

AMERADA HESS CORPORATION

732-750-6000
732-750-6105 (FAX)

1 HESS PLAZA
WOODBIDGE, NJ 07095-0961

GP
MAG910000

October 21, 2005

United States Environmental Protection Agency
RGP-NOC Processing
Municipal Assistance Unit (CMU)
1 Congress Street, Suite 1100
Boston, Massachusetts 02114-2023

OCT 24 2005

VIA: OVERNIGHT MAIL

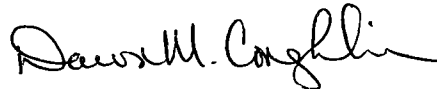
**RE: Notice of Intent for the Remediation General Permit
Amerada Hess Station #21526
22 North Beacon Street, Watertown, Massachusetts
MADEP RTN # 3-11565**

To Whom It May Concern:

Amerada Hess Corporation (Hess) is pleased to submit this Notice of Intent (NOI) for the Remediation General Permit (RGP) (MAG910000) for the above referenced site. This submittal was prepared by Shaw Environmental & Infrastructure (Shaw), on behalf of Hess.

Should you have any questions or require additional information, please do not hesitate to contact the undersigned at (732) 750-7068 or Mr. Donald Busch of Shaw, at (978) 691-2156.

Sincerely,



Dawn M. Coughlin
Manager, Marketing & Refining Remediation

Attachment

cc: D. Busch, Shaw (w/o Attachment)
S. Ross, Williams & Ross (w/attachment)
H. Goldman, AHC (w/attachment)
R. Pazdro, Quantum Mgmt. Group (w/o Attachment)

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Notice of Intent (NOI) for the Remediation General Permit

1. General site information. Please provide the following information about the site:

a) Name of facility/site : Hess Station #21526		Facility/site address :	
Location of facility/site : longitude: <u>-71 10' 56"</u> latitude: <u>42 21' 54"</u>	Facility SIC code(s): 5541	Street: 22 North Beacon Street	
b) Name of facility/site owner : Amerada Hess Corporation		Town: Watertown	
Email address of owner: dcoughlin@hess.com		State: MA	Zip: 02472
Telephone no. of facility/site owner: (732) 750-7068		County: Middlesex	
Fax no. of facility/site owner: (732) 750-6105		Owner is (check one): 1. Federal____ 2. State/Tribal____	
Address of owner (if different from site):		3. Private ☒ 4. other, if so, describe:	
Street: One Hess Plaza			
Town: Woodbridge	State: NJ	Zip: 07095-0961	County: Middlesex
c) Legal name of operator : Amerada Hess Corporation		Operator telephone no: (732) 750-7068	
		Operator fax no.: (732) 750-6105	Operator email: dcoughlin@hess.com
Operator contact name and title: Dawn Coughlin, Manager, Refining and Marketing Remediation			
Address of operator (if different from owner):		Street:	
Town:	State:	Zip:	County:
d) Check "yes" or "no" for the following:			
1. Has a prior NPDES permit exclusion been granted for the discharge? Yes ☒ No____, if "yes," number: MA-021-039			
2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge? Yes ☒ No____, if "yes," date and tracking #: MA0036528			
3. Is the discharge a "new discharge" as defined by 40 CFR 122.2? Yes____ No ☒			
4. For sites in Massachusetts, is the discharge covered under the MA Contingency Plan (MCP) and exempt from state permitting? Yes ☒ No____			

e) Is site/facility subject to any State permitting or other action which is causing the generation of discharge? Yes ☒ No ☐ If "yes," please list: 1. site identification # assigned by the state of NH or MA: RTN #3-11565 2. permit or license # assigned: 3. state agency contact information: name, location, and telephone number: MADEP, BWSC, NERO, One Winter Street, Boston, MA, 617-654-6500	f) Is the site/facility covered by any other EPA permit, including: 1. multi-sector storm water general permit? Y ☐ N ☒, if Y, number: 2. phase I or II construction storm water general permit? Y ☐ N ☒, if Y, number: 3. individual NPDES permit? Y ☐ N ☒, if Y, number: 4. any other water quality related permit? Y ☐ N ☒, if Y, number:
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2. Discharge information. Please provide information about the discharge, (attaching additional sheets as needed) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage: Effluent discharge via storm sewer to Charles River for a groundwater pump (one recovery well) and treat (air stripper, filters, liquid phase carbon) treat system.		
b) Provide the following information about each discharge:	1) Number of discharge points: 1	2) What is the maximum and average flow rate of discharge (in cubic feet per second, ft³/s)? Max. flow 0.032 Average flow 0.013 ft³/s Is maximum flow a design value? Y ☒ N ☐ (Maximum discharge of recovery pump) For average flow, include the units and appropriate notation if this value is a design value or estimate if not available.
3) Latitude and longitude of each discharge within 100 feet: pt. 1: long. -71 11'06" lat. 42 21'53"		
4) If hydrostatic testing, total volume of the discharge (gals):		5) Is the discharge intermittent <u>No</u> or seasonal <u>No</u>? Is discharge ongoing Yes ☒ No ☐?
c) Expected dates of discharge (mm/dd/yy): start 10/24/2005 end 12/31/2006		
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).		

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for **all** of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts' regulations 310 CMR 40.0000, the Massachusetts Contingency Plan ("Chapter 21E"); ii. New Hampshire's Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed.

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only ☒	VOC Only	Primarily Metals	Urban Fill Sites	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants	Listed Contaminated Sites	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		☒	1	Grab	160.2	4 mg/l	<4,000	0	<4,000	0
2. Total Residual Chlorine	☒		1	Grab	330.4	50 ug/l	<50	0	<50	0
3. Total Petroleum Hydrocarbons		☒	12	Grab	418.1	0.61 mg/l	2.0	0.153	1.15	0.038
4. Cyanide	☒		1	Grab	335.3	10 ug/l	<10	0	<10	0
5. Benzene		☒	12	Grab	624	2 ug/l	426	0.033	224	0.007
6. Toluene		☒	12	Grab	624	2 ug/l	2,030	0.155	1,087	0.036
7. Ethylbenzene		☒	12	Grab	624	2 ug/l	308	0.024	221	0.007
8. (m,p,o) Xylenes		☒	12	Grab	624	2 ug/l	2,290	0.175	1,721	0.056
9. Total BTEX ⁴		☒	12	Grab	624	8 ug/l	5.054	0.387	3,253	0.106

⁴BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide ⁵ (1,2- Dibromo-methane)	✓		1	Grab	504	0.015 ug/l	<0.015	0	<0.015	0
11. Methyl-tert-Butyl Ether (MtBE)		✓	12	Grab	624	2 ug/l	3,720	0.284	1,447	0.047
12. tert-Butyl Alcohol (TBA)		✓	1	Grab	8260B	100 ug/l	228	0.017	228	0.008
13. tert-Amyl Methyl Ether (TAME)	✓		1	Grab	8260B	2 ug/l	143	0.011	143	0.005
14. Naphthalene		✓	1	Grab	8260B	5 ug/l	74.1	0.006	74.1	0.002
15. Carbon Tetra-chloride	✓		1	Grab	8260B	1 ug/l	<1	0	<1	0
16. 1,4 Dichlorobenzene	✓		1	Grab	8260B	1 ug/l	<1	0	<1	0
17. 1,2 Dichlorobenzene	✓		1	Grab	8260B	1 ug/l	<1	0	<1	0
18. 1,3 Dichlorobenzene	✓		1	Grab	8260B	1 ug/l	<1	0	<1	0
19. 1,1 Dichloroethane	✓		1	Grab	8260B	1 ug/l	<1	0	<1	0
20. 1,2 Dichloroethane	✓		1	Grab	8260B	1 ug/l	<1	0	<1	0
21. 1,1 Dichloroethylene	✓		1	Grab	8260B	1 ug/l	<1	0	<1	0
22. cis-1,2 Dichloro-ethylene	✓		1	Grab	8260B	1 ug/l	<1	0	<1	0
23. Dichloromethane (Methylene Chloride)	✓		1	Grab	8260B	1 ug/l	<1	0	<1	0
24. Tetrachloroethylene	✓		1	Grab	8260B	1 ug/l	<1	0	<1	0

⁵EDB is a groundwater contaminant at fuel spill and pesticide application sites in New England.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
25. 1,1,1 Trichloroethane	✓		1	Grab	8260B	1 ug/l	<1	0	<1	0
26. 1,1,2 Trichloroethane	✓		1	Grab	8260B	1 ug/l	<1	0	<1	0
27. Trichloroethylene	✓		1	Grab	8260B	1 ug/l	<1	0	<1	0
28. Vinyl Chloride	✓		1	Grab	8260B	1 ug/l	<1	0	<1	0
29. Acetone	✓		1	Grab	8260B	5 ug/l	<5	0	<5	0
30. 1,4 Dioxane	✓		1	Grab	8260B	25 ug/l	<25	0	<25	0
31. Total Phenols	✓		1	Grab	8270C	20 ug/l	<20	0	<20	0
32. Pentachlorophenol	✓		1	Grab	8270C/SIM	1 ug/l	<1	0	<1	0
33. Total Phthalates ⁶ (Phthalate esthers)	✓		1	Grab	8270C	10 ug/l	<10	0	<10	0
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	✓		1	Grab	8270C	10 ug/l	<10	0	<10	0
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	✓		1	Grab	8270C/SIM	0.1 ug/l	0.13	<0.001	0.13	<0.001
a. Benzo(a) Anthracene		✓	1	Grab	8270C/SIM	0.05 ug/l	0.13	<0.001	0.13	<0.001
b. Benzo(a) Pyrene	✓		1	Grab	8270C/SIM	0.1 ug/l	<0.1	0	<0.1	0
c. Benzo(b)Fluoranthene	✓		1	Grab	8270C/SIM	0.05 ug/l	<0.05	0	<0.05	0
d. Benzo(k) Fluoranthene	✓		1	Grab	8270C/SIM	0.1 ug/l	<0.1	0	<0.1	0
e. Chrysene	✓		1	Grab	8270C/SIM	0.1 ug/l	<0.1	0	<0.1	0

