCs were detected, therefore no impacts to nearby groundwater drinking supplies are known or suspected. Stormwater runoff from the property flows west to the on-site wetlands, and eventually towards the Purchade Brook and the Taunton River. In 1968 an investigation of wastewater discharged from the property determined that the Purchade Brook had a pH of 3.2, and sediment samples taken from the brook indicated the presence of two semivolatile organic compounds and two polycyclic aromatic hydrocarbons. Based on this investigation the impact is attributable to Rockland property. The Rockland property is classified by MassDEP as a Tier IA site and is currently in Phase II of the five-phase Massachusetts Contingency Plan.

MDFW has proposed that Basset, Puddingshear, Spring and Otis Pratt brooks, which are all tributaries to this segment of the Taunton River, be listed in the next revision of the SWQS as a cold water fisheries (Richards 2003b).

It should be noted that MDFW conducted fish population sampling with a backpack shocker at three additional tributaries to this segment in July – September 2002. Samples were collected from one station along Dean Brook, near Dean Street, Raynham (Station 727). A total of two fish, both red fin pickerel, were collected. Sampling was also conducted in Dam Lot Brook near Warren Street, Raynham (Station 731). A total of 17 fish, representing four species, were collected. American eel dominated the sample. Other species included chain pickerel, largemouth bass, and tessellated darter. Sampling of Snows Brook near Vernon Street, Bridgewater (Station 725) resulted in the collection of 17 fish, representing three species. The sample was dominated by tessellated darter (Richards 2003a).

WMA WATER WITHDRAWAL SUMMARY (APPENDIX G, TABLE G5)

There are 4,762 acres of land which are classified in the Land-Use theme as cranberry bog in this subwatershed (UMass Amherst 1999). For the purpose of this report, a conservative estimate of water use for this bog area is 13.04 MGD.

Facility	WMA Permit Number	WMA Registration Number	Source (G = ground, S = surface)	Authorized Withdrawal (MGD)
Olde Scotland Links Golf Course, Town of Bridgewater	9P442504203	NA	01G	0.14 perm
Middleborough Water Supply*	9P42518201	42518203	4182000-09G	1.53 reg 1.50 perm Total – 3.03
Poquoy Brook Golf Course	NA	42514601	01S	0.10 reg

* Indicates system-wide withdrawal

NPDES WASTEWATER DISCHARGE SUMMARY (APPENDIX G, TABLE G3)

Oak Point Retirement Community (Oak Point) in Middleborough is authorized (MA0032433 in August 2004) to discharge, via outfall #001, 0.185 MGD (average monthly flow) of treated effluent to the Taunton River. This tertiary treatment facility incorporates rotating biological contactors to treat domestic wastewater and to perform nitrification for ammonia-nitrogen reduction (no limit in permit). Soda ash is added as an alkalinity supplement for nitrification. The highest concentration of NH_3-N in the effluent between July 1999 and July 2004 was 0.3 milligram per liter (mg/L) (TOXTD database). Total phosphorus (TP) reduction (1 mg/l TP average monthly April 1 to October 31) by design, will be accomplished by chemical addition using polyaluminum chloride (PAC). The pH of the effluent between July 1999 and July 2004 ranged from 6.6 to 7.2 SU (n=22) (TOXTD database). The facility utilizes ultraviolet light (UV) for annual disinfection (Hallisey 2005). The facility's recently issued permit requires whole effluent toxicity testing (lethal concentration to 50% of the test organisms (LC_{50}) ≥100% effluent limit) with a monitoring frequency of one time/year, using *Ceriodaphnia dubia* and *Pimephales promela*s, as opposed to quarterly testing requirements in the previous permit.

USE ASSESSMENT

AQUATIC LIFE

Habitat and Flow

The USGS maintains one gaging station (01108000) on the mainstem Taunton River near Titicut Road, Bridgewater. The gage has been in operation since 1926. The mean annual flow of the Taunton River at this gage (drainage area is 258 square miles) is 471 cubic feet per second (cfs) (Socolow *et al.* 2003). The USGS remarks for this gage note flow affected by diversions to and from the basin for municipal supplies and the flow is regulated by reservoirs. Prior to 1975 flow was also regulated by power plants upstream (Socolow *et al.* 2003).

Toxicity

Ambient

The Oak Point staff collected ambient water from the Taunton River adjacent to Auburn Street, Middleborough approximately 0.8 miles upstream from Outfall #001 for use as dilution water in their whole effluent toxicity tests (Hallisey 2005). Between July 1999 and July 2004 survival of *Ceriodaphnia dubia* and *Pimephales promelas* exposed (48 hours) to river water ranged from 75 to 100% (n=20).

Effluent

Between July 1999 and July 2004, acute whole effluent toxicity tests were conducted on the Oak Point effluent using *Ceriodaphnia dubia* (n=19 valid tests) and *Pimephales promelas* (n=20). The effluent did not exhibit any acute toxicity (LC_{50}'s were all >100% effluent).

Chemistry – water

As part of their site-specific copper criteria development study, ENSR conducted sampling at two stations in this segment of the Taunton River: at the upper end of this segment near Plymouth Street (Route 104), Bridgewater (Site 8) and off Titicut Street, Bridgewater (Site 5) (ENSR 2002).

The Oak Point staff collected ambient water from the Taunton River adjacent to Auburn Street, Middleborough approximately 0.8 miles upstream from Outfall #001 for use as dilution water in their whole effluent toxicity tests between July 1999 and July 2004. Data from the facility's whole effluent toxicity test reports are maintained in the TOXTD database by DWM.

The USGS has conducted water quality sampling in this segment of the Taunton River at their gaging station (01108000) near Titicut Street, Bridgewater. The data from 19 surveys collected from June 1998 through August 2002 are summarized below (Socolow *et al*. 1999, Socolow *et al*. 2000, Socolow *et al.* 2001, Socolow *et al.* 2002, and Socolow *et al*. 2003).

Sampling of the Taunton River (DO, temperature, pH, TSS, nitrate-nitrogen, total phosphorus, and bacteria) is conducted on a monthly basis by TRWA near Green Street Bridge, Middleborough/Bridgewater (Sampling Station TNT-158). Although a draft Quality Assurance Project Plan (QAPP) was reviewed by MassDEP in 2001, a final QAPP for the TRWA has not been approved so

their data are not quality-assured. For the purpose of this report data reported by TRWA for 2002/2003 were reviewed for consistency with other quality-assured data sources.

The Bridgewater State WAL conducts water quality sampling in the Taunton River at Titicut Street, Bridgewater (Curry 2005). Between June and September 2004 the Taunton River was sampled six times using a Hydrolab® minisonde to collect data on temperature, pH and DO through a 22-hour period. Additionally, WAL took nutrient samples (total phosphorus, soluble reactive phosphorus and nitrate-nitrogen) every hour using a Sigma 900 automated sampler with samples for every other hour used for analysis. A QAPP for the WAL has not been approved by MassDEP so their data are not quality-assured. For the purpose of this report data reported by WAL for 2004 were reviewed for consistency with other quality-assured data sources.

The following is a summary of the sampling results for the above-mentioned datasets.

Dissolved Oxygen and % Saturation
The DO near Plymouth Street (Route 104), Bridgewater (Site 8) was not less than 6.2 mg/L or 72.1% saturation.
DO near Titicut Street, Bridgewater reported by USGS ranged from 4.3 to 12 mg/L and saturations between 48 and 98%. Two of the 19 DO measurements were less than 5.0 mg/L and three of the saturation values were less than 60%. ENSR (2002) reported DOs at Site 5 (Titicut Street) between 5.28 and 12.37 mg/L and saturations ranging from 62 to 96.7%. It should be noted that none of these measurements were taken pre-dawn.
TRWA results did not indicate any violations of the water quality standard for DO at the Green Street Bridge, Middleborough/Bridgewater (Station TNT-158).
During its hourly Hydrolab® sampling in 2004 WAL did not report any DO measurements <5.0 mg/L.

Temperature
The maximum temperature at Site 8 was 23.7°C
The maximum temperature near Titicut Street, Bridgewater reported by both ENSR and USGS was 24.5°C.
Temperatures reported by TRWA (Station TNT-158) were consistent with the above and did not exceed 25°C.
Hourly Hydrolab® temperature measurements by WAL did not exceed 28.3°C during its 2004 sampling.

pH and Alkalinity
The pH near Plymouth Street (Route 104), Bridgewater (Site 8) ranged between 6.4 and 7.1 SU. Only one measurement was <6.5 SU. Alkalinity measurements were 23 and 25 mg/L as $CaCO_3$.
The pH measurements from samples collected approximately 0.8 miles upstream from Outfall #001 between July 1999 and July 2004 ranged from 6.0 to 7.1 SU with six of the 22 measurements <6.5 SU. Alkalinity ranged from <10 to 48 mg/L (n=22) (TOXTD database).
At the USGS site instream pH ranged from 6.0 to 7.6 SU with 5 of the 19 measurements (26%) less than 6.5 SU.
The pH near Titicut Street, Bridgewater (Site 5) ranged between 6.5 and 7.4 SU.
The pH near the Green Street Bridge, Middleborough/Bridgewater (Station TNT-158) reported by TRWA was consistent with the upstream locations.
Hourly Hydrolab® measurements for pH taken by WAL also were within the ranges reported above with some readings at or below 6.5 SU.

Specific conductance
Specific conductance ranged from 250 to 447 µS/cm at Site 8.
Specific conductance from samples collected approximately 0.8 miles upstream from Outfall #001 between July 1999 and July 2004 ranged from 89 to 398 µmhos/cm (n=22) (TOXTD database).
Specific conductance reported by ENSR ranged from 183 to 315 µS/cm near Titicut Street (Site 5). USGS results ranged from 118 to 432 µS/cm.

Hardness
Hardness of the river reported by ENSR at Site 8 was 46 and 52 mg/L as $CaCO_3$.
Hardness from samples collected approximately 0.8 miles upstream from Outfall #001 between July 1999 and July 2004 ranged from 11 to 84 mg/l (n=22)(TOXTD database). Seven of the 22 measurements were <25 mg/L.
Hardness reported by USGS at their gage near Titicut Street ranged from 27 to 65 mg/L as $CaCO_3$ (n= 5).

Turbidity
Turbidity reported by ENSR ranged from 3.93 to 7.40 nephelometric turbidity units (NTU) at Site 8 and between 2.66 and 6.30 NTU at Site 5.

Ammonia-Nitrogen
Ammonia-nitrogen concentrations reported by ENSR at Site 8 were both <1.0 mg/L.
The ammonia-nitrogen values reported from samples collected in the Taunton River approximately 0.8 miles upstream from Outfall #001 between July 1999 and July 2004 ranged from <0.05 (nine measurements were reported as less than the method detection levels of either 0.05 or 0.1 mg/L) to 2.33 mg/L (n=22) (TOXTD database).
Detectable concentrations of ammonia-nitrogen reported by USGS ranged from 0.026 to 0.85 mg/L (n=18).

All of these measurements were below 2.63 mg/L NH_3-N (chronic instream criterion for ammonia at pH of 7.6 SU and temperature of 26°C) (EPA 1999a).

Total phosphorus
Total phosphorus concentrations reported by USGS ranged from 0.101 to 0.28 mg/L (n=16).
Similar results were reported by TRWA near the Green Street Bridge, Middleborough/Bridgewater (Station TNT-158).
Values obtained by WAL for total phosphorous were also within this range.

Total Residual Chlorine (TRC)
TRC was <0.05 mg/L at Site 8 on both sampling dates.
TRC measurements from samples collected approximately 0.8 miles upstream from Outfall #001 between July 1999 and July 2004 were all <0.05 mg/L (n=22) (TOXTD database).

Copper
Between 15 March and 19 September 2001, dissolved copper concentrations reported by ENSR ranged from 2.5 to 4.00 μg/L at Site 8 and between 0.83 and 4.40 μg/L at Site 5 (n=5 measurements at each site) (ENSR 2002). The total dissolved copper concentrations near Titicut Street reported by USGS ranged from 1.4 to 3.3 μg/L (n=13). Only one of the five measurements reported by ENSR at each of their sampling sites and one of the 13 measurements reported by USGS exceeded the current EPA water quality criterion of 3 μg/L at a hardness of 25 mg/L. A site-specific copper criterion is currently being developed.

The *Aquatic Life Use* is assessed as support for this segment of the Taunton River based primarily on the good survival of test organisms exposed to the river water, the water quality data and best professional judgment. Although instream biological data (response type indicators of in-stream water quality conditions) were not available, occasionally low dissolved oxygen/saturation (not representing pre-dawn conditions) and elevated total phosphorus concentrations were documented and therefore, this use is identified with an Alert Status.

PRIMARY CONTACT AND SECONDARY CONTACT RECREATION
Fecal coliform and *E.coli* bacteria samples were collected by USGS at their gaging station (01108000) in Bridgewater, MA (Socolow *et al*. 1999, Socolow *et al*. 2000, Socolow *et al.* 2001, Socolow *et al.* 2002, and Socolow *et al*. 2003). The fecal coliform bacteria counts ranged from 29 to 5,900 cfu/100 mL (n=17). Of the 14 samples collected during the primary contact season, the geometric mean was 134 cfu/100 mL, however, two of the 14 samples (14%) exceeded 400 cfu/100 mL. The geometric mean for all of the fecal

coliform bacteria samples collected (n=17) was 169 cfu/100 mL. Only one sample exceeded 2,000 cfu/100 mL.

TRWA reported similar fecal coliform bacteria results for the river at the Green Street Bridge, Middleborough/Bridgewater (sampling station TNT-158).

Given the length of this segment of the Taunton River, too limited data are available (poor spatial coverage) to assess the status of the *Primary* and *Secondary Contact Recreational* uses. The *Primary Contact Recreational Use* is identified with an Alert Status however, given the problems identified in the Matfield River just upstream from this segment.

Taunton River (MA62-01) Use Summary Table

Designated Uses		Status
Aquatic Life		SUPPORT*
Fish Consumption		NOT ASSESSED
Primary Contact		NOT ASSESSED*
Secondary Contact		NOT ASSESSED
Aesthetics		NOT ASSESSED

*"Alert Status" issues identified, see details in the use assessment section

RECOMMENDATIONS

Conduct monitoring (biological, habitat and water quality) adequate to evaluate the status of the *Aquatic Life Use* in this segment of the Taunton River bracketing potential sources of pollution (e.g., discharges, major tributaries, developments).

Conduct bacteria sampling with sufficient spatial coverage to evaluate effectiveness of nonpoint source pollution control activities and to assess the status of the *Primary* and *Secondary Contact Recreational* uses.

Continue to monitor compliance with WMA registration/permit limits and other special conditions of the permits.

NPDES permits should be updated with appropriate limits and monitoring requirements including consideration of site-specific copper criterion.

MDFW has proposed that Basset, Puddingshear, Spring and Otis Pratt brooks, which are all tributaries to this segment of the Taunton River, be protected as cold water fishery habitat. Additional monitoring of the fish population, dissolved oxygen, and temperature is needed to evaluate MDFW's proposal to list this stream as a cold water fishery in the next revision of the Surface Water Quality Standards.

The TRWA and WAL should continue to conduct water quality monitoring at their established sampling sites in this segment of the Taunton River to meet their sampling objectives. In order for the MassDEP to utilize the TRWA and WAL data for water quality assessment reporting purposes, the TRWA and WAL should work with MassDEP to meet its quality assurance/quality control requirements.

TAUNTON RIVER (SEGMENT MA62-02)

Location: Route 24 Bridge, Taunton/Raynham to Berkley Bridge, Dighton/Berkley.
Segment Size: 0.29 square miles
Classification: Class SB, Shellfishing (R), CSO

The drainage area of this segment is approximately 457.6 square miles. Land-use estimates (top three) for the subwatershed:

Forest 49.3%
Open land 8.4%
Residential 23.4%

The impervious cover area for this subwatershed is less than 10%.

This segment is on the Massachusetts Year 2002 Integrated List of Waters – Category 5 as not meeting water quality standards for pathogens (MassDEP 2003).