⁶The sum of individual phthalate compounds.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min- imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
f. Dibenzo(a,h) anthracene	✓		1	Grab	8270C/SIM	0.1 ug/l	<0.1	0	<0.1	0
g. Indeno(1,2,3-cd) Pyrene	✓		1	Grab	8270C/SIM	0.1 ug/l	<0.1	0	<0.1	0
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)		✓	1	Grab	8270C/SIM	0.1 ug/l	12.5	0.001	12.5	<0.001
h. Acenaphthene	✓		1	Grab	8270C/SIM	0.1 ug/l	<0.1	0	<0.1	0
i. Acenaphthylene	✓		1	Grab	8270C/SIM	0.1 ug/l	<0.1	0	<0.1	0
j. Anthracene	✓		1	Grab	8270C/SIM	0.1 ug/l	<0.1	0	<0.1	0
k. Benzo(ghi) Perylene	✓		1	Grab	8270C/SIM	0.1 ug/l	<0.1	0	<0.1	0
l. Fluoranthene	✓		1	Grab	8270C/SIM	0.1 ug/l	<0.1	0	<0.1	0
m. Fluorene	✓		1	Grab	8270C/SIM	0.1 ug/l	<0.1	0	<0.1	0
n. Naphthalene-		✓	1	Grab	8270C/SIM	0.1 ug/l	12.5	0.001	12.5	<0.001
o. Phenanthrene	✓		1	Grab	8270C/SIM	0.1 ug/l	<0.1	0	<0.1	0
p. Pyrene	✓		1	Grab	8270C/SIM	0.1 ug/l	<0.1	0	<0.1	0
37. Total Polychlorinated Biphenyls (PCBs)	✓		1	Grab	608	0.5 ug/l	<0.5	0	<0.5	0
38. Antimony	✓		1	Grab	200.7	6 ug/l	<6	0	<6	0
39. Arsenic		✓	1	Grab	200.7	5 ug/l	9.9	0.001	9.9	<0.001
40. Cadmium	✓		1	Grab	200.7	4 ug/l	<4	0	<4	0
41. Chromium III	✓		1	Grab	200.7	10 ug/l	<10	0	<10	0
42. Chromium VI	✓		1	Grab	7196A	10 ug/l	<10	0	<10	0

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper	✓		1	Grab	200.7	25 ug/l	<25	0	<25	0
44. Lead	✓		1	Grab	200.7	5 ug/l	<5	0	<5	0
45. Mercury	✓		1	Grab	245.1	0.2 ug/l	<0.2	0	<0.2	0
46. Nickel	✓		1	Grab	200.7	40 ug/l	<40	0	<40	0
47. Selenium	✓		1	Grab	200.7	10 ug/l	<10	0	<10	0
48. Silver	✓		1	Grab	200.7	5 ug/l	<5	0	<5	0
49. Zinc	✓		1	Grab	200.7	20 ug/l	<5	0	<5	0
50. Iron		✓	2	Grab	200.7	100 ug/l	9,430	0.387	7,250	0.165
Other (describe): See attachment		✓	1	Grab	8260B 8270C/SIM					

c) For discharges where **metals** are believed present, please fill out the following:

<i>Step 1:</i> Do any of the metals in the influent have a reasonable potential to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y ☒ N ☐	If yes, which metals? Iron, Arsenic (Based on ML - Antimony, Cadmium, Copper, Lead, Nickel, Selenium, Silver)
<i>Step 2:</i> For any metals which have reasonable potential to exceed the Appendix III limits, calculate the dilution factor (DF) using the formula in Part I.A.3.c) (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metals: Fe, As, Sb, Cd, Cu, Pb, Ni, Se, Ag DF: <u>500</u>	Look up the limit calculated at the corresponding dilution factor in Appendix IV. Do any of the metals in the influent have the potential to exceed the corresponding effluent limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y ☒ N ☐ If "Yes," list which metals: Iron

4. Treatment system information. Please describe the treatment system using separate sheets as necessary, including:

a) A description of the treatment system, including a schematic of the proposed or existing treatment system:						
b) Identify each applicable treatment unit (check all that apply):	Frac. tank	Air stripper ☒	Oil/water separator	Equalization tanks	Bag filter ☒	GAC filter ☒
	Chlorination	Dechlorination	Other (please describe): Vapor phase carbon for air stripper off-gas treatment			
c) Proposed average and maximum flow rates (gallons per minute) for the discharge and the design flow rate(s) (gallons per minute) of the treatment system: Average flow rate of discharge <u>6</u> Maximum flow rate of treatment system <u>14</u> Design flow rate of treatment system <u>25</u>						
d) A description of chemical additives being used or planned to be used (attach MSDS sheets): Anti-foam emulsion (approved by EPA in letter dated 10/8/2002)						

5. Receiving surface water(s). Please provide information about the receiving water(s), using separate sheets as necessary:

a) Identify the discharge pathway:	Direct <u> </u>	Within facility <u> </u>	Storm drain ☒	River/brook <u> </u>	Wetlands <u> </u>	Other (describe):
b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters: System discharges to a catch basin in North Beacon St. which empties into a 36-inch storm sewer. Sewer runs west along North Beacon St (800 ft) prior to discharging to the Charles River.						
c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water: 1. For multiple discharges, number the discharges sequentially. 2. For indirect discharges, indicate the location of the discharge to the indirect conveyance and the discharge to surface water The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.						
d) Provide the state water quality classification of the receiving water <u>B</u> ,						
e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water <u>16</u> cfs Please attach any calculation sheets used to support stream flow and dilution calculations.						
f) Is the receiving water a listed 303(d) water quality impaired or limited water? Yes ☒ No <u> </u> If yes, for which pollutant(s)? *See below Is there a TMDL? Yes ☒ No <u> </u> If yes, for which pollutant(s)? Pathogens (draft)						

For the Charles River between the Watertown Dam (Watertown) and Science Museum (Boston), the following pollutants are listed as requiring a TMDL: unknown toxicity, priority organics, metals, nutrients, organic enrichment (low dissolved oxygen), pathogens, oil & grease, taste, odor & color, noxious aquatic plants, and turbidity.

6. Results of Consultation with Federal Services: Please provide the following information according to requirements of Part I.B.4 and Appendices II and VII.

a) Are any listed threatened or endangered species, or designated critical habitat, in proximity to the discharge? Yes ☐ No ☒ Has any consultation with the federal services been completed? No ☒ or is consultation underway? Yes ☐ No ☒ What were the results of the consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service (check one): a "no jeopardy" opinion? ☐ or written concurrence ☐ on a finding that the discharges are not likely to adversely affect any endangered species or critical habitat?
b) Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility or site or in proximity to the discharge? Yes ☐ No ☒ Have any state or tribal historic preservation officer been consulted in this determination (Massachusetts only)? Yes ☐ No ☒

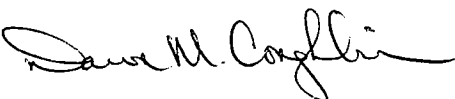
7. Supplemental information. :

Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit.

8. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following certification:

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 gather and evaluate 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, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Facility/Site Name: Hess Station #21526

Operator signature: 

Title: Manager, Refining and Marketing Remediation

Date: October 21, 2005

QUESTION 2 (D) FLOW DIAGRAM

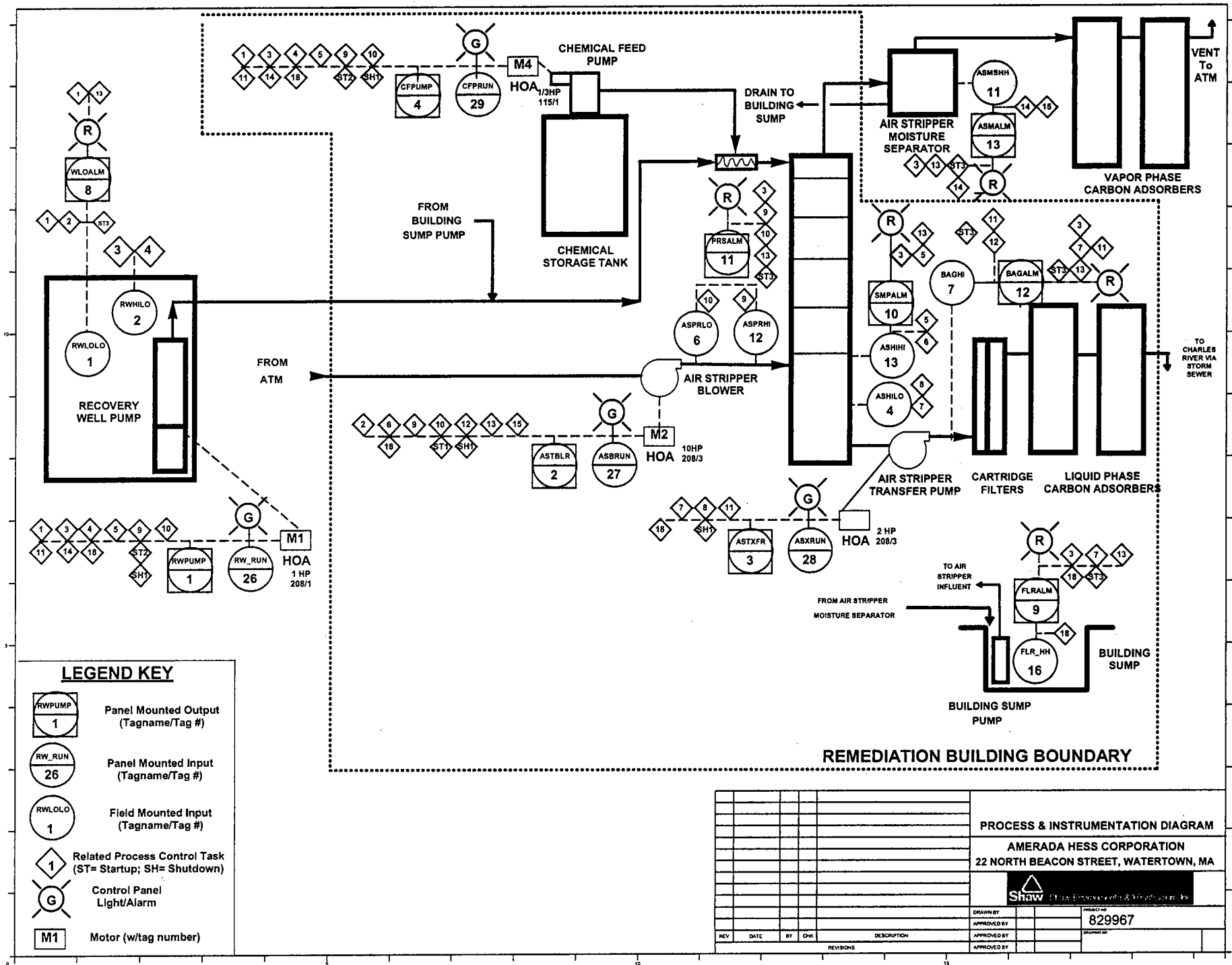
Amerada Hess Corporation

Station #21526, 22 North Beacon Street, Watertown, MA

Question 2 (d) requests a line diagram or flow schematic showing water flow through the facility including:

1. source of intake water;
2. contributing flow from the operation;
3. treatment units; and,
4. discharge points and receiving water(s)

The attached process and instrumentation diagram indicates that the contributing flow is from a groundwater recovery well and that the discharge is to the Charles River via storm sewer.



QUESTION 3B – OTHER PARAMETERS BELIEVED PRESENT

***Amerada Hess Corporation
Station #21526, 22 North Beacon Street, Watertown, MA***

Question 3b requests an indication of other parameters believed present in the system influent. Based on the sampling conducted on September 29, 2005, the following additional parameters were detected and believed present:

Parameter	Concentration (µg/l)
n-Butylbenzene	10.0
Isopropylbenzene	10.3
n-Propylbenzene	20.3
Tetrahydrofuran	57.9
1,2,4-Trimethylbenzene	331
1,3,5-Trimethylbenzene	49.3
2-Methylnaphthalene	3.4

The presence of these parameters is consistent with a GASOLINE ONLY site.

QUESTION 3C - DILUTION FACTOR ESTIMATION

Amerada Hess Corporation

Station #21526, 22 North Beacon Street, Watertown, MA

Question 3c of the *Notice of Intent for the General Remediation Permit* indicates that a dilution factor (DF) must be calculated for untreated influents that have metal concentrations that exceed the Appendix III effluent limitations. Iron is the only limitation that is clearly exceeded (i.e., maximum concentration [9,430 micrograms per liter {µg/l}] and effluent limitation [1,000 µg/l]). Only one sample has been analyzed for arsenic and the concentration was very close to the effluent limitation (i.e., 9.9 µg/l vs. 10 µg/l). For the following metals, the minimum level (ML) of the test method was above the effluent limitation: antimony, cadmium, copper, lead, nickel, selenium, and silver. The formula for calculating the DF in Massachusetts is:

$$DF = \frac{Q_d + Q_s}{Q_d}$$

where:

Q_d = Maximum flow rate of the discharge (cubic feet per second [cfs])

Q_s = Receiving water 7Q10 flow (cfs)

7Q10 = Minimum flow for 7 consecutive days with a recurrence interval of 10 years

The maximum flow rate of the discharge is 14 gpm or 0.032 cfs. The treatment system discharges to the Charles River. There is only limited flow data available for the Watertown Dam station (September 1999-September 2000), which is approximately 2,000 feet upstream of the storm sewer discharge. The station upstream at Waltham (USGS 01104500) has stream flow data for September 1931-September 2003. A comparison of the Waltham and the Watertown data for September 1999-September 2000 indicates that the flow at Watertown Dam is approximately 35 percent higher than at Waltham. The lowest seven-day flow over the past 10 years at Waltham is approximately 12 cubic feet per second (cfs) (September 10-16, 1995). Increasing this flow by 35 percent yields a 7Q10 for Watertown of 16 cfs.

Using a maximum discharge flow rate of 0.032 cfs and a receiving water 7Q10 of 16 cfs, the dilution factor is approximately 500. Based on Appendix IV for a DF of 500, the effluent limitations for the metals discussed above are:

Metal	Technology Based Effluent Limitation (µg/l)	Maximum Influent Concentration (µg/l)	Influent Concentration Source	Potential to Exceed Technology Based Effluent Limitation
Antimony	141	6	ML	No
Arsenic	540	9.9	Measured	No
Cadmium	20	4	ML	No

Metal	Technology Based Effluent Limitation (µg/l)	Maximum Influent Concentration (µg/l)	Influent Concentration Source	Potential to Exceed Technology Based Effluent Limitation
Copper	520	25	ML	No
Lead	132	5	ML	No
Nickel	2,380	40	ML	No
Selenium	408	10	ML	No
Silver	115	5	ML	No
Iron	5,000	9,430	Measured	Yes

Based on the dilution factor, iron is the only metal that has the potential to exceed the technology based effluent limitation.

QUESTION 4 (D) CHEMICAL ADDITIVES

Amerada Hess Corporation

Station #21526, 22 North Beacon Street, Watertown, MA

Question 4 (d) requests a MSDS for chemical additives being used or planned to be used. In the attached letter (dated 10/8/2002), the EPA granted Amerada Hess Corporation to add an anti-foam agent (Wacker Antifoam Emulsion SE21). The additive is not presently being added. The MSDS for SE21 is attached.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

October 8, 2002

Mr. Donald G. Bull
Project Hydrogeologist
Amerada Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

RE: NPDES Permit Exclusion #MA-02I-039
North Beacon and Arsenal Sts.
Watertown, MA

Dear Mr. Bull:

EPA-New England is in receipt of your letter of October 4, 2002 regarding foaming problems with treatment of groundwater authorized under the above referenced NPDES exclusion letter. Your consultant, Donald Busch of Shaw Environmental, contacted John Hackler of our NPDES Unit recently about this problem. Our normal procedure for approving chemical additives to enhance treatment is to request the Material Safety Data Sheets (MSDS) for the chemical(s) planned to be used to evaluate any adjustments in discharge requirements for the project. After reviewing the MSDS you provided for the WACKER Antifoam Emulsion SE21, it appears that no additional chemicals of concern are required to be limited or monitored in the effluent from the treatment system in Watertown, MA and EPA is hereby approving this additive for use at this site.

Should you have any questions, please contact John Hackler of the NPDES Unit at 617-918-1551. Thank you for contacting EPA regarding this project change.

Sincerely yours;

Roger Janson, Associate Director
Surface Water Programs

cc. Donald Busch, Shaw
Olga Vergara, EPA.

WACKER **SILICONES**

Material Safety Data Sheet

Material: 70702047 **SILFOAM® SE 21 FOOD GRADE**

Version: 1.13 (US)

Date of print: 10/12/2005

Date of last alteration: 09/20/2005

1 Product and company identification

1.1 Identification of the substance or preparation:

Commercial product name: SILFOAM® SE 21 FOOD GRADE
Product group: Antifoam Emulsion
Use of substance / preparation: Industrial.
Additive for: Lacquer

1.2 Company/undertaking identification:

Manufacturer/distributor: Wacker Chemical Corporation
3301 Sutton Road
Adrian, MI 49221-9397
USA

Customer information: Customer Care Center:
Tel (517) 264-8240, Fax (517) 264-8740
Hours of operation:
Monday - Friday, 8 am to 5 pm (eastern standard time)
Corporate website www.wackersilicones.com

Emergency telephone no. (24h): (517) 264-8500
Transportation emergency: (800) 424-9300 (CHEMTREC, USA)
(703) 527-3887 (CHEMTREC, international) (613) 996-6666
(CANUTEC, Canada)

This MSDS was prepared by the Regulatory Affairs and Product Safety Department (RAPS) of Wacker Chemical Corporation.

2 Composition/information on ingredients

2.1 Chemical characterization (preparation):

Chemical characteristics
Polydimethylsiloxane + filler, emulsion in water

2.2 Information on ingredients:

This material does not contain any OSHA or WHMIS reportable hazardous ingredients.

Substances listed in the Subsections "HAPS" and "California Proposition 65 Carcinogens / Reproductive Toxins" that are not listed in Section 2 are only present at quantities below 0.1% for California Proposition 65 listed toxins or below 1% for non-carcinogenic HAPS or they are inextricably bound in the product.

3 Hazards identification

3.1 Hazards classifications

HMIS® rating (product as packaged):

Health: 1 Fire: 0 Reactivity: 0 PPE: B

(HMIS codes are based on contact with the product as packaged and any hydrolysis by-products, if present.) Hazardous Materials Identification System and HMIS are registered trademarks of the National Paint and Coatings Association.

Canadian WHMIS Classification: None.

3.2 Emergency overview and potential hazards

This material is not hazardous under OSHA criteria. This material is not hazardous under WHMIS criteria.

Physical Hazards:

No known physical hazards.

Material Safety Data SheetMaterial: 70702047 **SILFOAM® SE 21 FOOD GRADE**

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Acute health effects**Route of entry or possible contact:**

eyes , skin , inhalation (aerosol) .

Eye contact:

May cause slight transient eye irritation.

Skin contact:

May cause skin irritation.

Inhalation:

No known respiratory hazards.

Ingestion:

May cause stomach irritation, pain and nausea.

Additional information on acute health effects:

Ingestion is not expected during industrial use. This material contains less than 0.1% Formaldehyde as a preservative, under normal conditions of use exposure to Formaldehyde in excess of currently accepted limits is not expected. Contains a known sensitizer at levels between 0.1% and 1%, some sensitive individuals may experience allergic skin and/or respiratory reactions on prolonged or repeated contact.

3.3 Further information:**Chronic health effects:**

May cause an allergic skin reaction.

Medical conditions which may be aggravated by exposure:

none known .

Target organs affected:

No known internal organ effects.

Signs and Symptoms of Exposure:

Refer to Acute Health Effects, listed above.

Carcinogens/Reproductive toxins:

There are no carcinogenic ingredients present at or over 0.1% in this material. This material does not contain any reproductive toxins at or above OSHA or WHMIS reportable levels.

See Section 11 for Toxicological Information, if any.

4 First-aid measures**4.1 General information:**

Get medical attention if irritation occurs or if breathing becomes difficult. Remove contaminated clothing and shoes.

4.2 After inhalation:

If inhaled remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult give oxygen.

4.3 After contact with the skin:

For skin contact, immediately wipe away excess material. Use a waterless hand cleaner to remove as much of the remaining material as possible. Wash with soap and water.