WMA WATER WITHDRAWAL SUMMARY AND NPDES WASTEWATER DISCHARGE SUMMARY (APPENDIX G, TABLES G1, G2 AND G3)

There are 5,504 acres of land which are classified in the Land-Use theme as cranberry bog in this subwatershed (UMass Amherst 1999). For the purpose of this report, a conservative estimate of water use for this bog area is 49.14 MGD. However, 4,762 acres of this cranberry acreage are located in the subwatershed for Segment MA62-01 upstream from this subwatershed.

Bay State Gas, a natural gas/propane distribution facility, was authorized under the NPDES General Permit to discharge non-contact cooling water into the Taunton River. This permit (No. MAG250040) was issued December 1, 2000 and this discharge was eliminated effective March 26, 2004.

The City of Taunton is authorized (NPDES permit MA0100897 issued in March 2001) to discharge from the Taunton Wastewater Treatment Plant (WWTP) via Outfall #001 an average monthly flow of 8.4 MGD of treated industrial and sanitary wastewater and stormwater to the Taunton River. This conventional activated sludge facility conducts seasonal nitrification for ammonia-nitrogen reduction (1 mg/l NH_3-N average monthly June 1 to September 30). The concentration of NH_3-N in the effluent between January 1996 and August 2004 ranged from <0.05 to 16.04 mg/L (n=36) (TOXTD database). The pH of the effluent between January 1996 and August 2004 ranged from 6.66 to 7.61 SU (n=36) with the exception of one test event (6.37 SU, April 1997) (TOXTD database). The facility utilizes sodium hypochlorite for disinfection and sodium bisulfite for dechlorination (TRC limit = 0.046 mg/L average monthly and 0.08 mg/L maximum daily) (Domingos 2005). The TRC values of the effluent between January 1996 and August 2004 were all <0.05 mg/L (n=36) (TOXTD database). The facility's whole effluent toxicity limits (both the September 1995 and March 2001 permits) are $LC_{50} \geq 100\%$ and C-NOEC $\geq$ 24% with a monitoring frequency of four times/year using *Ceriodaphnia dubia*. *Pimephales promelas* were also tested as part of the 1995 permit. During wet weather the permittee is also authorized to discharge stormwater/wastewater from combined sewer outfall #004 (West Water Street south of Fifth).

The Taunton Municipal Lighting Plant (TMLP) is a municipally owned 135 Mega Watt steam electric power generating facility. The TMLP Cleary-Flood Station has two generating units (8 and 9). Water is withdrawn directly from the Taunton River (approximately 38.1 MGD instantaneous maximum flow rate) at an intake structure adjacent to the main power generation building for use as cooling water. Unit 8, completed in 1966, employs a once-through cooling water system which can generate approximately 25MW. Typically, when in operation the unit is online for approximately 11 hours/generation event during peak demand periods (summer and winter). Unit 9, which began operation in 1975, is a combined cycle system, which can generate a total of 110 MW. Typically, when in operation the unit is online for approximately 13 hours/generation event during peak demand periods (summer and winter). NPDES permit# MA0002241 was issued to the facility in September 1994, however, in December 1994 the EPA reinstated the conditions of the April 1988 permit. The facility is authorized to discharge via the following outfalls (upstream to downstream):

Outfall #005 – Discharge of trash rack spray nozzles (64 nozzles with an instantaneous flow of 0.165 MGD) operated continuously during the fall and periodically through the rest of the year to keep leaves from accumulating on the trash racks to this segment of the Taunton River.
Outfall #004 – Discharge of approximately 0.013 MGD of traveling screen backwash water (only operated on days when plant is operated) to this segment of the Taunton River.
Outfall #003 –0.50 MGD maximum daily (0.35 MGD average monthly), of blowdown from Unit 9 cooling tower (83°F maximum daily) which is chlorinated daily (2 hours/day when operating) (TRC limit 0.1 mg/L) to this segment of the mainstem Taunton River.

Two additional outfalls are discharged into an unnamed tributary (see segment MA62-48) which runs adjacent to the Taunton River for approximately 2000' prior to flowing into this segment of the Taunton River.

As part of the NPDES permit renewal process, no intake or discharge effects to finfish populations in the Taunton River were projected to occur as a result of the operation of the TMLP (Earth Tech 2002). Therefore no 316(b) studies were required or conducted for this facility.

The Town of Dighton received funding in 2003 from the Clean Water SRF to identify areas of the community where existing on-site sewage disposal systems are inadequate for wastewater disposal and to develop recommendations for wastewater management to protect groundwater and surface waters including the Taunton River.

USE ASSESSMENT

AQUATIC LIFE

Toxicity

Ambient

The Taunton WWTP staff collected water from the Taunton River at the Plain Street Bridge for use as dilution water in their facility's whole effluent toxicity tests (Domingos 2005). Between October 1996 and August 2004 (n=30 tests), survival of *Ceriodaphnia dubia* exposed (7 days) to river water ranged from 10 to 100%. Survival was $\geq$ 80% except for three test events (July 1997, July 1999 and February 2002 with survivals of 70, 10, and 70%, respectively) (TOXTD database). Between October 1996 and January 2001(n=16 tests), survival of *Pimephales promelas* exposed (7 days) to river water ranged from 57 to 97%. Survival was $\geq$ 77% in all but two test events (October 1997 and January 1998 with survivals of 70 and 57%, respectively) (TOXTD database).

Effluent

Between October 1996 and August 2004, a total of 29 valid whole effluent toxicity tests using *Ceriodaphnia dubia* were conducted on the Taunton WWTP effluent. The LC_{50} results were all >100% with the exception of three tests (July 1998, May 2001, May 2003 with LC_{50}'s of 34.6, 66, and 85.4%, respectively). The C-NOEC results ranged from 6.25 to 100% (n=29 valid tests). The C-NOEC results did not meet the limit of 24% in four of the 29 test events (TOXTD database), but all of the tests conducted since July 2000 have met the permit limit of 24%. Between October 1996 and January 2001, a total of 16 whole effluent toxicity tests were conducted using *Pimephales promelas*. The LC_{50} results were all > 100%. The C-NOEC results were all 100% except for one test event (<6.25% July 1997) (TOXTD database).

Chemistry – water

Sampling of the Taunton River (DO, temperature, pH, TSS, nitrate-nitrogen, total phosphorus, and bacteria) is conducted on a monthly basis by TRWA at three locations in this segment of the Taunton River: near Longmeadow Road Bridge, Taunton (Station TNT-050); near Plain Street, Taunton (Station TNT-043); and near Center Street (Berkley Bridge), Berkley (station TNT-000). Although a draft Quality Assurance Project Plan (QAPP) was reviewed in 2001, a final QAPP for the TRWA has not been approved and their data are not quality-assured. For the purpose of this report data reported by TRWA for 2002/2003 were reviewed for consistency with other quality-assured data sources.

The Taunton WWTP staff collected water from the Taunton River at the Plain Street Bridge for use as dilution water in the facility's whole effluent toxicity tests. Data from these reports, between January 1996 and August 2004, are maintained in the TOXTD database by DWM and are also summarized below.

As part of their site-specific copper criteria development study, ENSR conducted sampling (n=5) at one station in this segment of the Taunton River off Railroad Avenue, Taunton (Site 4 - upstream from the confluence with the Threemile River) (ENSR 2002).

Dissolved Oxygen and % Saturation
Measurements for DO at Site 4 ranged from 6.26 and 12.67 mg/L and saturations from 74.0 to 92.5%. All measurements met water quality standards (>5.0 mg/L and 60% saturation), however, it should be noted that measurements at Site 4 do not represent worst-case (pre-dawn) conditions. A similar range for DO was recorded at the TRWA sites with all measurements meeting the water quality standard.

Temperature
The maximum temperature recorded at Site 4 was 23.7°C. Temperature measurements taken at the TRWA sites did not exceed 26°C.

pH and Alkalinity
The pH of the Taunton River collected near the Plain Street Bridge between January 1996 and August 2004 ranged from 6.4 to 7.5 SU with 1 of the 36 measurements <6.5 SU. Alkalinity ranged from <10 to 46 mg/L (n=35) (TOXTD database).
Of the five measurements taken at Site 4, only one was slightly below 6.5 SU at 6.4 SU and the highest measurement was 7.8 SU.
Measurements taken at the TRWA sites indicated numerous readings below 6.5 SU.

Hardness
Hardness of the Taunton River, collected near the Plain Street Bridge between January 1996 and August 2004, ranged from 19 to 79 mg/L with seven of the 36 measurements $\leq$25 mg/L (TOXTD database).

Specific Conductance
The specific conductivity of the Taunton River collected near the Plain Street Bridge between January 1996 and August 2004, ranged from 117 to 469 µmhos/cm (n=36) (TOXTD database).
At Site 4 the range for specific conductance was 206 to 335 µS/cm.

Turbidity
Turbidity at Site 4 ranged from 3.84 to 12.4 NTU.

Suspended solids
The suspended solids of the Taunton River, collected near the Plain Street Bridge between January 1996 and August 2004, ranged from <10 to 22 mg/L (n=36) (TOXTD database).
Measurements for suspended solids at the TRWA sites were generally lower than the above range.

TRC
TRC measurements (n=36) of the Taunton River, collected near the Plain Street Bridge between January 1996 and August 2004, were all <0.05 mg/L (TOXTD database).

Ammonia-nitrogen
The ammonia-nitrogen concentrations of the Taunton River, collected near the Plain Street Bridge between January 1996 and August 2004, ranged from <0.05 to 0.85 mg/L (n=36) (TOXTD database). All of these measurements were below the conservative criterion of 1.09 mg/L NH_3-N (chronic instream criterion for ammonia at pH of 8.0 SU and temperature of 30°C) (EPA 1999a).

Total Phosphorus
The TRWA reported high phosphorus levels at their sampling station near Plain Street, Taunton (Station TNT-043) in May 2002 (Domingos 2003a).

Copper
Between 15 March and 19 September 2001 dissolved copper concentrations reported by ENSR ranged from 0.23 to 5.70 µg/L (n=5) (ENSR 2002). Two of the measurements exceeded the current EPA water

quality criterion of 3 μg/L at a hardness of 25 mg/L. A site-specific copper criterion is currently being developed.

Although instream biological data (response type indicators of instream water quality conditions) were not available, the *Aquatic Life Use* is assessed as support for this segment of the Taunton River based primarily on the good survival of test organisms (particularly during the more recent testing), limited water quality data and best professional judgment.

SHELLFISH HARVESTING

The DMF Shellfish Status Report of 2003 indicates that area MHB2.2 is prohibited (Sawyer 2003).

Based on the DMF shellfish growing area status, the *Shellfish Harvesting Use* is assessed as impaired for this segment of the Taunton River because of elevated bacteria counts.

PRIMARY CONTACT AND SECONDARY CONTACT RECREATION AND AESTHETICS

Sampling of the Taunton River (bacteria) is conducted on a monthly basis by TRWA at three locations in this segment of the Taunton River: near Longmeadow Road Bridge, Taunton (Station TNT-050); near Plain Street, Taunton (Station TNT-043); and near Center Street (Berkley Bridge), Berkley (Station TNT-000). Although a draft Quality Assurance Project Plan (QAPP) was reviewed in 2001, a final QAPP for the TRWA has not been approved and their data are not quality-assured.

The TRWA reported high fecal coliform levels at their Plain Street, Taunton sampling station (TNT-043) in May 2002. The TRWA found that high coliform counts intermittently occurred at this station (Domingos 2003a).

The Taunton WWTP has a combined sewer outfall #004 (West Water Street south of Fifth), Taunton. Prior to upgrades completed in 2001/2002, the CSO activated on a regular basis. A summary of the overflow events over the last several years can be summarized as follows (Shepard 2005):

In 2000 there were 24 overflow events that discharged between 0.022 to 3.79 MG (no total).
In 2001 there were only four events -- total discharged 0.913 MG.
In 2002 there were no overflow events.
In 2003 there were two events – total discharge 3.59 MG (one event August 8/9 discharged 3.545 MG intermittently over 16 hour period).
In 2004 there was one event – total discharge of 0.073 MG.

The *Primary* and *Secondary Contact Recreational* uses are not assessed for this segment of the Taunton River due to a lack of quality-assured bacteria data but is identified with an alert status due to high levels of bacteria reported by TRWA sampling. Too limited data are available to assess the status of the *Aesthetics* use.

Taunton River (MA62-02) Use Summary Table

Designated Uses		Status
Aquatic Life		SUPPORT
Fish Consumption		NOT ASSESSED
Shellfish Harvesting		IMPAIRED Cause: Fecal coliform bacteria Sources: Unknown (Suspected Sources: Discharges from municipal separate storm sewer systems, CSO and septic systems)
Primary Contact		NOT ASSESSED*
Secondary Contact		NOT ASSESSED*
Aesthetics		NOT ASSESSED

*Alert Status issues identified, see details in use assessment

RECOMMENDATIONS

Conduct monitoring (biological, habitat and water quality) adequate to evaluate the status of the *Aquatic Life Use* in this segment of the Taunton River bracketing potential sources of pollution.

Continue to evaluate NPDES facilities to determine compliance with permit limits and need for enforcement if deemed necessary.

The City of Taunton (NPDES MA0100897) should develop and implement a long-term control plan for their CSO.

Review and implement recommendations in the DMF shellfish sanitary survey reports and the triennial reviews for growing area MHB2.2.

Conduct bacteria sampling to evaluate effectiveness of nonpoint source pollution control activities and to assess the status of the *Primary* and *Secondary Contact Recreational* uses.

The TRWA should continue to conduct water quality monitoring at its established sampling site in this segment of the Taunton River to meet its sampling objectives. In order for the MassDEP to utilize the TRWA data for water quality assessment reporting purposes, the TRWA should work with MassDEP to meet its Quality Assurance/Quality Control requirements.

TAUNTON RIVER (SEGMENT MA62-03)

Location: Berkley Bridge, Dighton/Berkley to confluence with Assonet River at a line from Sandy Point, Somerset northeasterly to the southwestern tip of Assonet Neck, Berkley.
Segment Size: 0.92 square miles
Classification: Class SB, Shellfishing (R), CSO

The drainage area of this segment is approximately 480.1 square miles. Land-use estimates (top three) for the subwatershed:

Forest 50.1%
Residential 23.0%
Open land 8.3%

The impervious cover area for this subwatershed is less than 10%.

This segment is on the Massachusetts Year 2002 Integrated List of Waters – Category 5 as not meeting water quality criteria for organic enrichment/low DO and pathogens (MassDEP 2003).

WMA WATER WITHDRAWAL SUMMARY AND NPDES WASTEWATER DISCHARGE SUMMARY (APPENDIX G, TABLE G4)

There are 5,505 acres of land which are classified in the land-use theme as cranberry bog in this subwatershed (UMass Amherst 1999). For the purpose of this report, a conservative estimate of water use for this bog area is 49.15 MGD. However, 5,504 acres of this cranberry acreage are located in the subwatershed for Segments MA62-01 and MA62-02 upstream from this subwatershed.

Zeneca, Inc. (formerly ICI Americas, Inc.) used to discharge to Muddy Cove Brook (NPDES MA0005291) but the discharge was moved to the Taunton River via Outfall 011A in 1992 (permit revision signed in June 1992). The facility was engaged in the manufacturing of textile dyestuffs and other organic chemicals. Manufacturing operations of the site ceased in 1995. Wastewater was generated as a result of facility decommissioning and RCRA Corrective Action (Zeneca 2000). This permit was terminated by EPA in November 2003. The facility is currently discharging stormwater under a multisector general stormwater permit (MAR05B053) via Outfall 011S to Muddy Cove Brook. The company needs to reapply for a new multisector general stormwater permit.

USE ASSESSMENT

SHELLFISH HARVESTING

The DMF Shellfish Status Report of 2003 indicates that all growing areas within this segment (MHB2.1 and MHB2.2) are prohibited (Sawyer 2003).

Based on the DMF shellfish growing area status, the *Shellfish Harvesting Use* is assessed as impaired for this segment of the Taunton River because of elevated bacteria counts.