4.4 After contact with the eyes:

If contact with eyes, immediately hold eyelids apart and flush with plenty of water for at least 15 min.

4.5 After swallowing:

For ingestion, if conscious, give several glasses of water but do not induce vomiting. If vomiting does occur, give additional fluids.

4.6 Advice for the physician:

Treat symptomatically.

5 Fire-fighting measures**5.1 Flammable properties:****Method**

Flash point.....: not applicable
Boiling point / boiling range.....: 100.00 °C (212 °F)
Lower explosion limit (LEL).....: not determined
Upper explosion limit (UEL).....: not determined
Ignition temperature: not determined

5.2 Fire and explosion hazards:

Material does not burn. This material does not present any unusual fire or explosion hazards.

Material Safety Data Sheet

Material: 70702047 **SILFOAM® SE 21 FOOD GRADE****Version:** 1.13 (US)**Date of print:** 10/12/2005**Date of last alteration:** 09/20/2005

5.3 Recommended extinguishing media:

AFFF alcohol compatible foam. Carbon dioxide. Dry chemical. Water - Use Fine Spray or Fog.
Water may be used to cool tanks and structures adjacent to the fire.

5.4 Unsuitable extinguishing media:

None.

5.5 Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases:

Hazardous decomposition products: Various hydrocarbon fragments , carbon dioxide , formaldehyde , carbon monoxide , silicon dioxide .

5.6 Fire fighting procedures:

Full turn-out gear and Self Contained Breathing Apparatus (SCBA) should be worn when fighting large fires.

6 Accidental release measures

6.1 Precautions:

If material is released indicate risk of slipping.

HAZWOPER PPE Level: D

6.2 Containment:

Prevent material from entering surface waters, drains or sewers and soil. Contain any fluid that runs out using suitable material (e.g. earth).

Spills of material which could reach surface waters must be reported to the United States Coast Guard National Response Center's toll free phone number (800) 424-8802.

6.3 Methods for cleaning up:

Take up mechanically and dispose of according to local/state/federal regulations. For small amounts: Absorb with a liquid binding material such as diatomaceous earth and dispose of according to local/state/federal regulations. Contain larger amounts and pump up into suitable containers. Clean any slippery coating that remains using a detergent / soap solution or another biodegradable cleaner.

7 Handling and storage

7.0 General information:

Stir well before use.

7.1 Handling

Precautions for safe handling:

Spilled substance increases risk of slipping.

Precautions against fire and explosion:

No special precautions against fire and explosion required.

7.2 Storage

Conditions for storage rooms and vessels:

Protect against frost.

Advice for storage of incompatible materials:

not applicable

Further information for storage:

Protect against sun.

Minimum temperature allowed during storage and transportation: 0 °C (32 °F)

Do not allow this material to freeze.

Maximum temperature allowed during storage and transportation: 32 °C (89 °F)

Temperature limit to maintain product quality.

8 Exposure controls and personal protection

8.1 Engineering controls

Ventilation:

No special ventilation required.

Local exhaust:

No special ventilation required.

Material Safety Data Sheet**Material:** 70702047 **SILFOAM® SE 21 FOOD GRADE****Version:** 1.13 (US)**Date of print:** 10/12/2005**Date of last alteration:** 09/20/2005

8.2 Associate substances with specific control parameters such as limit values
none known

8.3 Personal protection equipment (PPE)

Respiratory protection:

Respiratory protection is not normally required.

Hand protection:

Any liquid-tight rubber or vinyl gloves.

Eye protection:

Safety glasses with side shields or chemical safety goggles.

Other protective clothing or equipment:

Additional protective clothing or equipment is not normally required. Provide eye bath and safety shower.

8.4 General hygiene and protection measures:

Wash thoroughly after handling. Avoid contact with eyes, skin and clothing.

9 Physical and chemical properties

9.1 Appearance

Physical state / form.....: liquid

Colour.....: white

Odour.....: characteristic

9.2 Safety parameters

Method

Melting point / melting range.....: not applicable

Boiling point / boiling range.....: 100.00 °C (212 °F)

Flash point.....: not applicable

Ignition temperature: not determined

Lower explosion limit (LEL).....: not determined

Upper explosion limit (UEL).....: not determined

Vapour pressure.....: 22.664740 hPa

(Estimated
Value)

Density.....: 1.02 g/cm³

Water solubility / miscibility.....: completely miscible

pH-Value.....: not determined

Viscosity (dynamic).....: not determined

9.3 Further information

Percent Volatiles: 83 %

VOC: 1.275 g/l

(calculated
value)

10 Stability and reactivity

10.0 General information:

If stored and handled in accordance with standard industrial practices no hazardous reactions are known.

10.1 Conditions to avoid:

none known

10.2 Materials to avoid:

none known

10.3 Hazardous decomposition products:

If stored and handled in accordance with standard industrial practices and local regulations where applicable: none known. The following applies for the silicone content of the substance: Measurements have shown the formation of small amounts of formaldehyde at temperatures above about 150 °C (302 °F) through oxidation.

10.4 Further information:

Hazardous polymerization cannot occur.

11 Toxicological information

11.1 General information:

Toxicological testing has not been conducted with this material.

WACKER **SILICONES**

Material Safety Data Sheet

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11.2 Toxicological data:

Experience with man:

-

12 Ecological information

12.1 Information on elimination (persistence and degradability)

Biodegradation / further information:

Silicone content: Biologically not degradable.

Further information:

Silicone content: Elimination by adsorption to activated sludge.

12.2 Behaviour in environmental compartments

Mobility

-

Further information:

Bioaccumulation is not expected to occur.

12.3 Ecotoxicological effects:

According to past experience toxicity to fish is improbable.

Effects in sewage treatment plants (bacteria toxicity: respiration-/reproduction inhibition):

According to current knowledge adverse effects on water purification plants are not expected.

12.4 Additional information

BOD5-Value: 20 MG/G mg O2/g Substance

COD-Value: 280 MG/G mg O2/g Substance

Other harmful effects

-

General information:

No environmental problems expected if handled and treated in accordance with standard industrial practices and local regulations where applicable.

13 Disposal considerations

13.1 Product disposal

Recommendation:

Dispose of according to regulations by incineration in a special waste incinerator. Observe local/state/federal regulations.

13.2 Packaging disposal

Recommendation:

Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local/state/federal regulations.

14 Transport information

14.1 US DOT & CANADA TDG SURFACE

Valuation.....: Not regulated for transport

Other Information.....: Protect from freezing. Temperature Sensitive Material.

Corrosive to Steel or Aluminum: Not corrosive to steel or aluminum.

14.2 Transport by sea IMDG-Code

Valuation.....: Not regulated for transport

14.3 Air transport ICAO-TI/IATA-DGR

Valuation.....: Not regulated for transport

WACKER SILICONES

Material Safety Data Sheet

Material: 70702047 SILFOAM® SE 21 FOOD GRADE

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Date of last alteration: 09/20/2005

15 Regulatory information

15.1 U.S. Federal regulations

TSCA inventory status and TSCA information:

This material or its components are listed on or are in compliance with the requirements of the TSCA Chemical Substance Inventory.

TSCA 12(b) Export Notification:

This material does not contain any TSCA 12(b) regulated chemicals.

CERCLA Regulated Chemicals:

This material does not contain any CERCLA regulated chemicals.

SARA 302 EHS Chemicals:

CAS No.	Chemical	RQ	TPQ
50-00-0	Formaldehyde	100 LB	500 LB

SARA 311/312 Hazard Class:

This product does not present any SARA 311/312 hazards.

SARA 313 Chemicals:

This material does not contain any SARA 313 chemicals above de minimus levels.

HAPS (Hazardous Air Pollutants):

50-00-0	Formaldehyde
67-56-1	Methanol
75-21-8	Ethylene oxide
123-91-1	1,4-Dioxane
75-07-0	Acetaldehyde

15.2 U.S. State regulations

California Proposition 65 Carcinogens:

50-00-0	Formaldehyde
75-21-8	Ethylene oxide
123-91-1	1,4-Dioxane
75-07-0	Acetaldehyde

California Proposition 65 Reproductive Toxins:

75-21-8	Ethylene oxide
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Massachusetts Substance List:

112926-00-8	Amorphous precipitated Silica
-------------	-------------------------------

New Jersey Right-to-Know Hazardous Substance List:

This material contains no listed components.

Pennsylvania Right-to-Know Hazardous Substance List:

112926-00-8	Amorphous precipitated Silica
-------------	-------------------------------

15.3 Canadian regulations

This product has been classified in accordance with the Hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS Hazard Classes:

None.

DSL Status:

This material or its components are listed on the Canadian Domestic Substances List.

Non-DSL Chemicals:

This material does not contain any non-DSL chemicals.

Canadian Ingredient Disclosure List:

9004-99-3	Stearylalcohol polyglycolether
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15.4 Other international regulations

Material Safety Data Sheet

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Version: 1.13 (US)

Date of print: 10/12/2005

Date of last alteration: 09/20/2005

EU Risk Phrases:

R-Phrase	Description
R-	-

EU Safety Phrases:

S-Phrase	Description
S-	-

Details of international registration status

Listed on the following inventories:

IECSC - China
EINECS - Europe
PICCS - Philippines
ENCS - Japan
ECL - Korea
AICS - Australia

16 Other information**16.1 Additional information:**

This Material Safety Data Sheet (MSDS) meets the requirements of the Federal OSHA Hazard Communication Standard (29 CFR 1910.1200). This product has been classified according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR. This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief accurate and reliable as of the date compiled. However, no representation, warranty or guarantee expressed or implied, is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information. Nothing herein shall be construed as a recommendation for uses which infringe valid patents or as extending a license under valid patents. This MSDS provides selected regulatory information on this product, including its components. This is not intended to include all regulations. It is the responsibility of the user to know and comply with all applicable rules, regulations and laws relating to the product being used.

16.2 Glossary of Terms:

ACGIH - American Conference of Governmental
Industrial Hygienists
DOT - Department of Transportation
hPa - Hectopascals
mPa*s - Milli Pascal-Seconds
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limit

Flash point determination methods

ASTM D56
ASTM D92, DIN 51376, ISO 2592
ASTM D93, DIN 51758, ISO 2719
ASTM D3278, DIN 55680, ISO 3679
DIN 51755

ppm - Parts per Million
SARA - Superfund Amendments and Reauthorization Act
STEL - Short Term Exposure Limit
TSCA - Toxic Substances Control Act
TWA - Time Weighted Average
WHMIS - Canadian Workplace Hazardous Materials
Identification System

Common name

Tagliabue (Tag) closed cup
Cleveland open cup
Pensky-Martens closed cup
Setaflash or Rapid closed cup
Abel-Pensky closed cup

16.3 Conversion table:

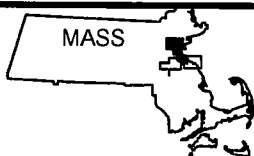
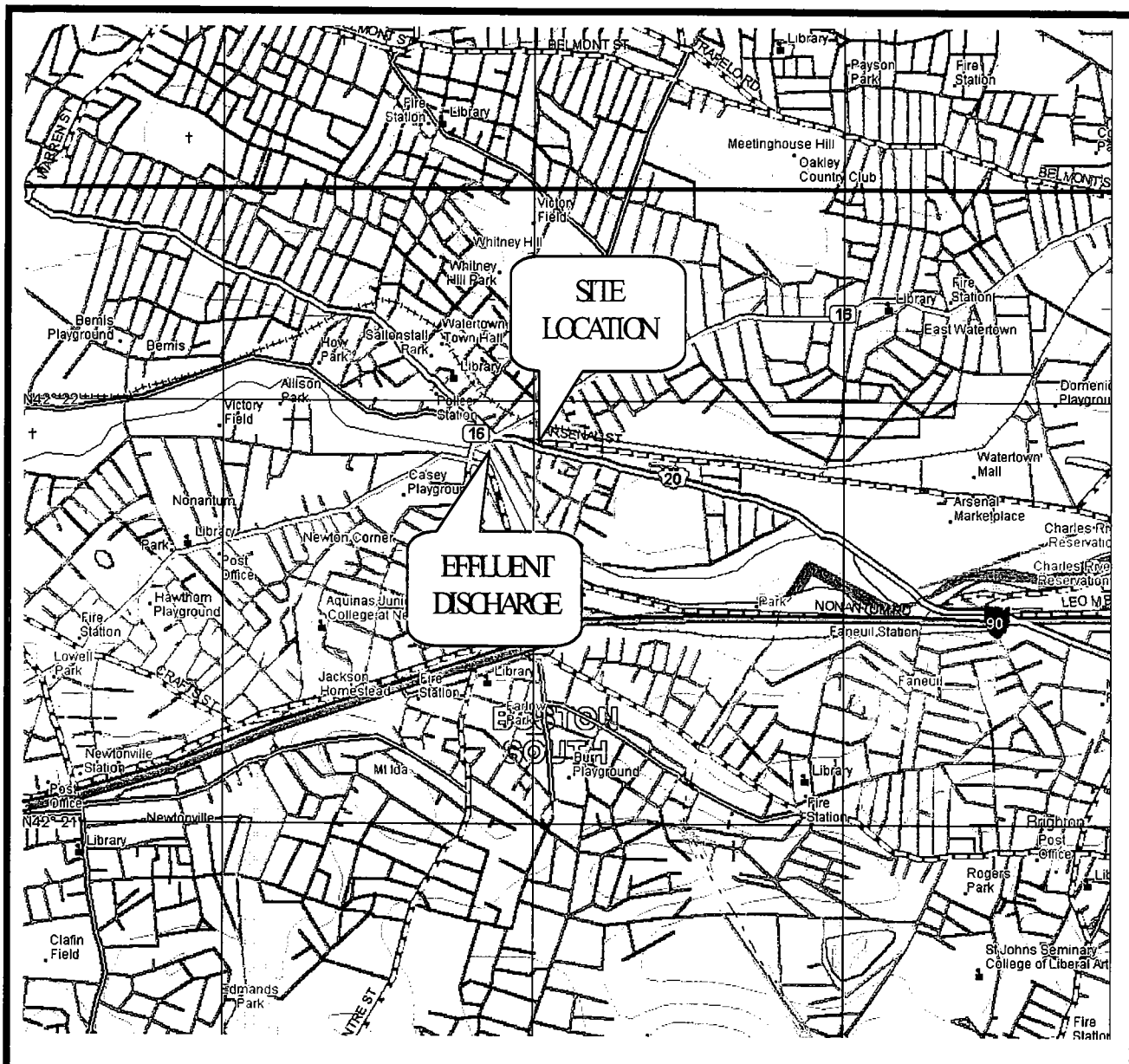
Pressure: 1 hPa * 0.75 = 1 mm Hg = 1 Torr; 1 bar = 1000 hPa
Viscosity: 1 mPa*s = 1 Centipoise (Cp)

QUESTION 5 (C) SITE LOCATION MAP

Amerada Hess Corporation

Station #21526, 22 North Beacon Street, Watertown, MA

Question 5(c) requests a detailed map indicating the site location and location of the outfall to the receiving stream. The map is to include nearby sensitive receptors (e.g., surface waters, drinking water supplies, and wetland areas). The attached site location map shows the location of the site and the outfall. The attached DEP Priority Resource Map shows that there are no drinking water supplies or wetland areas near the site.



Base maps from USGS 7.5 x 15' Quad Maps:
Boston South (1991), Massachusetts

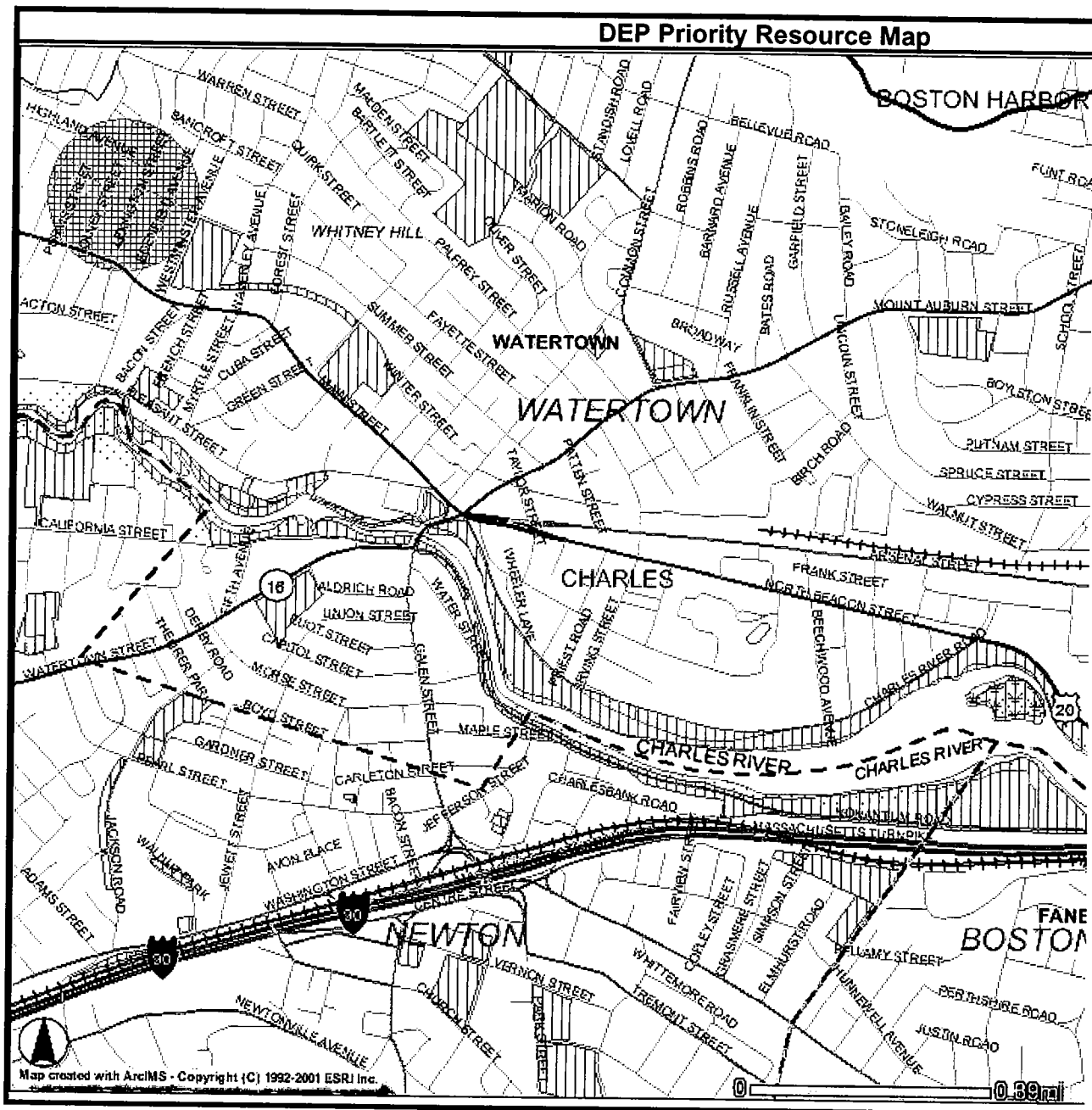
0 0.5 1.0
SCALE IN MILES



DATE 6/19/01
DWN des
APP
REV
PROJECT #829967

HESS STATION #21526
22 NORTH BEACON STREET
WATERTOWN, MASSACHUSETTS

SITE LOCATION MAP



DEP MCP 21e Map Legend

 Zone IIs	 Public Water Supplies	 WATER	 EOT-OTP Roads
 IWPAs	 COMMUNITY PUBLIC WATER SUPPLY - GROUNDWATER	 RESERVOIR	 LIMITED ACCESS HIGHWAY
 Zone A	 COMMUNITY PUBLIC WATER SUPPLY - SURFACE WATER	 WETLANDS	 MULTILANE HWY, NOT LIMITED ACCESS
 Sole Source Aquifers	 NON COMMUNITY PUBLIC WATER SUPPLY	 SALTWATER WETLANDS	 OTHER NUMBERED HWY
 Solid Waste Sites	 Aquifers, By Yield	 FLATS/SHOALS	 MAJOR ROAD - COLLECT
 Protected Openspace	 HIGH YIELD	 RIVERS AND STREAMS	 MINOR STREET OR ROAD RAMP
 ACECs	 MEDIUM YIELD	 PERENNIAL	 TRACKS AND TRAILS MHD
 NHESP Estimated Habitat of Rare Wildlife in Wetland Areas	 Non Potential Drinking Water Source Area	 INTERMITTENT	 TRACK
 Certified Vernal Pools 2003 NHESP	 HIGH YIELD	 SHORELINE	 TRAIL
 Subbasins	 MEDIUM YIELD	 MAN MADE SHORE	 TRANSMISSION LINES
 Mass Major Basins	 FEMA Floodplains	 DAM	 PIPELINE
 DEP Region	 100 YEAR FLOODPLAIN	 AQUEDUCT	 POWERLINE
 Town Area			 TRAIN
 County Boundaries			



QUESTION 6 - CONSULTATION WITH FEDERAL SERVICES

Amerada Hess Corporation
Station #21526, 22 North Beacon Street, Watertown, MA

With regards to the area in the proximity of the facility or the discharge, Question 6 requests information concerning the presence of:

1. Threatened or endangered species;
2. Designated critical habitats;
3. Historic properties listed or eligible for listing on the National Register of Historic Places

The facility and discharge are located in Watertown, Middlesex County, Massachusetts.