Taunton River (MA62-03) Use Summary Table

Designated Uses		Status
Aquatic Life		NOT ASSESSED
Fish Consumption		NOT ASSESSED
Shellfish Harvesting		IMPAIRED Cause: Fecal coliform bacteria Source: Unknown (Suspected Sources: Discharges from municipal separate storm sewer systems, CSO, septic systems and marina/boating pumpout releases)
Primary Contact		NOT ASSESSED
Secondary Contact		NOT ASSESSED
Aesthetics		NOT ASSESSED

RECOMMENDATIONS

Review and implement recommendations in the DMF shellfish sanitary survey reports and the triennial reviews for growing area MHB2.2.

Conduct appropriate monitoring to evaluate the status of the *Aquatic Life Use* in this segment of the Taunton River.

Conduct bacteria sampling to evaluate effectiveness of nonpoint source pollution control activities and to assess the status of the *Primary* and *Secondary Contact Recreational* uses.

TAUNTON RIVER (SEGMENT MA62-04)

Location: Confluence with Assonet River at a line from Sandy Point, Somerset northeasterly to the southwestern tip of Assonet Neck, Berkley to mouth at Braga Bridge, Somerset/Fall River.
Segment Size: 2.65 square miles
Classification: Class SB, Shellfishing (R), CSO

The drainage area of this segment is approximately 528.9 square miles. Land-use estimates (top three) for the subwatershed:

Forest 51.0%
Residential 22.7%
Open land 8.2%

The impervious cover area for this subwatershed is less than 10%.

This segment is on the Massachusetts Year 2002 Integrated List of Waters – Category 5 as not meeting water quality criteria for organic enrichment/low DO and pathogens (MassDEP 2003).

WMA WATER WITHDRAWAL SUMMARY AND NPDES WASTEWATER DISCHARGE SUMMARY (APPENDIX G, TABLES G1, G2, AND G3)

There are 5,917 acres of land which are classified in the Land-Use theme as cranberry bog in this subwatershed (UMass Amherst 1999). For the purpose of this report, a conservative estimate of water use for this bog area is 52.83 MGD. However, 5,505 acres of this cranberry acreage are located in the subwatershed for segments MA62-01, MA62-02, and MA62-03 upstream from this subwatershed.

Somerset Power LLC and Somerset Operations, Inc. (Somerset Power) formerly Montaup Electric Company-Somerset Station, has the ownership of the originally issued permit (MA0001856 issued in September 1994) and transferred effective April 1998) to operate a 112 MW once-through cooling water coal-fired electric power generating station along this segment of the Taunton River. Water from the Taunton River is withdrawn via an intake channel and Somerset Power is authorized to discharge via the following outfalls to the Taunton River:

- Outfall #007 – Condenser cooling water from Unit 6 - 142 MGD average monthly, 200 MGD maximum daily, maximum temperature 100°F.
- Outfall #002 – Treated wastewater (boiler blowdown, seal water, bottom ash, sluicewater, floor drains, equipment drains, generation wastes, coal pile runoff, belt filter wash and filter backwash) - 0.126 MGD average monthly, 0.145 MGD maximum daily with $LC_{50} \geq 50\%$, monitored 2 times a year
- Outfall #002a – Treated wastewater (outfall 002 plus additional chemical cleaning waste) - 0.215 MGD average monthly, 0.270 MGD maximum daily.

Somerset Power is also authorized to discharge (via outfalls SD1-5, 006, and 013-017) stormwater runoff to the Taunton River. As part of this permit the facility must develop a Stormwater Pollution Prevention Plan. As the stormwater runoff outfalls are consolidated into three areas the permittee has requested that one representative outfall from each area be permitted for testing requirements (outfalls # SD1, 013, and 016). Numerous internal outfalls discharge a variety of wastewater substances from many different sources, which are treated at the on-site wastewater treatment plant. Some of the sources of wastewater that are treated on-site include: boiler blow down, seal water, bottom ash, floor drains, water softener, generated chemical cleaning and metal wastes, coal pile runoff, belt filter wash, and filter back wash. The facility is also authorized to discharge intake screen backwash water and fish sluice water to the Taunton River via outfalls # 020, 021, and 022.

The pH of the facility's Outfall #002 effluent between April 1995 and April 2004 ranged from 6.3 to 8.1 SU with only one measurement of the 18 (October 2000) <6.5 SU (TOXTD database). The TRC concentrations of the effluent between April 1995 and April 2004 ranged from <0.02 to 0.08 mg/L (n=17). The concentration of ammonia-nitrogen in the effluent ranged from <0.07 to 4.9 mg/L with the exception of one measurement (11.8 mg/L in April 2003) (n=18) (TOXTD database). The facility's acute whole effluent toxicity limits are $LC_{50} \geq 50\%$ with a monitoring frequency of two times/year using *Mysidopsis bahia* and *Menidia beryllina*.

An NPDES permit, originally issued to the Shell Oil Company for their bulk storage and distribution terminal, to discharge via Outfall 001 into this segment of the Taunton River (NPDES permit #MA0004871) was issued November 1978. Although a more recent permit has not been issued, several

permit reapplication packages were submitted and the original permit has been administratively continued. Currently the Fall River Marine Terminal LLC is submitting DMRs for this permit (Kaegael 2005). Former permit holders appear to include Shell Oil Company, Jay Cashman, Inc. and Shell Fall River Terminal. According to the permit reapplication submitted in 1994, groundwater remediation wastewater, stormwater, and contact water were being discharged to this segment of the Taunton River from this site. This is the site of a proposed Liquefied Natural Gas (LNG) terminal.

The Town of Somerset is authorized to discharge (NPDES permit MA0100676 issued in May 2004) from the Town of Somerset WPCF an average monthly flow of 4.2 MGD of treated effluent to the Taunton River via Outfall #001. This conventional activated sludge secondary treatment facility treats municipal wastewater and has continued a nitrogen monitoring program (NH_3-N, TKN, NO_2-N, NO_3-N). The NH_3-N concentrations in the effluent between July 1999 and August 2004 ranged from 1.3 to 25.0 mg/L (n=21) (TOXTD database). The pH of the effluent between July 1999 and August 2004 ranged from 5.80 to 6.97 SU (n=21) with 7 of the 21 test events <6.5 SU (TOXTD database). The facility utilizes gaseous chlorine for disinfection and sodium bisulfite for dechlorination (TRC limit = 0.2 mg/L average monthly and 0.3 mg/L maximum daily) (Garcia 2004). The TRC measurements of the effluent (n=21) between July 1999 and August 2004 ranged from <0.02 to 0.70 mg/L with the exception of one measurement (17 mg/L, July 2002 test event) (TOXTD database). Two of the 21 measurements exceeded 0.3 mg/L. The facility's whole effluent toxicity limits are $LC_{50} \geq 100\%$ with a monitoring frequency of four times/year using *Menidia beryllina*.

The City of Fall River is authorized (NPDES permit MA0100382) to discharge Combined Sewer Overflow (CSO) via four outfalls to this segment of the Taunton River. The outfalls are located along the eastern shore of the river (north to south) in Fall River as follows:

Outfall 014 at the Shell Oil Terminal Dock, Alton Street
Outfall 013 at Cove Street
Outfall 011 at President Ave/ Bicentennial Park
Outfall 010 at Davol Street#1and#2, City Pier

In 1984 the City began their long-term CSO planning process. The CSO management plans have been evolving since that time. In 1992 a deep-tunnel storage and treatment system was recommended to reduce CSO discharges to less than four untreated discharge events per year at one extreme outfall location in Mount Hope Bay. The following has been conducted as part of the three-phase program (Burns 2005):

Phase I-- upgrade the WWTP*:* In 2000 the City's NPDES permit authorized an increased capacity at the plant (from 50 to 106 MGD) to coincide with the completion of the WWTP upgrade.

Phase II --a CSO Tunnel*:* Since 2000 a "south and central tunnel" has been constructed to increase storage capacity of the system. Part of Phase II is the "north tunnel". The schedule calls for an interim evaluation prior to proceeding with the north tunnel and Phase III. However, a modified tunnel plan has been offered due to the known unfavorable site conditions that were found making the "north tunnel" less effective/feasible. Because of this situation, it is likely that a number of CSO discharges to this segment of the Taunton River will be upgraded to receive treatment (screening and chlorination/dechlorination).

Phase III --partial (sewer and catchbasin) separation program*.*

USE ASSESSMENT

AQUATIC LIFE

Biology

As part of their NPDES permit renewal process, Somerset Power was required to conduct entrainment and impingement studies to evaluate potential effects of the intake on fish. Estimates of equivalent adult losses for various important resident species of fish entrained and impinged at the Somerset Station were prepared based on monitoring data collected between February 2001 and June 2002 (Table 3) (Normandeau Associates 2004). Mean and upper 95% confidence limits (C.L.) were estimated using intake flows from the current permit and for the newly requested permit limits. A technical review of these investigations by MassDEP DWM staff is summarized below.

Table 3. Summary of Estimated Equivalent Adult Losses of Selected Species Entrained and Impinged at the Somerset Station Intake (Normandeau Associates 2004).

Species and age	Based on Current Permit Limits:		Based on Requested Permit Limits:	
	Mean	Upper (95%) C.L.	Mean	Upper (95%) C.L
Alewife (Age-2)	43,502	133,847	84,553	260,160
Atlantic Silverside (Age-1)	686,269	1,391,942	1,333,862	2,705,465
Cunner (Age-4)	37,811	77,256	49,959	102,083
Tautog (Age-4)	4,476	9,931	8,699	19,307
Winter Flounder (Age-3)	13,037	20,383	25,339	39,619

Although some of the losses appear high, without knowledge of the current population size for the species above in the Taunton River it is impossible to develop an estimate of the current or projected impact of the facility on specific fish populations in the Taunton River. There are no projected population-level effects on phytoplankton, zooplankton, or benthos in the Taunton River from the intake.

Adverse impacts associated with the Somerset Station Intake include the following:

Impinged fish are washed off screens at high-pressure velocity (80 psi).

Chlorine is injected upstream from traveling screens to control biofouling. Impinged fish may be exposed to toxic concentrations of TRC.

After being impinged on the screens, chlorinated and washed off the screens at high pressure, fish are dropped several feet into the return trough that is channeled into a return sluice flowing into the river about 60 feet downstream from the intake. The potential for re-entrainment is high due to the nearness of the fish-return to the intake. Additionally, when the tide is out, it is probable that many of the fish are eaten by avian or piscine predators waiting at the discharge.

As part of Brayton Point's hydrological and biological monitoring program required by their NPDES permit, one site (Station M), located near Breeds Cove, is sampled in this segment of the Taunton River (USGenNE 2004a and 2004b). Since 1980 Otter Trawl sampling has been conducted on a monthly basis just upstream from the Braga Bridge (Station TR) along this segment by Marine Research, Inc. as part of the Brayton Point Station NDPES permit. The sampling reach is approximately 1,143 m in length. Between 1980 and 2003 the overall number of fish and number of species at this station has declined substantially (Scherer 2005a). According to USGen New England, Inc. (formerly New England Power Company), there has been a shift in Narragansett Bay's fish species assemblage from a demersal assemblage to a more pelagic one, although they report that overall number of fish (biomass) in Narragansett Bay has remained the same. Unlike Narragansett Bay, however, Mt. Hope Bay [and the lower Taunton River] has experienced this same shift and a reduction in overall abundance (USGenNE 2001).

Toxicity

Ambient

New England Bioassay, Inc. (NEB) collected water from the Taunton River approximately 50 to 100 yards south of the "Dark Area" (on-site area) down river from outfall #002 for use as dilution water in the Somerset Power whole effluent toxicity tests (Czorny 2005). Between April 1995 and April 2004, survival of *M. bahia* exposed (48 hours) to the river water was $\geq$ 95% (n=18). Between April 1995 and April 1997, survival of *M. beryllina* (n=5 test events) was also $\geq$ 95%.

The Somerset WPCF staff collected water from the Taunton River [approximately 100 feet upstream or downstream from their outfall (tide dependent)] for use as dilution water in their whole effluent toxicity tests (Garcia 2004). Between July 1999 and August 2004, survival rates of *M. beryllina* exposed (48 hrs.) to river water (n=21 test events) were all $\geq$ 90% except for one measurement [75% in the October 2000 test event (TOXTD database)].

Effluent

Acute whole effluent toxicity tests were conducted on the Somerset Power effluent (outfall #002) using *M. bahia* between April 1995 and April 2004 and using *Menidia beryllina* between April 1995 and April 1997. The effluent did not exhibit any acute toxicity (LC_{50}s were all >100% effluent).

A total of 20 valid toxicity tests (20 out of 21) were conducted on the Somerset WPCF effluent between July 1999 and August 2004 using *M. beryllina*. The LC_{50}s were all >100% so the effluent did not exhibit acute toxicity.

Chemistry water

As part of their NPDES permit renewal process, Somerset Power was required to conduct additional thermal studies to document potential impacts of the Station's cooling water discharge.

New England Bioassay Company collected water from the Taunton River approximately 50 to 100 yards south of the Dark Area (on-site area) down river from outfall #002. Data from the Somerset Power facility's whole effluent toxicity tests reports, between April 1995 and April 2004, are maintained in the TOXTD database by DWM and are summarized below.

The Somerset WPCF staff collected water from the Taunton River [approximately 100 feet upstream or downstream from their outfall (tide dependent)] for use as dilution water in their whole effluent toxicity tests (Garcia 2004). The data from the facility's whole effluent toxicity test reports between July 1999 and August 2004, maintained in the TOXTD database by DWM, are summarized below.

Mid-depth and bottom water temperatures and bottom dissolved oxygen concentrations are measured by Marine Research, Inc. using either a Hydrolab® Surveyor III or YSI 600 meter as part of their trawl sampling effort for the Brayton Point Station's biological monitoring program required by the Stations' NPDES permit (MA0003654). Their DO and temperature sampling data for the Taunton River upstream from the Braga Bridge (Station TR) are summarized below (Scherer 2005b, USGenNE 2004a and 2004b).

Dissolved oxygen

Of the 56 bottom DO measurements reported (August 1997 to December 2003) in the river near the Braga Bridge (Station TR) five were below 5.0 mg/L.

Temperature

Nearfield and farfield thermal surveys were conducted for the Somerset Power Station in the fall 2001 and winter, spring and summer 2002 (Normandeau Associates 2003). No population-level impacts were predicted. Except at slack tide, the thermal plume was not expected to increase river temperatures in more than 25% of the width of the river.

The maximum temperature reported in the river near the Braga Bridge (Station TR) was 25°C in 2002 and 23.9°C in 2003 (USGenNE 2004a and 2004b, respectively).

pH and alkalinity

The pH measurements of the Taunton River samples collected near the Dark Area between April 1995 and April 2004 ranged from 6.9 to 8.7 SU (n=18). Alkalinity ranged from 38 to 95 mg/L (n=18). The pH collected near the Somerset WPCF facility between July 1999 and August 2004 ranged from 6.9 to 7.8 SU (n=21) (TOXTD database).

Ammonia-nitrogen

The maximum ammonia-nitrogen concentration of samples collected near the Dark Area between April 1995 and April 2004 was 0.22 mg/L (n=18). The ammonia-nitrogen concentrations of the Taunton River collected near the Somerset WPCF facility between July 1999 and August 2004 ranged from <0.10 to 6.50 mg/L (n=21) (TOXTD database). Because of the lack of salinity data, no comparisons were made to a salt water ammonia criterion.

TRC

The TRC measurements (n=18) of samples collected near the Dark Area between April 1995 and April 2004 did not exceed 0.05 mg/L. The TRC concentrations collected near the Somerset WPCF facility, excluding the four results reported as <0.2 mg/L between July 1999 and August 2004, ranged between <0.02 to 0.06 mg/L (TOXTD database). Only one of the 17 TRC measurements was >0.05 mg/L.