Threatened & Endangered Species

Appendix VII of the Remediation General Permit indicates that there are four species of concern to facilities seeking coverage for permit coverage, namely the shortnose sturgeon (*acipenser brevirostrum*), the bog turtle (*clemmys mulenbergii*), the dwarf wedge mussel (*alasmidonta heterodon*), and the northern redbelly cooter (*pseudemys rubriventris*). The Massachusetts Division of Fisheries and Wildlife (MDFW) provides rare species lists by county and town. Although there are threatened and endangered species within Middlesex County, the four species of concern are not listed (<http://www.mass.gov/dfwele/dfw/nhesp/midd.htm>). In addition, no threatened or endangered species are listed in the City of Watertown (<http://www.mass.gov/dfwele/dfw/nhesp/townw.htm>). A printout of the listings is attached.

Designated Critical Habitats

Per 50 CFR §17.94 (critical habitat – fish and wildlife) and §17.95 (plants), Massachusetts has only one critical habitat. This critical habitat is in Plymouth County for the Plymouth Red-Bellied Turtle. Therefore, the Hess facility and discharge are not located in the proximity of any critical habitats.

Since there are no threatened species, endangered species, or critical habitats in the proximity to the point where the authorized discharge reaches the receiving stream, the facility meets Criterion A and the Endangered Species Act (ESA) eligibility provisions of the general permit. Therefore, no consultation is required with the United States Fish & Wildlife Service.

Historical Properties

The National Park Service maintains an electronic listing of "National Register of Historic Places" (<http://www.nr.nps.gov/nrloc1.htm>). Six sites are listed in the City of Watertown: Commanding Officer's Quarters at the Watertown Arsenal, Edmund Fowle House, Miles Pratt House, Abraham Browne House, Watertown Arsenal Historic District, and Town Diner. A printout of the list is attached. The attached maps indicate that these historic sites are not located along the path of the system discharge line.

click on your browser's Back'butt on to return to previous page

Rare Species by County: Middlesex

Last Updated on 3/1/2003

Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank	Most Recent Obs
Fish	Notropis bifrenatus	Bridle Shiner	SC		1996
Amphibian	Ambystoma jeffersonianum	Jefferson Salamander	SC		1912
Amphibian	Ambystoma laterale	Blue-Spotted Salamander	SC		2001
Amphibian	Ambystoma opacum	Marbled Salamander	T		2000
Amphibian	Hemidactylium scutatum	Four-Toed Salamander	SC		2000
Amphibian	Scaphiopus holbrookii	Eastern Spadefoot	T		1892
Reptile	Clemmys guttata	Spotted Turtle	SC		2001
Reptile	Clemmys insculpta	Wood Turtle	SC		2000
Reptile	Emydoidea blandingii	Blanding's Turtle	T		2001
Reptile	Terrapene carolina	Eastern Box Turtle	SC		1999
Bird	Accipiter striatus	Sharp-Shinned Hawk	SC	(PS)	1936
Bird	Ammodramus henslowii	Henslow's Sparrow	E		1994
Bird	Ammodramus savannarum	Grasshopper Sparrow	T	(PS)	1994
Bird	Bartramia longicauda	Upland Sandpiper	E		1993
Bird	Botaurus lentiginosus	American Bittern	E		2001
Bird	Circus cyaneus	Northern Harrier	T		1879
Bird	Cistothorus platensis	Sedge Wren	E		1993
Bird	Gallinula chloropus	Common Moorhen	SC	(PS)	1992
Bird	Gavia immer	Common Loon	SC		2000
Bird	Ixobrychus exilis	Least Bittern	E		1995
Bird	Podilymbus podiceps	Pied-Billed Grebe	E		1948
Bird	Rallus elegans	King Rail	T		1988

Bird	Tyto alba	Barn Owl	SC		1973
Bird	Vermivora chrysoptera	Golden-Winged Warbler	E		1982
Mammal	Synaptomys cooperi	Southern Bog Lemming	SC		1976
Segmented Worm	Macrobdella sesteria	New England Medicinal Leech	SC		18--
Mussel	Alasmidonta undulata	Triangle Floater	SC		2002
Mussel	Alasmidonta varicosa	Brook Floater (Swollen Wedgemussel)	E		1997
Mussel	Ligumia nasuta	Eastern Pondmussel	SC		2000
Mussel	Strophitus undulatus	Creeper	SC		2002
Mussel	Valvata sincera	Boreal Turret Snail	E		1977
Crustacean	Crangonyx aberrans	Mystic Valley Amphipod	SC		2001
Crustacean	Eubrachyus intricatus	Intricate Fairy Shrimp	SC		1998
Dragonfly/Damselfly	Aeshna mutata	Spatterdock Darner	E		1998
Dragonfly/Damselfly	Enallagma laterale	New England Bluet	SC		1967
Dragonfly/Damselfly	Gomphus abbreviatus	Spine-Crowned Clubtail	E		1904
Dragonfly/Damselfly	Gomphus borealis	Beaverpond Clubtail	SC		1918
Dragonfly/Damselfly	Gomphus desertus	Harpoon Clubtail	E		1940
Dragonfly/Damselfly	Gomphus vastus	Cobra Clubtail	SC		1917
Dragonfly/Damselfly	Neurocordulia obsoleta	Umber Shadowdragon	SC		1997
Dragonfly/Damselfly	Ophiogomphus aspersus	Brook Snaketail	SC		1999
Dragonfly/Damselfly	Somatochlora forcipata		SC		2001
Dragonfly/Damselfly	Somatochlora georgiana	Coppery Emerald	E		1997
Dragonfly/Damselfly	Somatochlora kennedyi	Kennedy's Emerald	E		1939
Dragonfly/Damselfly	Somatochlora linearis	Mocha Emerald	SC		1999
Dragonfly/Damselfly	Stylurus scuderi	Zebra Clubtail	E		1997
Beetle	Cicindela duodecimguttata	Twelve-Spotted Tiger Beetle	SC		1935

Beetle	<i>Cicindela purpurea</i>	Purple Tiger Beetle	SC		1986
Beetle	<i>Cicindela rufigiventris hentzii</i>	Hentz's Redbelly Tiger Beetle	T		1989
Beetle	<i>Desmocerus palliatus</i>	Elderberry Long-Horned Beetle	SC		1997
Butterfly/Moth	<i>Acronicta albarufa</i>	Barrens Daggermoth	T		1934
Butterfly/Moth	<i>Apodrepanulatrix liberaria</i>	New Jersey Tea Inchworm	E		1934
Butterfly/Moth	<i>Bagisara rectifascia</i>	Straight Lined Mallow Moth	SC		1878
Butterfly/Moth	<i>Calophrys hesseli</i>	Hessel's Hairstreak	SC		1996
Butterfly/Moth	<i>Cicinnus melsheimeri</i>	Melsheimer's Sack Bearer	T		
Butterfly/Moth	<i>Cingilia catenaria</i>	Chain Dot Geometer	SC		1930
Butterfly/Moth	<i>Eacles imperialis</i>	Imperial Moth	T		1934
Butterfly/Moth	<i>Erynnis persius persius</i>	Persius Duskywing	E		1975
Butterfly/Moth	<i>Hemileuca maia</i>	Barrens Buckmoth	SC		1919
Butterfly/Moth	<i>Lithophane viridipallens</i>	Pale Green Pinion Moth	SC		1934
Butterfly/Moth	<i>Metarranthis apiciaria</i>	Barrens Metarranthis Moth	E		1934
Butterfly/Moth	<i>Pieris oleracea</i>	Eastern Veined White	T		1934
Butterfly/Moth	<i>Rhodocia aurantiago</i>	A Noctuid Moth	T		1988
Butterfly/Moth	<i>Satyrion favonius</i>	Oak Hairstreak	SC		1990
Vascular Plant	<i>Adlumia fungosa</i>	Climbing Fumitory	T		2000
Vascular Plant	<i>Agrimonia pubescens</i>	Hairy Agrimony	T		1986
Vascular Plant	<i>Amelanchier sanguinea</i>	Roundleaf Shadbush	SC		1905
Vascular Plant	<i>Arabis missouriensis</i>	Green Rock-Cress	T		2000
Vascular Plant	<i>Arceuthobium pusillum</i>	Dwarf Mistletoe	SC		1990
Vascular Plant	<i>Aristida purpurascens</i>	Purple Needlegrass	T		1913
Vascular Plant	<i>Aristida tuberculosa</i>	Seabeach Needlegrass	T		1882
Vascular Plant	<i>Asclepias purpurascens</i>	Purple Milkweed	E		1943

Vascular Plant	<i>Asclepias verticillata</i>	Linear-Leaved Milkweed	T		1999
Vascular Plant	<i>Blephilia ciliata</i>	Downy Wood-Mint	E		1881
Vascular Plant	<i>Bolboschoenus fluviatilis</i>	River Bulrush	SC		2001
Vascular Plant	<i>Calamagrostis pickeringii</i>	Reed Bentgrass	E		1899
Vascular Plant	<i>Calystegia spithamea</i>	Low Bindweed	E		1999
Vascular Plant	<i>Carex bushii</i>	Bush's Sedge	E		1913
Vascular Plant	<i>Carex glaucoidea</i>	Glaucous Sedge	E		
Vascular Plant	<i>Carex gracilescens</i>	Slender Woodland Sedge	E		1932
Vascular Plant	<i>Carex lenticularis</i>	Shore Sedge	T		1882
Vascular Plant	<i>Carex oligosperma</i>	Few-Fruited Sedge	E		1992
Vascular Plant	<i>Carex polymorpha</i>	Variable Sedge	E		2000
Vascular Plant	<i>Carex recta</i>	Saline Sedge	E		1887
Vascular Plant	<i>Carex tetanica</i>	Fen Sedge	SC		1902
Vascular Plant	<i>Carex trichocarpa</i>	Hairy-Fruited Sedge	T		1885
Vascular Plant	<i>Clematis occidentalis</i>	Purple Clematis	SC		1904
Vascular Plant	<i>Cyperus engelmannii</i>	Engelmann's Umbrella-Sedge	T		2000
Vascular Plant	<i>Cyperus houghtonii</i>	Houghton's Flatsedge	E		1991
Vascular Plant	<i>Deschampsia cespitosa</i> ssp. <i>glauca</i>	Tufted Hairgrass	E		1882
Vascular Plant	<i>Dichanthelium mattamuskeetense</i>	Mattamuskeet Panic-Grass	E		1892
Vascular Plant	<i>Doellingeria infirma</i>	Cornel-Leaved Aster	E		2000
Vascular Plant	<i>Elymus villosus</i>	Hairy Wild Rye	E		1882
Vascular Plant	<i>Eriophorum gracile</i>	Slender Cottongrass	T		1913
Vascular Plant	<i>Eupatorium aromaticum</i>	Lesser Snakeroot	E		1986
Vascular Plant	<i>Galium boreale</i>	Northern Bedstraw	E		1906
Vascular Plant	<i>Gentiana andrewsii</i>	Andrews' Bottle Gentian	E		1917
Vascular Plant	<i>Houstonia longifolia</i> var. <i>longifolia</i>	Long-Leaved Bluet	E		2001

Vascular Plant	<i>Hypericum ascyron</i>	Giant St. John's-Wort	E		
Vascular Plant	<i>Isoetes lacustris</i>	Lake Quillwort	E		2001
Vascular Plant	<i>Liatris borealis</i>	New England Blazing Star	SC		2001
Vascular Plant	<i>Linum medium</i> var <i>texanum</i>	Rigid Flax	T		1961
Vascular Plant	<i>Lipocarpus micrantha</i>		T		1999
Vascular Plant	<i>Listera cordata</i>	Heartleaf Twayblade	E		1897
Vascular Plant	<i>Ludwigia polycarpa</i>	Many-Fruited False-Loosestrife	E		1986
Vascular Plant	<i>Ludwigia sphaerocarpa</i>	Round-Fruited False-Loosestrife	E		1908
Vascular Plant	<i>Lygodium palmatum</i>	Climbing Fern	SC		2000
Vascular Plant	<i>Mimulus moschatus</i>	Muskflower	E		1913
Vascular Plant	<i>Myriophyllum alterniflorum</i>	Alternate-Flowered Water-Milfoil	T		1903
Vascular Plant	<i>Nuphar microphylla</i>	Tiny Cow-Lily	E		1925
Vascular Plant	<i>Ophioglossum pusillum</i>	Adder's-Tongue Fern	T		1913
Vascular Plant	<i>Oxalis violacea</i>	Violet Wood-Sorrel	E		1999
Vascular Plant	<i>Panicum philadelphicum</i>	Philadelphia Panic-Grass	SC		1992
Vascular Plant	<i>Platanthera dilatata</i>	Leafy White Orchis	T		190-
Vascular Plant	<i>Platanthera flava</i> var <i>herbiola</i>	Pale Green Orchis	T		1921
Vascular Plant	<i>Podostemum ceratophyllum</i>	Threadfoot	SC		2001
Vascular Plant	<i>Potamogeton friesii</i>	Fries' Pondweed	E		1880
Vascular Plant	<i>Potamogeton vaseyi</i>	A Pondweed	E		2001
Vascular Plant	<i>Prenanthes serpentina</i>	Lion's Foot	E		1946
Vascular Plant	<i>Pycnanthemum clinopodioides</i>	Basil Mountain-Mint	E		1886
Vascular Plant	<i>Ranunculus micranthus</i>	Tiny-Flowered Buttercup	E		1982
Vascular Plant	<i>Rotala ramosior</i>	Toothcup	E		2001
Vascular Plant	<i>Sagittaria calycina</i>	Estuary Arrowhead	E		1876

	var <i>spongiosa</i>				
Vascular Plant	<i>Sagittaria teres</i>	Terete Arrowhead	SC		1894
Vascular Plant	<i>Scheuchzeria palustris</i>	Pod-Grass	E		1999
Vascular Plant	<i>Scirpus longii</i>	Long's Bulrush	T		2001
Vascular Plant	<i>Scleria triglomerata</i>	Tall Nut-Sedge	E		1920
Vascular Plant	<i>Senna hebecarpa</i>	Wild Senna	E		2000
Vascular Plant	<i>Sparganium natans</i>	Small Bur-Reed	E		1996
Vascular Plant	<i>Sphenopholis nitida</i>	Shining Wedgegrass	T		1915
Vascular Plant	<i>Sphenopholis pensylvanica</i>	Swamp Oats	T		1961
Vascular Plant	<i>Spiranthes vernalis</i>	Grass-Leaved Ladies'-Tresses	T		1991
Vascular Plant	<i>Suaeda calceoliformis</i>	American Sea-Blite	SC		1912
Vascular Plant	<i>Trisetum triflorum</i> ssp <i>molle</i>	Spiked False Oats	E		1888
Vascular Plant	<i>Viola adunca</i>	Sand Violet	E		1914
Vascular Plant	<i>Viola brittoniana</i>	Britton's Violet	T		2000

click on your browser's 'Back' button to return to previous page

Rare Species by Town: W

Last Updated on 3/1/2003

The 'Most Recent Obs' field represents the most recent observation of a species in a town. An asterisk (*) indicates that the species was most recently observed within the past 25 years. However, many rare species are difficult to detect even though they are present, and Natural Heritage does not conduct methodical species surveys in each town on a consistent basis. Therefore, the fact that the 'Most Recent Obs' for a species may be several years old should not lead to the interpretation that the species no longer occurs in a town.

Only those rare species records that are less than 25 years old are used in Natural Heritage project review associated with the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00) and the Massachusetts Endangered Species Act Regulations (321 CMR 10.00).

Click on a town below to view state listed species for that town. To print the species for a particular town, highlight the species using your mouse, go to Print under the File Menu, click on 'Selection' under 'Print Range' and click OK.

Wakefield	Washington	West Boylston	Westfield	Whately	Windsor
Wales	Watertown	West Bridgewater	Westford	Whitman	Winthrop
Walpole	Wayland	West Brookfield	Westhampton	Wilbraham	Woburn
Waltham	Webster	West Newbury	Westminster	Williamsburg	Worcester
Ware	Wellesley	West Springfield	Weston	Williamstown	Worthington
Wareham	Wellfleet	West Stockbridge	Westport	Wilmington	Wrentham
Warren	Wendell	West Tisbury	Westwood	Winchendon	
Warwick	Wenham	Westborough	Weymouth	Winchester	

Town	Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank
WAKEFIELD	* Amphibian	Ambystoma laterale	Blue-Spotted Salamander	SC	
WAKEFIELD	Amphibian	Ambystoma opacum	Marbled Salamander	T	
WAKEFIELD	* Bird	Gallinula chloropus	Common Moorhen	SC	(PS)
WAKEFIELD	Bird	Ixobrychus exilis	Least Bittern	E	
WAKEFIELD	* Bird	Rallus elegans	King Rail	T	
		Cicindela	Hentz's		

WAKEFIELD	Beetle	rufiventris hentzii	Redbelly Tiger Beetle	T	
WAKEFIELD	Vascular Plant	Eriophorum gracile	Slender Cottongrass	T	
WAKEFIELD	Vascular Plant	Houstonia longifolia var longifolia	Long-Leaved Bluet	E	
Town	Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank
WALES	* Amphibian	Ambystoma laterale	Blue-Spotted Salamander	SC	
WALES	* Amphibian	Ambystoma opacum	Marbled Salamander	T	
WALES	* Amphibian	Hemidactylium scutatum	Four-Toed Salamander	SC	
WALES	* Reptile	Clemmys guttata	Spotted Turtle	SC	
WALES	* Reptile	Clemmys insculpta	Wood Turtle	SC	
WALES	* Reptile	Terrapene carolina	Eastern Box Turtle	SC	
WALES	Vascular Plant	Veronicastrum virginicum	Culver's-Root	T	
Town	Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank
WALPOLE	* Amphibian	Ambystoma laterale	Blue-Spotted Salamander	SC	
WALPOLE	* Reptile	Clemmys guttata	Spotted Turtle	SC	
WALPOLE	* Butterfly/Moth	Callophrys hesseli	Hessel's Hairstreak	SC	
WALPOLE	Butterfly/Moth	Erynnis persius persius	Persius Duskywing	E	
WALPOLE	Vascular Plant	Ophioglossum pusillum	Adder's-Tongue Fern	T	
WALPOLE	Vascular Plant	Rhododendron maximum	Great Laurel	T	

Town	Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank
WALTHAM	Amphibian	Ambystoma opacum	Marbled Salamander	T	
WALTHAM	* Reptile	Clemmys guttata	Spotted Turtle	SC	
WALTHAM	Bird	Circus cyaneus	Northern Harrier	T	
WALTHAM	Bird	Cistothorus platensis	Sedge Wren	E	
WALTHAM	Bird	Vermivora chrysoptera	Golden-Winged Warbler	E	
WALTHAM	Crustacean	Eubbranchipus intricatus	Intricate Fairy Shrimp	SC	
WALTHAM	* Dragonfly/Damselfly	Neurocordulia obsoleta	Umber Shadowdragon	SC	
WALTHAM	Beetle	Cicindela purpurea	Purple Tiger Beetle	SC	
WALTHAM	Beetle	Cicindela rufiventris hentzii	Hentz's Redbelly Tiger Beetle	T	
WALTHAM	Butterfly/Moth	Erynnis persius persius	Persius Duskywing	E	
WALTHAM	* Vascular Plant	Asclepias verticillata	Linear-Leaved Milkweed	T	
WALTHAM	Vascular Plant	Houstonia longifolia var longifolia	Long-Leaved Bluet	E	
WALTHAM	Vascular Plant	Linum medium var texanum	Rigid Flax	T	
WALTHAM	Vascular Plant	Ludwigia sphaerocarpa	Round-Fruited False-Loosestrife	E	
WALTHAM	Vascular Plant	Oxalis violacea	Violet Wood-Sorrel	E	
WALTHAM	Vascular Plant	Platanthera flava var herbiola	Pale Green Orchis	T	
Town	Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank
		Notropis			