Chemistry-tissue

Since 1993 quahogs (*Mercenaria mercenaria*) have been collected in April, July and October (sampling occasionally delayed slightly due to weather constraints) at one site (Station M) in the Taunton River located in the vicinity of Breeds Cove (downstream from the Somerset Power Station) as part of Brayton Point's NPDES permit requirements. Tissue samples were prepared and analyzed for 13 heavy metals. The mean concentrations of heavy metals in quahog tissue for this sampling location are reported in the Brayton Point Station 2003 Annual Report (USGenNE 2004b). The mean concentration of total mercury in quahog tissue collected in October/November (end of growing season) between 1993 and 2003 at Station M ranged from 0.02 to 0.24 ppm wet weight (USGenNE 2004b).

The *Aquatic Life Use* is assessed as impaired for this segment of the Taunton River due to the substantial decline in both the abundance and diversity of fish as documented by USGenNE and others. While there are a number of theories as to the cause of these reductions, the actual causes/sources are unproven. Overfishing, nonpoint source pollution/watershed development, power plant operations, climate change (warming) most likely all contribute to the current conditions with regard to fisheries.

SHELLFISH HARVESTING

The DMF Shellfish Status Report of 2003 indicates that all growing areas within this segment (MHB2.1, MHB2.3, and MHB2.4) are prohibited (Sawyer 2003).

Based on the DMF shellfish growing area status, the *Shellfish Harvesting Use* is assessed as impaired for this segment of the Taunton River because of elevated bacteria counts.

PRIMARY AND SECONDARY CONTACT RECREATION AND AESTHETICS

There is a semi-public saltwater beach at Village Waterfront Park along this segment of the Taunton River in Somerset (along the western shore in the northern portion of this segment, across the river from the jetty at the Fall River/Freetown line). No bacteria, Secchi disk transparency data or posting information for this beach have been reported (MA DPH 2003).

The Town of Somerset operates a town beach, Pierce Beach, along this segment of the Taunton River. The beach is tested weekly for bacteria. In 2002 no postings were reported (MA DPH 2003). According to the Board of Health, the beach was posted twice for a total of four days in 2003 and was posted for three separate days in 2004 (Somerset BOH 2005).

There is a semi-public saltwater beach, Branton Beach along this segment in Somerset (along the western shore in the most southern portion of the segment near the Somerset WPCF). No closures have been reported for this beach (MA DPH 2003).

During wet weather the City of Fall River currently discharges stormwater/wastewater from four combined sewer outfalls to this segment of the Taunton River.

Too limited data are available (poor spatial coverage) to assess the status of the *Primary* and *Secondary Contact Recreational* uses for this segment of the Taunton River. These uses are identified with an alert status because of the CSO discharges.

Taunton River (MA62-04) Use Summary Table

Designated Uses		Status
Aquatic Life		IMPAIRED Cause: Reduced abundance and diversity of fish Source: Unknown (Suspected Sources: Cooling water intakes, industrial thermal discharges, municipal storm sewer systems, CSO, municipal point source discharges, and highway and bridge runoff.)
Fish Consumption		NOT ASSESSED
Shellfish Harvesting		IMPAIRED Cause: Fecal coliform bacteria Source: Unknown (Suspected Sources: Discharges from municipal separate storm sewer systems, CSO, septic systems, and marina/boating pumpout releases)
Primary Contact		NOT ASSESSED*
Secondary Contact		NOT ASSESSED*
Aesthetics		NOT ASSESSED*

*Alert Status issues identified, see details in use assessment

RECOMMENDATIONS

Ensure that all NPDES permits are current and in compliance. Permits should further address fisheries issues, as appropriate.

Review and implement recommendations in the DMF shellfish sanitary survey reports and the triennial reviews for growing area MHB2.1, MHB2.3, and MHB2.4.

Conduct bacteria sampling to evaluate effectiveness of point and nonpoint source pollution control activities and to assess the status of the *Primary* and *Secondary Contact Recreational* uses.

MassDEP and EPA should work with the power plants in the lower Taunton River Watershed to develop fish population estimates in order to better evaluate the impacts related to impingement and entrainment of fish, eggs, and larvae.

Somerset Power

Chlorine is added to control biofouling and is injected upstream from traveling screens in the screenwell at a rate such that the 0.1 limit will be met in the discharge. Because Unit 6 intake is only 2/3 of the discharge, fish in the screenwell will be exposed to TRC >0.1 mg/L; impinged fish may experience much higher levels. The technical advisory committee reviewing the operations at this facility should consider moving the chlorine injection point downstream of the traveling screens.

A low-pressure wash should be added ahead of the high-pressure wash so that impinged fish can be removed with little or no injury. And the fish return system needs to be altered to lessen potential injury after impingement.

Overflow runoff from the coal pile should be treated prior to discharge to the Taunton River.

The Brayton Point Station Technical Advisory Committee should improve availability/access (electronic or web site) to water quality and biological monitoring data collected from individual stations in the Taunton River as part of the Brayton Point Station's NPDES permit.

OTHER TRIBUTARIES

Other tributaries located throughout the Taunton River watershed include the following:

Winnetuxet River (Segment MA62-24)
Sawmill Brook (Segment MA62-36)
Cotley River (Segment MA62-41)
Forge River (Segment MA62-37)
Cobb Brook (Segment MA62-43)
Unnamed tributary (Segment MA62-48)
Segreganset River (Segment MA62-53)
Segreganset River (Segment MA62-54)
Segreganset River (Segment MA62-55)
Muddy Cove Brook (Segment MA62-52)
Muddy Cove Brook (Segment MA62-51)
Broad Cove (Segment MA62-50)

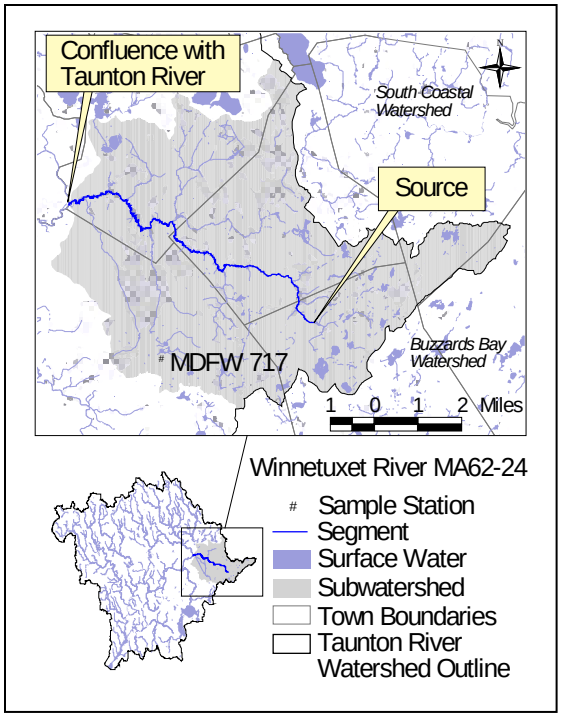
The majority of land use in these tributaries is forested, followed by residential with lesser amounts in open space and agricultural areas. The exception to this is Cobb Brook, which is highly residential and has an impervious area of 19.8%, suggesting that water quality may be impacted by impervious surface water runoff. The Forge and Cotley Rivers have impervious areas of 11.8 and 10.5%, respectively, suggesting that there may be some impacts to water quality from impervious surface water runoff. The impervious area in the other tributaries is generally less than 10% indicating there is a low potential for adverse water quality impacts from direct surface runoff. Some of the highest amounts of agricultural land in the Taunton River Watershed are found in Broad Cove, Sawmill Brook, Muddy Cove, Cotley River and Segreganset River subwatersheds.

Numerous Multi-sector General Stormwater Permits have been issued for facilities located in the watersheds of these tributaries. The communities of Carver, Plympton, Middleborough, Bridgewater, Raynham, Taunton, Dighton and Halifax are Phase II stormwater communities. Each community was issued a stormwater general permit from EPA and MassDEP in 2003/2004 and is authorized to discharge stormwater from their municipal drainage system. Over the five-year permit term, the communities will develop, implement, and enforce a stormwater management program to reduce the discharge of pollutants from the storm sewer system to protect water quality (Domizio 2004).

The *Aquatic Life Use* is assessed as impaired for two segments of these tributaries. In the Segreganset River (Segment MA 62-53) it is assessed as impaired due to low and no flow conditions that frequently occur during the summer and fall months of the year. In the unnamed tributary (Segment MA62-48) the *Aquatic Life Use* is assessed as impaired due to habitat degradation and impacts to the benthic and fish communities. Because of elevated fecal coliform concentrations in the Segreganset River, Muddy Cove and Broad Cove, DMF has classified these shellfish growing areas as prohibited and thus the shellfish use is assessed as impaired. Due to the fact that there was either too limited data or the data were not quality-assured, the majority of the other designated uses in these tributaries are not assessed.

WINNETUXET RIVER (SEGMENT MA62-24)

Location: From the outlet of a small, unnamed pond near Cole Mill in Carver to the confluence with the Taunton River in Halifax.
Segment Length: 11.8 miles
Classification: Class B



The drainage area of this segment is approximately 40.7 square miles. Land-use estimates (top three) for the subwatershed:

Forest 54.1%
Open land 13.9%
Residential 13.7%

The impervious cover area for this subwatershed is less than 10%.

This segment is on the Massachusetts Year 2002 Integrated List of Waters – Category 3 (MassDEP 2003).

The use assessments for Muddy Pond (MA62233), Johns Pond (MA62096), North Center Street Pond (MA62132), Cooper Pond (MA62046), Muddy Pond (MA62125), Fuller Street Pond (MA62234), and Savery Pond (MA62167) are in the Lake Assessment section of this report.

WMA WATER WITHDRAWAL SUMMARY (APPENDIX G, TABLE G5)

There are 2,224 acres of land which are classified in the Land-Use theme as cranberry bog in this subwatershed (UMass Amherst 1999). For the purpose of this report, a conservative estimate of water use for this bog area is 19.86 MGD.

Facility	WMA Permit Number	WMA Registration Number	Source (G = ground)	Authorized Withdrawal (MGD)
Country Club Halifax	NA	42511803	Well #1 Irrigation pond	0.23
Halifax Water Department	9P42511801	42511801	4118000-01G 4118000-02G 4118000-03G	0.35 reg 0.33 perm Total – 0.68
Middleborough Water Supply*	9P42518201	42518203	4182000-08G	1.53 reg 1.50 perm Total – 3.03

* Indicates system-wide withdrawal

NPDES WASTEWATER DISCHARGE SUMMARY (APPENDIX G, TABLE G3)

The Richmond Park Water Treatment Plant, located off Plymouth Street in Halifax, was issued an NPDES permit (#MAG640008) in July 2002 to discharge treated filter backwash water into Turkey Swamp. This wetland area is adjacent to Palmer Mill Brook that flows into the Winnetuxet River. This permit is due to expire in November 2005.

USE ASSESSMENT

AQUATIC LIFE

Habitat and Flow

A shoreline survey along the Winnetuxet River documented that the banks are thickly vegetated and wildlife is abundant. A stand of loosestrife was observed near the Plympton/Halifax line. One section of the Winnetuxet River has been designated a Core Habitat site by the MDFW's Massachusetts Natural Heritage & Rare Endangered Species & Wildlife Program (Winnetuxet River Stream Team 2003).

Biology
MDFW conducted fish population sampling at one tributary to this segment in August 2002. Samples were collected from one station along Raven Brook, near Plympton Street, Middleborough (Station 717) using a backpack shocker. Three brook trout (multiple age classes) were collected (Richards 2003a). As a result of these findings, MDFW has proposed that Raven Brook be listed in the next revision of the SWQS as a cold water fishery.

Chemistry – water
The Bridgewater State WAL collected water quality samples in Raven Brook which is a tributary to the Winnetuxet River (Curry 2005). Between June and September 2004, Raven Brook was sampled six times near Wood Street, Halifax using automatic samplers to collect temperature, pH and DO data through a 22-hour period. Additionally, nutrient samples (total phosphorus, soluble reactive phosphorus and nitrate-nitrogen) were taken every hour using a Sigma 900 automated sampler with samples for every other hour used for analysis. WAL found consistently low levels of DO as well as low pH levels. Very low levels of nutrients were also consistently measured. A QAPP for the WAL has not been approved by MassDEP so their data are not quality-assured.

Too limited data are available, so the *Aquatic Life Use* for the Winnetuxet River is not assessed.

PRIMARY CONTACT AND SECONDARY CONTACT RECREATION AND AESTHETICS
The Winnetuxet River Shoreline Survey Report (2003) noted that although the river water was dark in color, it appeared to be free from major pollution. There were no strong odors, nor did the water surface exhibit any sheens or foamy conditions. Areas of litter, particularly near bridges, were noted in the upstream portions of the river.

The *Primary* and *Secondary Contact Recreational* uses are not assessed. The *Aesthetics Use* is assessed as support since with the exception of isolated areas of trash and debris near bridges, no other objectionable aesthetic conditions were identified in the Winnetuxet River.

Winnetuxet River (MA62-24) Use Summary Table

Designated Uses		Status
Aquatic Life		NOT ASSESSED
Fish Consumption		NOT ASSESSED
Primary Contact		NOT ASSESSED
Secondary Contact		NOT ASSESSED
Aesthetics		SUPPORT

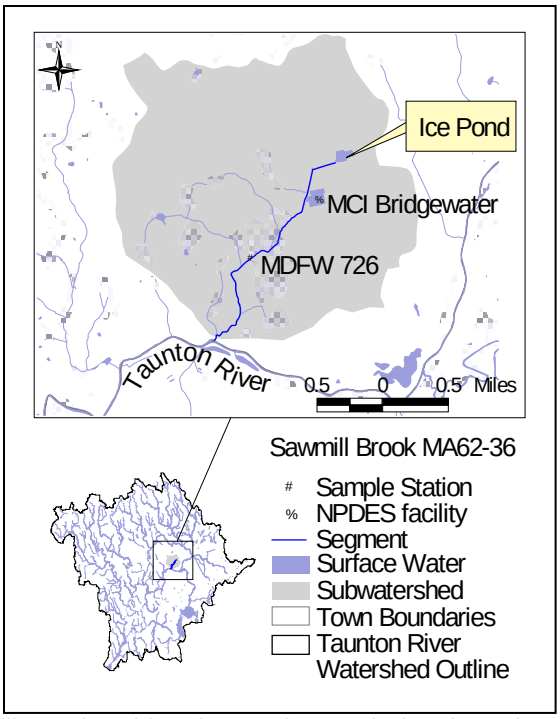
RECOMMENDATIONS
The Winnetuxet River Stream Team should continue in its efforts to preserve the Winnetuxet River. Recommendations identified in the Winnetuxet River Shoreline Survey and Action Plan should be reviewed and implemented, as appropriate.

Water quality monitoring (e.g., in-site monitoring and benthic macroinvertebrate sampling) should be conducted to bracket potential sources of pollution and to evaluate the status of the *Aquatic Life Use*.

MDFW has proposed that Raven Brook, a tributary to the Winnetuxet River, be protected as cold water fishery habitat. Additional monitoring of the fish population, dissolved oxygen, and temperature is needed to evaluate MDFW's proposal to list this stream as a cold water fishery in the next revision of the Surface Water Quality Standards.

SAWMILL BROOK (SEGMENT MA62-36)

Location: Outlet of Ice Pond, Bridgewater to confluence with Taunton River, Bridgewater.
Segment Length: 1.9 miles
Classification: Class B, Warm Water Fishery



The drainage area of this segment is approximately 3.9 square miles. Land-use estimates (top three) for the subwatershed:

Forest 45.9%
Residential 20.1%
Agriculture 16.6%

The impervious cover area for this subwatershed is less than 10%.

This segment is on the Massachusetts Year 2002 Integrated List of Waters – Category 3 (MassDEP 2003).

WMA WATER WITHDRAWAL SUMMARY AND NPDES WASTEWATER DISCHARGE SUMMARY (APPENDIX G, TABLE G2)

There are no WMA regulated water withdrawals in this subwatershed.

The MCI Bridgewater Water Pollution Control Facility (WPCF) is authorized (MA0102237 issued in September 1998) to discharge a flow of 0.55 MGD (average monthly) of treated sanitary wastewater via Outfall #001 to the Sawmill Brook. This advanced extended activated sludge treatment facility treats municipal wastewater from the prison. Nitrification is performed for ammonia-nitrogen reduction (2 mg/l NH_3-N average monthly May 1 to October 31). The NH_3-N concentrations of the effluent between January 1999 and July 2004 were all <0.1 mg/L (n=22) (TOXTD database). This facility incorporates effluent sand filtration by physical means. The facility utilizes sodium hypochlorite for disinfection and sodium bisulfite for dechlorination (TRC limit = 0.014 mg/L average monthly, 0.024 mg/L maximum daily). The TRC measurements of the effluent between January 1999 and July 2004 were all <0.03 mg/L (n=19) (TOXTD database). The facility's whole effluent toxicity limits are $LC_{50} \geq 100\%$ and C-NOEC ≥81% with a monitoring frequency of four times/year using *Ceriodaphnia dubia*.

USE ASSESSMENT

AQUATIC LIFE

Biology

MDFW conducted fish population sampling at one location along this segment, north of Route 28 and Route 18, Bridgewater (Station 726) using a backpack shocker in August 2002. A total of 18 fish, representing six species were collected. The sample was dominated by American eel and redfin pickerel while an individual each of tessellated darter, pumpkinseed, largemouth bass, and bluegill were collected (Richards 2003a). With the exception of one tessellated darter, the fish community was comprised of macrohabitat generalists. Both redfin pickerel and American eel (two most dominant species) are common in slow-moving wetland dominated streams. Bluegill, largemouth bass and pumpkinseed may have originated in the impoundment (Ice Pond) at the upstream end of this segment.

Toxicity

Ambient

The MCI Bridgewater staff collected water from Sawmill Brook approximately 20-25 feet upstream from Outfall #001 for use as dilution water in their whole effluent toxicity tests (Dubois 2004). Between January 1999 and July 2004, survival of *Ceriodaphnia dubia* exposed (7-day) to river water (n=23 test events) was 100% (TOXTD database).

Effluent
A total of 23 modified acute and chronic whole effluent toxicity tests using *Ceriodaphnia dubia* were conducted on the MCI Bridgewater effluent between January 1999 and July 2004. The effluent did not exhibit any acute toxicity (LC_{50}'s were all >100% effluent) and the C-NOEC results ranged from 81 to 100% effluent.

Chemistry water
The MCI Bridgewater staff collected ambient water from the Sawmill Brook, approximately 20-25 feet upstream for Outfall #001, for use as dilution water in the whole effluent toxicity tests between January 1999 and July 2004 (Dubois 2004). Data from these reports, which are maintained by DWM in the TOXTD database, are summarized below.

Ammonia-nitrogen
The ammonia-nitrogen concentrations were all below the reported detection limits (0.03 or 0.1 mg/L) (n=22). All of these measurements were below the conservative criterion of 1.09 mg/L NH_3-N (chronic instream criterion for ammonia at pH of 8.0 SU and temperature of 30°C) (EPA 1999a).

TRC
TRC measurements were all below the minimum quantification level of 0.05 mg/L (n=19).

Hardness
Hardness ranged from 35 to 52 mg/l (n=18).

Specific conductance
Specific conductance ranged from 220 to 470 μmhos/cm (n=18).

The water quality data available for Sawmill Brook, upstream from the MCI Bridgewater discharge, does not indicate any water quality degradation. However, too limited data are available for the brook downstream from the discharge, so the *Aquatic Life Use* is not assessed.

Sawmill Brook (MA62-36) Use Summary Table

Aquatic Life	Fish Consumption	Primary Contact	Secondary Contact	Aesthetics
				
NOT ASSESSED				

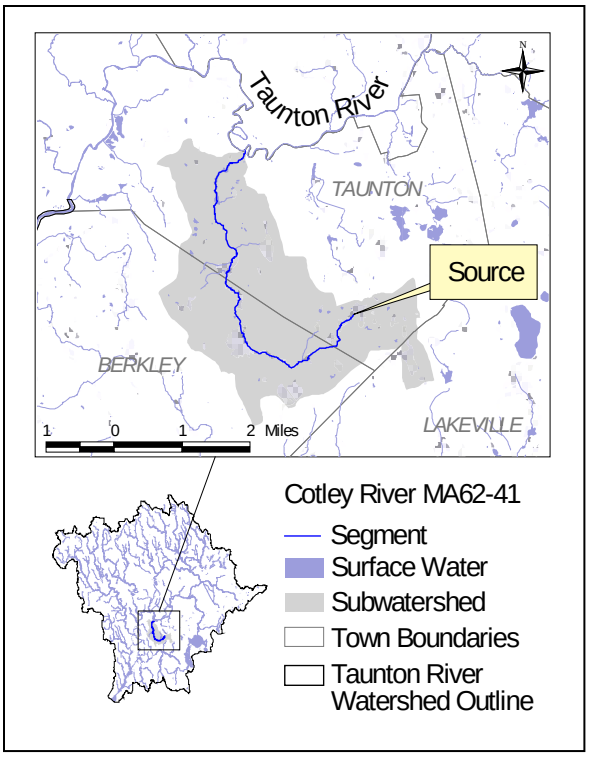
RECOMMENDATIONS
Conduct monitoring (biological, habitat and water quality) to evaluate the status of the *Aquatic Life Use* in Sawmill Brook bracketing potential sources of pollution (e.g., discharge, cranberry bogs, developments).

Conduct bacteria sampling to evaluate effectiveness of nonpoint source pollution control activities and to assess the status of the *Primary* and *Secondary Contact Recreational* uses.

Continue to monitor compliance of the MCI Bridgewater WPCF effluent with their permit limits and other special conditions of the permit.

COTLEY RIVER (SEGMENT MA62-41)

Location: Headwaters near cranberry bog south off Seekell Street, Taunton (thru Barstows Pond) to the confluence with the Taunton River, Taunton
Segment Length: 5.9 miles
Classification: B



The drainage area of this segment is approximately 7.6 square miles. Land-use estimates (top three) for the subwatershed:

Forest 59.0%
Residential 15.7%
Agriculture 7.5%

The impervious cover area for this subwatershed is 10.5%.

WMA WATER WITHDRAWAL AND NPDES WASTEWATER DISCHARGE SUMMARY

There are 83 acres of land which are classified in the Land-Use theme as cranberry bog in this subwatershed (UMass Amherst 1999). For the purpose of this report, a conservative estimate of water use for this bog area is 0.74 MGD.

Based on available information there are no NPDES dischargers in this subwatershed.

USE ASSESSMENT

Sampling of the Cotley River (DO, temperature, pH, TSS, nitrate-nitrogen, total phosphorus, and bacteria) is conducted on a monthly basis by TRWA near Middleborough Avenue, Taunton (Station COT-004). The TRWA reported that DO at the Cotley River sample site was below 5.0 mg/L in September 2002 (Domingos 2003a). Although a draft Quality Assurance Project Plan (QAPP) was reviewed in 2001, a final QAPP for the TRWA has not been approved and their data are not quality-assured.

The Bridgewater State WAL collected water quality samples in the Cotley River near Middleboro Avenue, Taunton once a month in June, July and August 2004 (Curry 2004). Grab samples were collected for nutrients (total phosphorus, soluble reactive phosphorus and nitrate-nitrogen). A Hydrolab® minisonde was used to obtain instantaneous measurement of pH, dissolved oxygen, temperature and specific conductance. The WAL indicated that water quality standards were generally met for pH, DO and temperature. A QAPP for the WAL has not been approved by MassDEP and their data are not quality-assured.

Since the available data on the Cotley River is not quality-assured, the designated uses for the Cotley River are not assessed.

Cotley River (MA62-41) Summary Table

Aquatic Life	Fish Consumption	Primary Contact	Secondary Contact	Aesthetics
				
NOT ASSESSED				

RECOMMENDATIONS

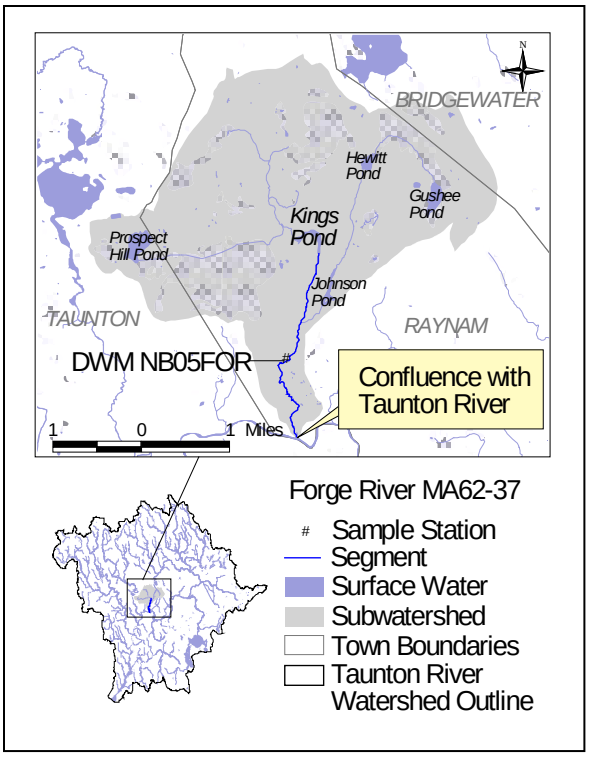
Conduct monitoring (biological, habitat and water quality) to evaluate the status of the *Aquatic Life Use* in the Cotley River bracketing potential sources of pollution (e.g., cranberry bog operations, developments).

Conduct bacteria sampling to evaluate effectiveness of nonpoint source pollution control activities and to assess the status of the *Primary* and *Secondary Contact Recreational* uses.

The TRWA and WAL should continue to conduct water quality monitoring at their established sampling sites on the Cotley River to meet their sampling objectives. In order for the MassDEP to utilize the TRWA and WAL data for water quality assessment reporting purposes, the TRWA and WAL should work with MassDEP to meet its Quality Assurance /Quality Control requirements.

FORGE RIVER (SEGMENT MA62-37)

Location: Outlet of Kings Pond, Raynham to confluence with Taunton River, Raynham.
Segment Length: 2.5 miles
Classification: Class B



The drainage area of this segment is approximately 9.3 square miles. Land-use estimates (top three) for the subwatershed:

Forest 43.7%
Residential 22.8%
Open land 7.7%

The impervious cover area for this subwatershed is 11.8%.

This segment is on the Massachusetts Year 2002 Integrated List of Waters – Category 3 (MassDEP 2003).

The use assessments for Hewitt Pond (MA62088), Gushee Pond (MA62084), Johnson Pond (MA62097), Prospect Hill Pond (MA62149), and Kings Pond (MA62101) are in the Lake Assessment section of this report.

WMA WATER WITHDRAWAL SUMMARY (APPENDIX G, TABLE G5) AND NPDES WASTEWATER DISCHARGE SUMMARY

There are 6 acres of land which are classified in the Land-Use theme as cranberry bog in this subwatershed (UMass Amherst 1999). For the purpose of this report, a conservative estimate of water use for this bog area is 0.05 MGD.

Facility	WMA Permit Number	WMA Registration Number	Source (G = ground)	Authorized Withdrawal (MGD)
Raynham Center Water District*	9P42524501	42524502	4245000-01G 4245000-07G 4245000-09G	0.40 reg 0.42 perm Total – 0.82
North Raynham Water District	9P442524502	42524501	4245002-01G 4245002-03G 4245002-04G 4245002-05G 4245002-06G	0.32 reg 0.0 perm Total – 0.32

* Indicates system-wide withdrawal

Based on the available information there are no NPDES discharges in this subwatershed.

USE ASSESSMENT

AQUATIC LIFE

As part of the Biocriteria Development Project DWM conducted a habitat assessment, benthic macroinvertebrate and fish population sampling of the Forge River near South Main Street (Route 104), Raynham (Station NB05FOR) in September/October 1996 (MassDEP 1996b and Appendix I). *In-situ* measurements (DO, % saturation, pH, temperature and conductivity) were also recorded (Appendix B).

Habitat and Flow

The total habitat assessment score for the Forge River near South Main Street (Route 104), Raynham (Station NB05FOR) in September/October 1996 was 136/200. Habitat was limited by embeddedness, sediment deposition, and riparian zone/bank stability (MassDEP 1996b).

Biology

DWM and Fugro East, Inc. biologists conducted fish population sampling (7 October 1996) on the Forge River near South Main Street (Route 104-Station NB05FOR), Raynham as part of the Biocriteria Development Project. Six species were collected including, American eel (*Anguilla rostrata*) and tessellated darter (*Etheostoma olmstedi*), pumpkinseed, bluegill, fallfish and one brook trout (MassDEP 1996b). A replicate reach was also sampled downstream from Route 104. Two additional species, an individual each of white sucker and largemouth bass, were captured. Although overall numbers were low, communities were similar at both sampling locations. Approximately 50% of the fish collected were fluvial specialists/dependants, mostly fallfish and tessellated darter. An individual brook trout and one white sucker make up the remainder of this group.

No recent data are available so the *Aquatic Life Use* is currently not assessed.

AESTHETICS

The Forge River Stream Team surveyed the lower section of the Forge River (downstream from the confluence of the unnamed tributary downstream from Johnson's Pond) near Raynham center (Forge River Stream Team 2003). The river was described as being tea-colored. With the exception of trash and debris (shopping carts, tires and bottles) and a colorful slick (undetermined as to whether it was natural or petroleum based), no other objectionable conditions (odors, turbidity) were noted.

No aesthetic quality degradation (odors, turbidity, oil, grease, etc.) was identified by DWM biologists in the Forge River near South Main Street (Route 104-Station NB05FOR) in September/October 1996 (MassDEP 1996b).

Too limited data are available so the *Aesthetics Use* is not assessed. It is identified with an Alert Status because of the trash and debris noted by the Forge River Stream Team.

Forge River (MA62-37) Use Summary Table

Aquatic Life	Fish Consumption	Primary Contact	Secondary Contact	Aesthetics*
				
NOT ASSESSED				

*"Alert Status" issues identified, see details in the use assessment section.

RECOMMENDATIONS

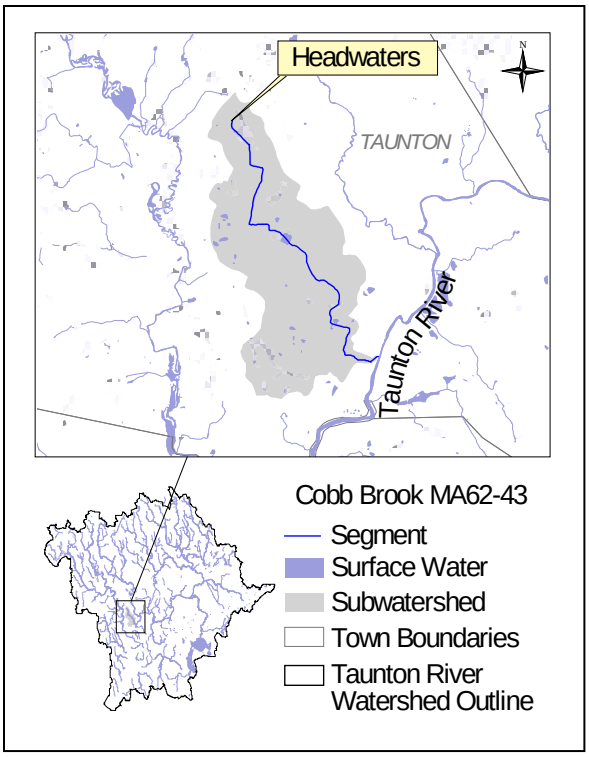
Conduct additional monitoring (biological, habitat and water quality) to evaluate the status of the *Aquatic Life Use* in the Forge River bracketing potential sources of pollution.

Conduct bacteria sampling to evaluate effectiveness of nonpoint source pollution control activities and to assess the status of the *Primary* and *Secondary Contact Recreational* uses.

The Forge River Stream Team should continue in its efforts to assess the condition of the Forge River. Recommendations identified in the Forge River Shoreline Survey Report and Action Plan should be reviewed and implemented, as appropriate.

COBB BROOK (SEGMENT MA62-43)

Location: Headwaters south of Dunbar Street (in Crapo Bog), Taunton to confluence with the Taunton River, Taunton.
Segment Length: 3.5 miles
Classification: B



The drainage area of this segment is approximately 2.5 square miles. Land-use estimates (top three) for the subwatershed:

Residential 61.3%
Forest 24.8%
Open land 7.5%

The impervious cover area for this subwatershed is 19.8%.

WMA WATER WITHDRAWAL AND NPDES WASTEWATER DISCHARGE SUMMARY

Based on available information there are no WMA regulated withdrawals and NPDES dischargers in this subwatershed.

USE ASSESSMENT

Sampling of Cobb Brook (DO, temperature, pH, TSS, nitrate-nitrogen, total phosphorus, and bacteria) is conducted on a monthly basis by TRWA near General Cobb Street, Taunton (Station COB-013) and near West Water Street, Taunton (Station COB-000). The TRWA reported high phosphorus and fecal coliform levels at their sampling station near General Cobb Street, Taunton (COB-013) in May 2002. The TRWA found that high coliform counts occurred at this station and at Station COB-000 intermittently throughout 2002 (Domingos 2003a). Although a draft Quality Assurance Project Plan (QAPP) was reviewed in 2001, a final QAPP for the TRWA has not been approved and their data are not quality-assured. Therefore, the designated uses for Cobb Brook are not assessed.

Cobb Brook (MA62-43) Summary Table

Aquatic Life	Fish Consumption	Primary Contact	Secondary Contact	Aesthetics
				
NOT ASSESSED				

RECOMMENDATIONS

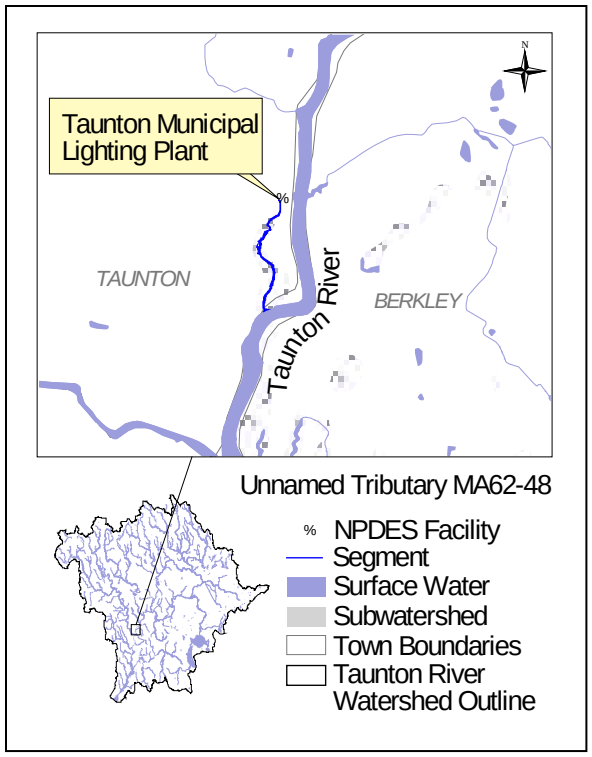
Conduct monitoring (biological, habitat and water quality) to evaluate the status of the *Aquatic Life Use* in Cobb Brook bracketing potential sources of pollution (e.g., development).

Conduct bacteria sampling to evaluate effectiveness of nonpoint source pollution control activities and to assess the status of the *Primary* and *Secondary Contact Recreational* uses.

The TRWA should continue to conduct water quality monitoring at its established sampling site on Cobb Brook to meet its sampling objectives. In order for the MassDEP to utilize the TRWA data for water quality assessment reporting purposes, the TRWA should work with MassDEP to meet its Quality Assurance /Quality Control requirements.

UNNAMED TRIBUTARY (SEGMENT MA62-48)

Location: Channel from Taunton Municipal Lighting Plant, Taunton to confluence with Taunton River, Taunton.
Segment Size: 0.002 square miles
Classification: Class SA (Proposed SB)



Based on information from a 1963 U.S. Geological Survey map of the area, this channel was originally a wetland; i.e., no channel or stream was apparently present prior to the Taunton Municipal Lighting Plant (TMLP) facility being built. Thus, the channel was either dug or formed from the force of the discharge. The channel is now considered to be a "tidal creek".

WMA WATER WITHDRAWAL SUMMARY AND NPDES WASTEWATER DISCHARGE SUMMARY (APPENDIX G, TABLE G2)

Based on the available information there are no WMA withdrawals in this segment.

The Taunton Municipal Lighting Plant (TMLP) is a municipally owned 135 MW steam electric power generating facility. The TMLP Cleary-Flood Station has two generating units (8 and 9). Water is withdrawn directly from the Taunton River (approximately 38.1 MGD instantaneous maximum flow rate) at an intake structure adjacent to the main power generation building for use as cooling water. Unit 8, completed in 1966, employs a once-through cooling water system which can generate approximately 25 MW. Typically, when in operation, the unit is online for approximately 11 hours/generation event during peak demand periods (summer and winter). Unit 9, which began operation in 1975, is a combined cycle system, which can generate a total of 110 MW. Typically, when in operation, the unit is online for approximately 13 hours/generation event during peak demand periods (summer and winter). The facility is authorized (NPDES permit# MA0002241 issued September 1994, but in December 1994 the EPA reinstated the conditions of the April 1988 permit) to discharge via the following outfalls (upstream to downstream) into this tidal creek, which runs adjacent to the Taunton River for approximately 2000' prior to flowing into the Taunton River:

- Outfall #001 –39.5 MGD maximum daily of once through condenser cooling water (90°F daily maximum) from Unit 8 which is chlorinated daily (2 hours/day when operating) with sodium hypochlorite (TRC limit 0.02 mg/L).
- Outfall #002 –0.45 MGD maximum daily (0.260 MGD average monthly) of boiler blowdown, gland seal leakoff, neutralized demineralizer regeneration wastewater, and carbon filter backwash from both Unit 8 and 9, and auxiliary equipment (90°F daily maximum).

Stormwater is also discharged via several outfalls with monitoring requirements of two times/year for pH & oil and grease.

A draft permit is expected to be developed in 2005.

USE ASSESSMENT

AQUATIC LIFE

As part of their NPDES permit renewal process, TMLP was required to conduct additional biological and water quality studies to fulfill requirements of Section 316(a) and (b) of the Clean Water Act (Murphy 2001 and EarthTech 2002). The investigation was developed to address the following three items: thermal effects from the Unit 8 discharge on the aquatic flora and fauna that would be expected to exist in the channel in the absence of the discharge, representative intertidal areas upstream and downstream from the mouth of the channel in order to assess the extent to which the biotic community within the channel has changed, and possible modification to the TMLPs intake structure fish return system (EarthTech and

Marine Research 2004). These studies were initiated in June 2002 and were completed in July 2003. A technical review of these investigations by MassDEP DWM staff is summarized below.

Habitat and Flow

The physical characteristics of the tidal creek to which the effluent is discharged were compared to two other tidal creeks in the area. Basic findings of the report (EarthTech and Marine Research 2004) are as follows: 1) flow rate in the tidal creek receiving the discharge is about 217 times greater than natural flow without the discharge; 2) scouring of benthic substrates, erosion of channel banks, deepening of channel were evident and silt and sand were probably scoured from the area - coarse sand predominated when the survey was conducted. By comparison benthic substrates of neighboring creeks had a much greater component of mud and silt. Dilution of the effluent was negligible when Unit 8 was discharging. Most fish appeared to be pushed out of the tidal creek when the discharge was in operation.

Biology

Flora and fauna of the segment were compared to two other tidal creeks in the area. Diversity and evenness of benthic samples from the discharge channel were about half that found in each of two reference creeks but the number of organisms/square meter was 1.5 to 2x greater in the discharge channel when compared to the reference creeks. This was primarily due to the fact that the oligochaete population in the channel was about 2-3x that of the reference creeks. The species of oligochaetes found were not identified to species level.

Benthic differences were more pronounced in June and less as pronounced in September. Two fish, American eel and naked gobie were found in reference creek “baskets” that were put in place to sample fish. No fish were found in the discharge channel baskets. The total number of banded killifish counted in the reference creeks over all survey dates was 3600; the total in the test creek (discharge creek) was 97 although 33% more collections were made in the test creek. Fish collections in the discharge channel were made before (n=54 events), during (n=9 events) and after (n=34 events) a thermal discharge took place. Current velocity was cited as probable cause of impact, although chlorine effects were not evaluated.

White perch were much more abundant in reference creeks than in the test creek. Low numbers of perch were thought to be caused by increased velocity and heat. Discharge temperatures exceeded lethal levels in some cases.

During discharge events the number of bluegills found in the discharge creek was much lower than those found in reference creeks. Effects were thought to be caused by increased velocity and heat. In addition, during discharge events the number of largemouth bass in the discharge creek was about one-third to one-quarter the population size when the discharge was not in operation. Effects were thought to be due to velocity and heat.

Yellow perch were found in small numbers at all sites. However, when found, they were typically present in higher numbers in the reference creeks.

Threespine sticklebacks were found in high numbers in one reference creek but in low numbers in the other reference creek and the discharge channel. Temperatures in the discharge channel during August and September, 2002 exceeded lethal levels for sticklebacks, so mortality would have been expected during discharge events in those months.

Hogchokers were found in high numbers (about 36 individuals) in one of the reference creeks during one sampling period, but were typically absent at other times and absent from the other reference creek. They were especially absent from the discharge creek. Temperatures in the discharge at times exceeded lethal levels recorded for this fish.

Chemistry - water

Temperatures in the discharge creek were essentially the same as the discharge when it was in operation. Potential for thermally-induced acute or chronic toxicity to fish in the creek exists.

Whether or not TRC concentrations in the TMLP discharge would cause exceedences of acute and/or chronic water quality criteria are not known at this time.

The *Aquatic Life Use* is assessed as impaired for this unnamed tributary to the Taunton River as a result of habitat degradation/alteration, elevated temperatures, and adverse impacts to the benthic and fish communities. The source of the impairment is the result of the discharge and operation of the TMLP.

Unnamed tributary (MA62-48) Use Summary Table

Designated Uses		Status
Aquatic Life		IMPAIRED Cause: Habitat, biota alterations, anthropogenic substrate and flow regime alterations, physical substrate alterations and temperature (Suspected Cause: Chlorine) Source: Channel erosion/incision from upstream hydromodification, impacts from hydrostructure flow regulation/modification and industrial thermal discharge
Fish Consumption		NOT ASSESSED
Primary Contact		NOT ASSESSED
Secondary Contact		NOT ASSESSED
Aesthetics		NOT ASSESSED

RECOMMENDATIONS

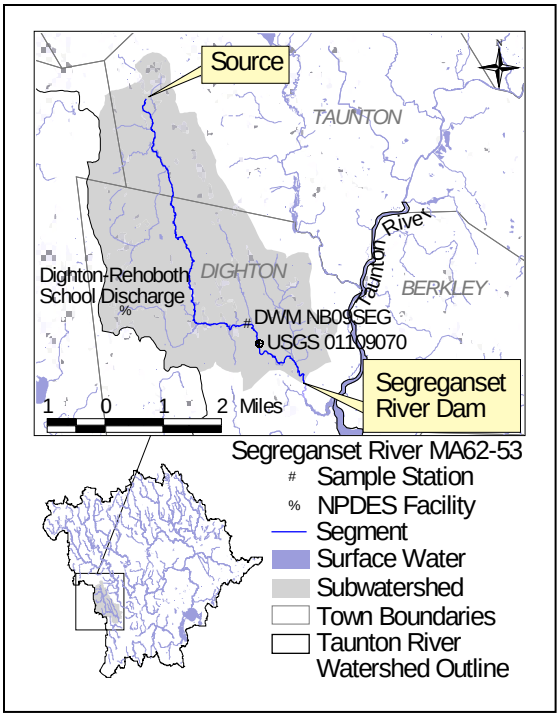
Given the impacts documented to this tidal creek, the possibility of replacing the once-through cooling water discharge with a closed-loop system (i.e., cooling tower) should be evaluated. Off-site mitigation of impacts should be required if the once-through cooling water discharge is not eliminated. In the interim the NPDES permit for TMLP should be reissued with appropriate limits and monitoring requirements. The permit should include the following requirements:

Reduce volume and annual thermal load to this waterbody.
Dechlorination or alternative biofouling controls should be implemented.
Instream monitoring for temperature, biological, and habitat quality should be required.
The actual need to operate this facility should be documented.

An investigation of the fish community should be conducted regarding any impacts related to the cooling water intake and discharge. This should include recommendations for mitigation including an evaluation of fish exclusion barriers.

SEGREGANSET RIVER (SEGMENT MA62-53)

Location: Source in wetland north of Glebe Street, Taunton through the Segreganset River Ponds to the Segreganset River Dam, Dighton.
Segment Length: 7.9 miles
Classification: Proposed Class A
(This segment was formerly part of segment MA62-18)



The drainage area of this segment is approximately 13.5 square miles. Land-use estimates (top three) for the subwatershed:

Forest 72.3%
Residential 13.8%
Agriculture 6.2%

The impervious cover area for this subwatershed is less than 10%.

Segment MA62-18 is on the Massachusetts Year 2002 Integrated List of Waters – Category 3 (MassDEP 2003).

The use assessment for Segreganset River Pond (MA62169) is in the Lake Assessment section of this report.

A USGS gaging station (01109070) on the Segreganset River in Dighton, MA, has been in operation since July 1966. The drainage area at the gage is 10.6 square miles. The USGS remarks for this gage note occasional regulation by ponds upstream and diversion upstream for Dighton Water District. The average mean flow at this gage over the period of record (1966 to present) is 22 cfs (Socolow *et al.* 2003).

WMA WATER WITHDRAWAL SUMMARY (APPENDIX G, TABLE G5)

Facility	WMA Permit Number	WMA Registration Number	Source (G = ground)	Authorized Withdrawal (MGD)
Dighton Water District	NA	42507601	4076000-04G 4076000-05G	0.37 reg
Somerset Water Department*	9P42527301	42527301	4273000-02S	2.81 reg 1.61 perm Total – 4.42
Segreganset Country Club	9P42529303	NA	Unknown	0.12 perm

* Indicates system-wide withdrawal

NPDES WASTEWATER DISCHARGE SUMMARY (APPENDIX G, TABLE G3)

The Dighton-Rehoboth Regional School District is authorized to discharge 0.01 MGD of treated wastewater via Outfall # 001 to an unnamed tributary to this segment of the Segreganset River (NPDES permit # MA0022586 issued October 1987). A new permit is being developed for this facility.

USE ASSESSMENT

AQUATIC LIFE

As part of the Biocriteria Development Project, DWM conducted a habitat assessment and benthic macroinvertebrate sampling of the Segreganset River near Briggs Street, Dighton (Station NB09SEG) in October 1996 (MassDEP 1996b and Appendix I).

Habitat and Flow

The total habitat assessment score for the Segreganset River near Briggs Street, Dighton (Station NB09SEG) in October 1996 was 148/200. Habitat was limited most by limited epifaunal substrate and fish cover, limited velocity/depth combinations (all considered only marginal), sediment deposition, and riparian zone/bank stability (MassDEP 1996b).

No flow (0.0 cfs) was reported by USGS at their gage on the Segreganset River between 8 July and 15 September in 1999 (a drought year) and 23 to 29 July and 1 August to 16 September in 2002 (Socolow et al. 2000 and 2003).

The *Aquatic Life Use* is assessed as impaired in this segment of the Segreganset River because of the low and no flow conditions that frequently occur during the summer and fall months of the year.

Segreganset River (MA62-53) Use Summary Table

Designated Uses		Status
Aquatic Life		IMPAIRED Cause: Low flow alterations Sources: Flow alterations from water diversions and impacts from hydrostructure flow regulation/modification
Fish Consumption		NOT ASSESSED
Primary Contact		NOT ASSESSED
Secondary Contact		NOT ASSESSED
Aesthetics		NOT ASSESSED

RECOMMENDATIONS

Conduct monitoring (biological, habitat and water quality) to evaluate impacts to the Segreganset River from potential sources of pollution (e.g., golf course, developments, water withdrawals), document impairments caused by low flow conditions, and to better assess the status of the *Aquatic Life Use*.

Conduct bacteria sampling to evaluate effectiveness of nonpoint source pollution control activities and to assess the status of the *Primary* and *Secondary Contact Recreational* uses.

Continue to monitor compliance with WMA registration/permit limits and other special conditions of the permits.

Consideration should be given to developing a water budget and safe yield determination for the Segreganset River.

Dams on the Segreganset River should be evaluated for the potential for their removal.

SEGREGANSET RIVER (SEGMENT MA62-54)

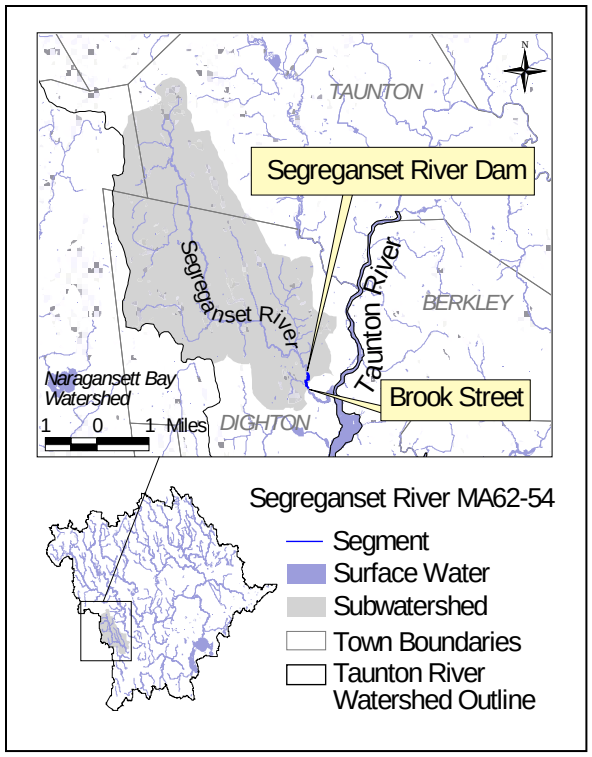
Location: From Segreganset River Dam, Dighton to approximately 250 feet north of Brook Street, Dighton.
Segment Length: 0.4 miles
Classification: Class B
(This segment was formerly part of Segment MA62-18)

The drainage area of this segment is approximately 14.3 square miles. Land-use estimates (top three) for the subwatershed:

Forest 71.5%
Residential 13.6%
Agriculture 6.4%

The impervious cover area for this subwatershed is less than 10%.

Segment MA62-18 is on the Massachusetts Year 2002 Integrated List of Waters – Category 3 (MassDEP 2003).



WMA WATER WITHDRAWAL AND NPDES WASTEWATER DISCHARGE SUMMARY

Based on available information there are no WMA regulated withdrawals or NPDES discharges along this segment of the Segreganset River.

USE ASSESSMENT

AQUATIC LIFE

Habitat and Flow

No flow (0.0 cfs) was reported by USGS at their gage on the Segreganset River between 8 July and 15 September 1999 and 23 to 29 July and 1 August to 16 September 2002 (Socolow et al. 2000 and 2003). Furthermore, water can be taken from the Segreganset River at the Somerset Water Department's intake near the Segreganset River Dam.

The *Aquatic Life Use* is assessed as impaired in this segment of the Segreganset River because of the low and no flow conditions that frequently occur during the summer and fall months of the year.

Segreganset River (MA62-54) Use Summary Table

Designated Uses		Status
Aquatic Life		IMPAIRED Cause: Low flow alterations Sources: Flow alterations from water diversions and impacts from hydrostructure flow regulation/modification
Fish Consumption		NOT ASSESSED
Primary Contact		NOT ASSESSED
Secondary Contact		NOT ASSESSED
Aesthetics		NOT ASSESSED

RECOMMENDATIONS

Conduct monitoring (biological, habitat and water quality) to evaluate impacts to the Segreganset River from potential sources of pollution (e.g., golf course, developments, water withdrawals), document impairments caused by low flow conditions, and better assess the status of the *Aquatic Life Use*.

Conduct bacteria sampling to evaluate effectiveness of nonpoint source pollution control activities and to assess the status of the *Primary* and *Secondary Contact Recreational* uses.

Continue to monitor compliance with WMA registration/permit limits and other special conditions of the permits.

SEGREGANSET RIVER (SEGMENT MA62-55)

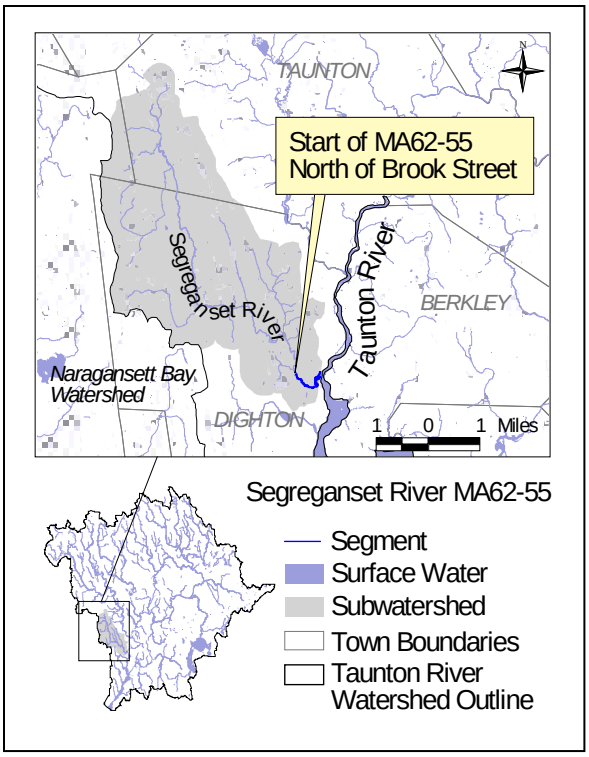
Location: From approximately 250 feet north of Brook Street, Dighton to confluence with the Taunton River, Dighton.
Segment Length: 0.02 square miles
Classification: Class SA (proposed SB, Shellfishing Restricted)
(This segment was formerly part of Segment MA62-18)

The drainage area of this segment is approximately 14.8 square miles. Land-use estimates (top three) for the subwatershed:

Forest 70.3%
Residential 13.9%
Agriculture 6.8%

The impervious cover area for this subwatershed is less than 10%.

Segment MA62-18 is on the Massachusetts Year 2002 Integrated List of Waters – Category 3 (MassDEP 2003).



WMA WATER WITHDRAWAL AND NPDES WASTEWATER DISCHARGE SUMMARY

Based on available information there are no WMA regulated withdrawals or NPDES discharges along this segment of the Segreganset River.

USE ASSESSMENT

SHELLFISHING

The DMF Shellfish Status Report of 2003 indicates that area MHB2.2 is prohibited (Sawyer 2003).

Based on the DMF shellfish growing area status, the *Shellfish Harvesting Use* is assessed as impaired for this segment of the Segreganset River because of elevated bacteria counts.

Segreganset River (MA62-55) Use Summary Table

Designated Uses		Status
Aquatic Life		NOT ASSESSED
Fish Consumption		NOT ASSESSED
Shellfish Harvesting		IMPAIRED Cause: Fecal coliform bacteria Source: Unknown (Suspected Source: Discharges from municipal separate storm sewer systems)
Primary Contact		NOT ASSESSED
Secondary Contact		NOT ASSESSED
Aesthetics		NOT ASSESSED

RECOMMENDATIONS

Review and implement recommendations in the DMF shellfish sanitary survey reports and the triennial reviews for growing area MHB2.2.

Conduct monitoring (biological, habitat and water quality) to evaluate impacts to the Segreganset River from potential sources of pollution (e.g., developments) and to better assess the status of the *Aquatic Life Use*.

Conduct bacteria sampling to evaluate effectiveness of nonpoint source pollution control activities and to assess the status of the *Primary* and *Secondary Contact Recreational* uses.

MUDDY COVE BROOK (SEGMENT MA62-52)

Location: Source south of Hart Street, Dighton through Muddy Cove Brook Pond to outlet of small impoundment behind 333 Main Street (Zeneca, Inc.), Dighton.
Segment Length: 2.0 miles
Classification: Class B
(Formerly part of Segment MA62-23.)

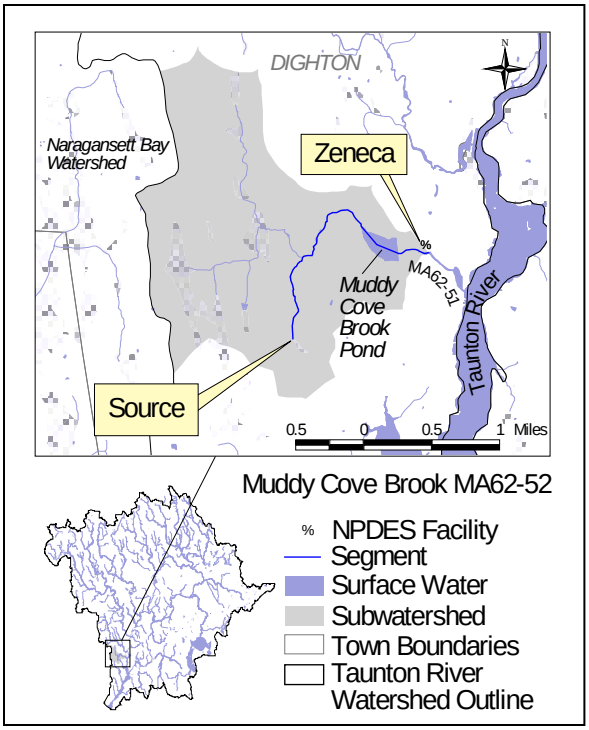
The drainage area of this segment is approximately 2.9 square miles. Land-use estimates (top three) for the subwatershed:

Forest 71.8%
Agriculture 12.8%
Residential 7.1%

The impervious cover area for this subwatershed is less than 10%.

Segment MA62-23 is on the Massachusetts Year 2002 Integrated List of Waters – Category 3 (MassDEP 2003).

The use assessment for Muddy Cove Brook Pond (MA62124) is in the Lake Assessment section of this report.



WMA WATER WITHDRAWAL SUMMARY (APPENDIX G, TABLE G5)

Facility	WMA Permit Number	WMA Registration Number	Source (G = ground)	Authorized Withdrawal (MGD)
Somerset Water Department*	9P42527301	42527301	4273000-05G	2.81 reg 1.61 perm Total – 4.42
Zeneca Inc.	NA	42507603	01G 01S	1.19 reg

* Indicates system-wide withdrawal

NPDES WASTEWATER DISCHARGE SUMMARY (APPENDIX G, TABLE G2)

Zeneca, Inc. (formerly ICI Americas, Inc.) used to discharge non-contact cooling water, stormwater runoff, and/or steam condensate via several outfalls to this segment of Muddy Cove Brook (NPDES MA0005291). The facility was engaged in the manufacturing of textile dyestuffs and other organic chemicals. Manufacturing operations ceased in 1995. The discharges from the outfalls along this segment of Muddy Cove Brook have been eliminated with the exception of stormwater runoff (Zeneca 2000). EPA terminated the individual wastewater NPDES permit in November 2003. The need for the facility to apply for coverage for stormwater discharges to this segment of Muddy Cove Brook needs to be determined.

USE ASSESSMENT

AQUATIC LIFE

Toxicity

Ambient

Water was collected from Muddy Cove Brook downstream from Main Street, Dighton near the inlet to Muddy Cove Brook Pond for use as dilution water in the facility's whole effluent acute toxicity tests for their stormwater outfalls (02S, 03S, 005, and 06S) which discharge to this segment of Muddy Cove Brook. Survival (48-hour exposure) of *Ceriodaphnia dubia* and *Pimephales promelas* was not less than 85 and 75%, respectively, in any of the tests conducted between November 1999 and October 2002.

Effluent
Acute toxicity tests have been conducted on four stormwater outfalls (02S, 03S, 005, and 06S) which discharge to this segment of Muddy Cove Brook. Six tests were conducted on outfalls 02S and 06S and eight tests were conducted on outfalls 03S and 005 between November 1999 and October 2002 using *Ceriodaphnia dubia* and *Pimephales promelas* as test organisms. No acute toxicity (i.e., $LC_{50} \geq 100\%$ effluent) was detected by either test organism in any of the tests conducted.

Too limited data are available so the *Aquatic Life Use* is not assessed.

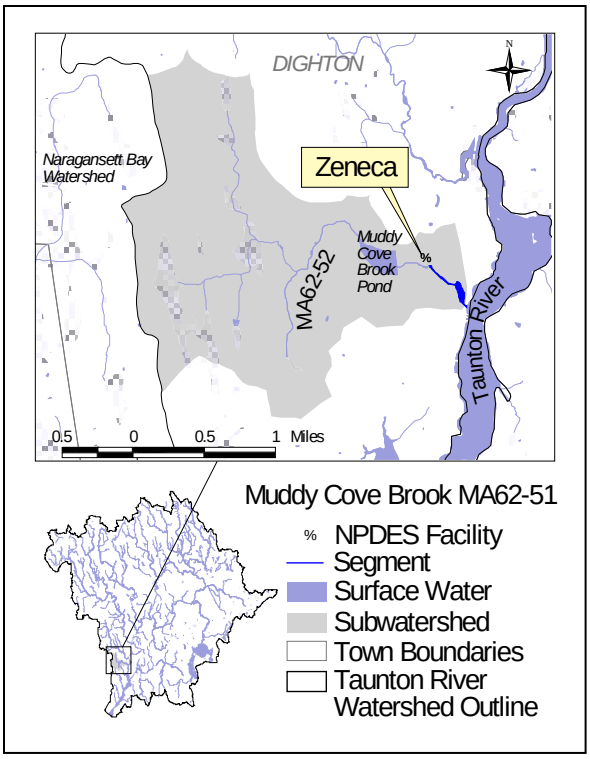
Muddy Cove Brook (MA62-52) Use Summary Table

Aquatic Life	Fish Consumption	Primary Contact	Secondary Contact	Aesthetics
				
NOT ASSESSED				

RECOMMENDATIONS
The Town of Dighton should implement recommendations for wastewater management to protect groundwater and surface waters that are made in the 2003 SRF Comprehensive Wastewater Management Project.

MUDDY COVE BROOK (SEGMENT MA62-51)

Location: From outlet of small impoundment behind 333 Main Street (Zeneca, Inc.), Dighton to confluence with Taunton River, Dighton.
Segment Length: 0.01 square miles
Classification: SA
(Formerly part of Segment MA62-23)



The drainage area of this segment is approximately 3.0 square miles. Land-use estimates (top three) for the subwatershed:

Forest 69.8%
Agriculture 12.5%
Residential 8.6%

The impervious cover area for this subwatershed is less than 10%.

Segment MA62-23 is on the Massachusetts Year 2002 Integrated List of Waters – Category 3 (MassDEP 2003).

WMA WATER WITHDRAWAL SUMMARY AND NPDES WASTEWATER DISCHARGE SUMMARY (APPENDIX G, TABLES G2 AND G4)

Based on available information there are no WMA regulated withdrawals in this subwatershed.

Zeneca, Inc. (formerly ICI Americas, Inc.) used to discharge treated wastewater to this segment of Muddy Cove Brook (NPDES MA0005291) but in 1992 the discharge was moved to the Taunton River via outfall 011A (permit revision signed in June 1992 – see Segment MA62-03). The facility was engaged in the manufacturing of textile dyestuffs and other organic chemicals. Manufacturing operations of the site ceased in 1995. Wastewater generated was a result of facility decommissioning and RCRA Corrective Action, which was discharged via outfall 011A to the Taunton River (Segment MA62-03) (Zeneca 2000). EPA terminated the individual NPDES permit in November 2003. The facility was discharging stormwater under a multisector general stormwater permit (MAR05B053) via Outfall 011S to this segment of Muddy Cove Brook. However, the permit has expired and the company needs to reapply for a new multisector general stormwater permit.

USE ASSESSMENT

AQUATIC LIFE

Toxicity

Effluent

Acute toxicity tests have been conducted on stormwater from Outfall 011S. A total of eight tests were conducted between November 1999 and October 2002 using *Ceriodaphnia dubia* and *Pimephales promelas* as test organisms. No acute toxicity was detected by either test organism.

Too limited data are available so the *Aquatic Life Use* is not assessed.

SHELLFISHING

The DMF Shellfish Status Report of 2003 indicates that area MHB2.2 is prohibited (Sawyer 2003).

Based on the DMF shellfish growing area status, the *Shellfish Harvesting Use* is assessed as impaired for this segment of Muddy Cove Brook because of elevated bacteria counts.

Muddy Cove Brook (MA62-51) Use Summary Table

Designated Uses		Status
Aquatic Life		NOT ASSESSED
Fish Consumption		NOT ASSESSED
Shellfish Harvesting		IMPAIRED Cause: Fecal coliform bacteria Source: Unknown (Suspected Sources: Discharges from municipal separate storm sewer systems and septic systems)
Primary Contact		NOT ASSESSED
Secondary Contact		NOT ASSESSED
Aesthetics		NOT ASSESSED

RECOMMENDATIONS

Review and implement recommendations in the DMF shellfish sanitary survey reports and the triennial reviews for growing area MHB2.2.

Conduct bacteria sampling to evaluate effectiveness of nonpoint source pollution control activities and to assess the status of the *Primary* and *Secondary Contact Recreational* uses.

Zeneca, Inc. is required to reapply for a new multisector general stormwater permit.

BROAD COVE (SEGMENT MA62-50)

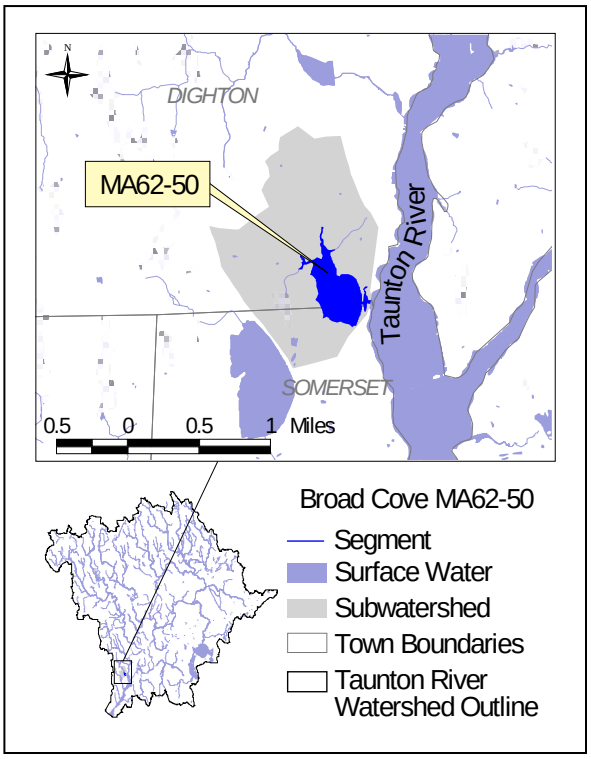
Location: Somerset/Dighton
Segment Size: 0.13 square miles
Classification: Class SA
(Formerly reported as Segment MA62022)

The drainage area of this segment is approximately 1.1 square miles. Land-use estimates (top three) for the subwatershed:

Forest 39.7%
Agriculture 18.3%
Residential 17.1%

The impervious cover area for this subwatershed is less than 10%.

Segment MA62022 is on the Massachusetts Year 2002 Integrated List of Waters – Category 2 (MassDEP 2003).



WMA WATER WITHDRAWAL SUMMARY AND NPDES WASTEWATER DISCHARGE SUMMARY

There are no WMA withdrawals or NPDES discharges in this segment.

USE ASSESSMENT

SHELLFISH HARVESTING

The DMF Shellfish Status Report of 2003 indicates that all growing areas within this segment (MHB2.2) are prohibited (Sawyer 2003).

Based on the DMF shellfish growing area status, the *Shellfish Harvesting Use* is assessed as impaired for Broad Cove because of elevated bacteria counts.

Broad Cove (MA62-50) Use Summary Table

Designated Uses		Status
Aquatic Life		NOT ASSESSED
Fish Consumption		NOT ASSESSED
Shellfish Harvesting		IMPAIRED Cause: Fecal coliform bacteria Source: Unknown (Suspected Source: Discharges from municipal separate storm sewer systems)
Primary Contact		NOT ASSESSED
Secondary Contact		NOT ASSESSED
Aesthetics		NOT ASSESSED

RECOMMENDATIONS

Review and implement recommendations in the DMF shellfish sanitary survey reports and the triennial reviews for growing area MHB2.2.

Conduct bacteria sampling to evaluate effectiveness of nonpoint source pollution control activities and to assess the status of the *Primary* and *Secondary Contact Recreational* uses.

ATTACHMENT D

MassDEP Phase 1 Site Assessment Map and NHESP Map

MassDEP - Bureau of Waste Site Cleanup

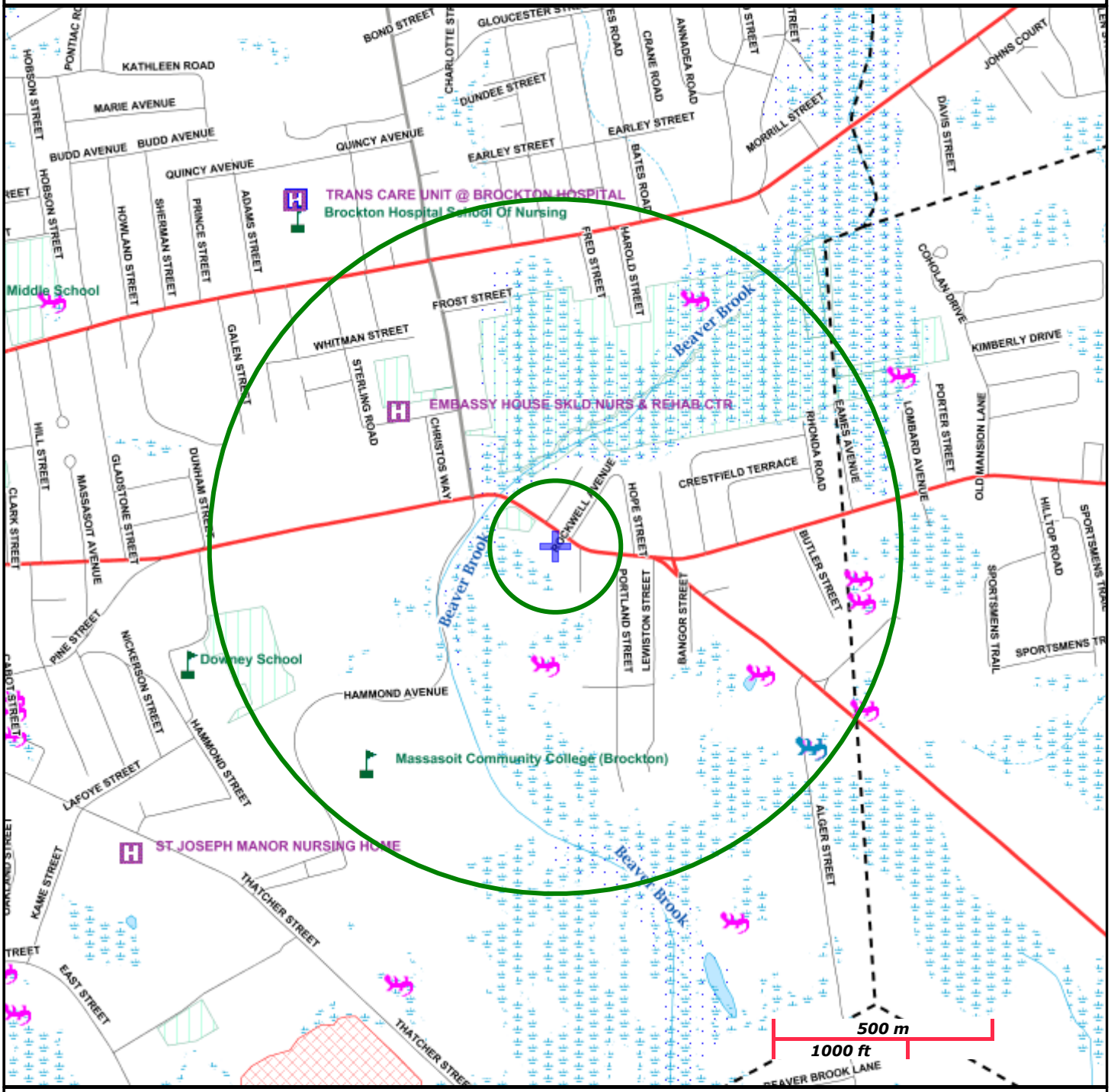
Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

Site Information:
SUBJECT SITE
863 CRESCENT ST BROCKTON, MA

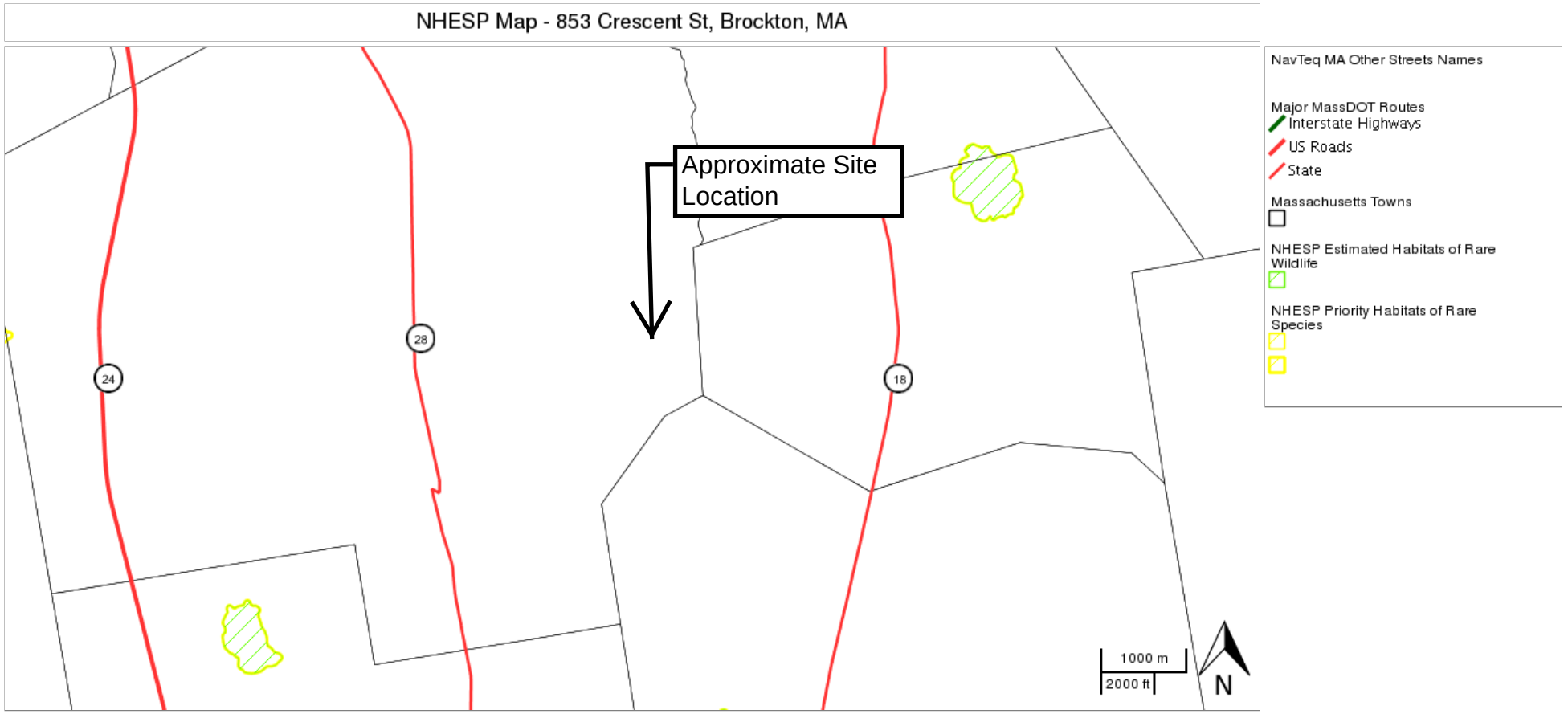
NAD83 UTM Meters:
4660639mN , 335877mE (Zone: 19)
February 15, 2017

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at: http://www.mass.gov/mgis/.

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct
Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam
Aquifers: Medium Yield, High Yield, EPA Sole Source
Non Potential Drinking Water Source Area: Medium, High (Yield)
PWS Protection Areas: Zone II, IWPA, Zone A
Hydrography: Open Water, PWS Reservoir, Tidal Flat
Wetlands: Freshwater, Saltwater, Cranberry Bog
FEMA 100yr Floodplain; Protected Open Space; ACEC
Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential
Solid Waste Landfill; PWS: Com.GW,SW, Emerg., Non-Com.


NHESP Map - 853 Crescent St, Brockton, MA
Approximate Site Location
24
28
18
1000 m
2000 ft
N
NavTeq MA Other Streets Names
Major MassDOT Routes
Interstate Highways
US Roads
State
Massachusetts Towns
NHESP Estimated Habitats of Rare Wildlife
NHESP Priority Habitats of Rare Species

ATTACHMENT E

United States Department of the Interior, Fish and Wildlife Services (FWS) Threatened or Endangered Species or Critical Habitat Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To:
Consultation Code: 05E1NE00-2017-SLI-2562
Event Code: 05E1NE00-2017-E-05595
Project Name: Edsel LP Crescent St Discharge

August 29, 2017

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2017-SLI-2562

Event Code: 05E1NE00-2017-E-05595

Project Name: Edsel LP Crescent St Discharge

Project Type: SPILL / RELEASE

Project Description: Treated groundwater discharge from dewatering activities during soil excavation.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.08095316519542N70.9865713119507W

Counties: Plymouth, MA

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Critical habitats

There are no critical habitats within your project area under this office's jurisdiction.

ATTACHMENT F

MACRIS Historic Places Report

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Brockton; Resource Type(s): Area;

Inv. No.	Property Name	Street	Town	Year
BRO.A	Field, D. W. Park		Brockton	
BRO.B	Centre Street		Brockton	
BRO.C	Summer Street		Brockton	
BRO.D	Salisbury Square		Brockton	
BRO.E	Cary Hill		Brockton	
BRO.F	Brockton Fairgrounds		Brockton	
BRO.G	South Street Historic District		Brockton	
BRO.H	Baxendale Cottages		Brockton	
BRO.I	Bouve Avenue Bungalows		Brockton	
BRO.J	Forest Avenue Three-Deckers		Brockton	
BRO.K	Hillberg Avenue Three-Deckers		Brockton	
BRO.L	Howard - Snell Streets Three-Deckers		Brockton	
BRO.M	Bellevue Avenue Three-Deckers		Brockton	
BRO.N	Saint Margaret of Scotland Roman Catholic Church		Brockton	
BRO.O	Saint Colman of Cloyne Roman Catholic Church		Brockton	
BRO.P	Sacred Heart Roman Catholic Church Complex		Brockton	
BRO.Q	Brockton Veterans Administration Hospital		Brockton	
BRO.R	Skinner Street Cottages		Brockton	
BRO.S	Centre and Montello Streets Historic District		Brockton	