WARE	Fish	bifrenatus	Bridle Shiner	SC	
WARE	Amphibian	Ambystoma laterale	Blue-Spotted Salamander	SC	
WARE	Reptile	Clemmys guttata	Spotted Turtle	SC	
WARE	Reptile	Clemmys insculpta	Wood Turtle	SC	
WARE	Reptile	Terrapene carolina	Eastern Box Turtle	SC	
WARE	* Bird	Haliaeetus leucocephalus	Bald Eagle	E	(PS:LT,PDL)
WARE	* Mammal	Synaptomys cooperi	Southern Bog Lemming	SC	
WARE	* Mussel	Alasmidonta undulata	Triangle Floater	SC	
WARE	* Mussel	Alasmidonta varicosa	Brook Floater (Swollen Wedgemussel)	E	
WARE	* Mussel	Strophitus undulatus	Creeper	SC	
WARE	* Dragonfly/Damselfly	Gomphus borealis	Beaverpond Clubtail	SC	
WARE	Butterfly/Moth	Cicinnus melsheimeri	Melsheimer's Sack Bearer	T	
WARE	Vascular Plant	Liatris borealis	New England Blazing Star	SC	
WARE	Vascular Plant	Pedicularis lanceolata	Swamp Lousewort	E	
Town	Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank
WAREHAM	Amphibian	Ambystoma opacum	Marbled Salamander	T	
WAREHAM	* Reptile	Clemmys guttata	Spotted Turtle	SC	
WAREHAM	* Reptile	Malaclemys terrapin	Diamondback Terrapin	T	
WAREHAM	* Reptile	Pseudemys rubriventris pop 1	Northern Red-Bellied Cooter	E	LE
WAREHAM	* Reptile	Terrapene carolina	Eastern Box Turtle	SC	
			Sharp-Shinned		

WAREHAM	*	Bird	Accipiter striatus	Hawk	SC	(PS)
WAREHAM	*	Bird	Charadrius melodus	Piping Plover	T	(LE,LT)
WAREHAM		Bird	Parula americana	Northern Parula	T	
WAREHAM	*	Bird	Sterna dougallii	Roseate Tern	E	(PS:LE,LT)
WAREHAM		Mammal	Synaptomys cooperi	Southern Bog Lemming	SC	
WAREHAM		Mussel	Alasmidonta heterodon	Dwarf Wedgemussel	E	LE
WAREHAM	*	Mussel	Alasmidonta undulata	Triangle Floater	SC	
WAREHAM	*	Mussel	Leptodea ochracea	Tidewater Mucket	SC	
WAREHAM		Dragonfly/Damselfly	Anax longipes	Comet Darner	SC	
WAREHAM		Dragonfly/Damselfly	Boyeria grafiana	Ocellated Darner	SC	
WAREHAM	*	Dragonfly/Damselfly	Enallagma laterale	New England Bluet	SC	
WAREHAM		Butterfly/Moth	Apamea mixta	Coastal Plain Apamea Moth	SC	
WAREHAM		Butterfly/Moth	Catocala herodias gerhardi	Gerhard's Underwing Moth	SC	
WAREHAM		Butterfly/Moth	Cicinnus melsheimeri	Melsheimer's Sack Bearer	T	
WAREHAM		Butterfly/Moth	Cingilia catenaria	Chain Dot Geometer	SC	
WAREHAM	*	Butterfly/Moth	Hemileuca maia	Barrens Buckmoth	SC	
WAREHAM		Butterfly/Moth	Hypomecis buchholzaria	Buchholz's Gray	E	
WAREHAM		Butterfly/Moth	Itame sp 1 nr intricata	Pine Barrens Itame	SC	
WAREHAM		Butterfly/Moth	Metarranthis pilosaria	Coastal Swamp Metarranthis Moth	SC	
WAREHAM		Butterfly/Moth	Papaipema appassinata	Pitcher Plant Borer Moth	T	
WAREHAM	*	Butterfly/Moth	Papaipema	Water-Willow	T	

			sulphurata	Stem Borer		
WAREHAM		Butterfly/Moth	Spartinophaga inops	Spartina Borer Moth	SC	
WAREHAM	*	Vascular Plant	Aristida purpurascens	Purple Needlegrass	T	
WAREHAM	*	Vascular Plant	Cardamine longii	Long's Bitter-Cress	E	
WAREHAM	*	Vascular Plant	Carex striata var brevis	Walter's Sedge	E	
WAREHAM	*	Vascular Plant	Corema conradii	Broom Crowberry	SC	
WAREHAM	*	Vascular Plant	Crassula aquatica	Pygmyweed	T	
WAREHAM	*	Vascular Plant	Crassula aquatica	Pygmyweed	T	
WAREHAM		Vascular Plant	Cyperus houghtonii	Houghton's Flatsedge	E	
WAREHAM	*	Vascular Plant	Dichanthelium mattamuskeetense	Mattamuskeet Panic-Grass	E	
WAREHAM	*	Vascular Plant	Elatine americana	American Waterwort	E	
WAREHAM	*	Vascular Plant	Eriocaulon parkeri	Estuary Pipewort	E	
WAREHAM		Vascular Plant	Eupatorium aromaticum	Lesser Snakeroot	E	
WAREHAM	*	Vascular Plant	Liatris borealis	New England Blazing Star	SC	
WAREHAM		Vascular Plant	Linum medium var texanum	Rigid Flax	T	
WAREHAM		Vascular Plant	Prenanthes serpentaria	Lion's Foot	E	
WAREHAM	*	Vascular Plant	Sabatia kennedyana	Plymouth Gentian	SC	
WAREHAM	*	Vascular Plant	Sagittaria subulata var subulata	River Arrowhead	E	
WAREHAM	*	Vascular Plant	Sagittaria teres	Terete Arrowhead	SC	
WAREHAM	*	Vascular Plant	Setaria geniculata	Bristly Foxtail	SC	
WAREHAM	*	Vascular Plant	Spartina cynosuroides	Salt Reedgrass	T	
WAREHAM		Vascular Plant	Symphyotrichum concolor	Eastern Silvery Aster	E	

WAREHAM	Vascular Plant	Utricularia subulata	Subulate Bladderwort	SC	
Town	Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank
WARREN	* Reptile	Clemmys insculpta	Wood Turtle	SC	
WARREN	* Bird	Botaurus lentiginosus	American Bittern	E	
WARREN	Vascular Plant	Clematis occidentalis	Purple Clematis	SC	
WARREN	* Vascular Plant	Corallorhiza odontorhiza	Autumn Coralroot	SC	
WARREN	Vascular Plant	Veronicastrum virginicum	Culver's-Root	T	
Town	Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank
WARWICK	* Amphibian	Ambystoma jeffersonianum	Jefferson Salamander	SC	
WARWICK	* Amphibian	Hemidactylium scutatum	Four-Toed Salamander	SC	
WARWICK	* Reptile	Clemmys guttata	Spotted Turtle	SC	
WARWICK	* Reptile	Clemmys insculpta	Wood Turtle	SC	
WARWICK	Mammal	Sorex palustris	Water Shrew	SC	
WARWICK	* Mussel	Strophitus undulatus	Creeper	SC	
WARWICK	* Dragonfly/Damselfly	Gomphus borealis	Beaverpond Clubtail	SC	
WARWICK	* Vascular Plant	Hypericum ascyron	Giant St. John's-Wort	E	
WARWICK	Vascular Plant	Mimulus moschatus	Muskflower	E	
Town	Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank
		Gyrinophilus	Spring		

WASHINGTON	Amphibian	porphyriticus	Salamander	SC	
WASHINGTON	Bird	Cistothorus platensis	Sedge Wren	E	
WASHINGTON	* Dragonfly/Damselfly	Enallagma carunculatum	Tule Bluet	SC	
WASHINGTON	* Dragonfly/Damselfly	Gomphus borealis	Beaverpond Clubtail	SC	
WASHINGTON	* Butterfly/Moth	Pieris oleracea	Eastern Veined White	T	
WASHINGTON	Vascular Plant	Listera cordata	Heartleaf Twayblade	E	
WASHINGTON	Vascular Plant	Rhododendron maximum	Great Laurel	T	
Town	Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank
WATERTOWN					
Town	Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank
WAYLAND	Fish	Notropis biffenatus	Bridle Shiner	SC	
WAYLAND	* Amphibian	Ambystoma laterale	Blue-Spotted Salamander	SC	
WAYLAND	* Bird	Botaurus lentiginosus	American Bittern	E	
WAYLAND	Bird	Cistothorus platensis	Sedge Wren	E	
WAYLAND	* Bird	Gallinula chloropus	Common Moorhen	SC	(PS)
WAYLAND	* Bird	Ixobrychus exilis	Least Bittern	E	
WAYLAND	Bird	Podilymbus podiceps	Pied-Billed Grebe	E	
WAYLAND	* Bird	Rallus elegans	King Rail	T	
WAYLAND	Mussel	Ligumia nasuta	Eastern Pondmussel	SC	
WAYLAND	* Vascular Plant	Bolboschoenus fluviatilis	River Bulrush	SC	

Index by State and City

National Register Information System

10/12/2005 13:01:13

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Include filter in navigation ☐

Row	STATE ▾	COUNTY ▾	RESOURCE NAME ▾	ADDRESS ▾	CITY ▾	LISTED ▾	MULTIPLE ▾
1	MA	Middlesex	Browne, Abraham, House	562 Main St.	Watertown	1990-03-09	First Period Buildings of Eastern Massachusetts TR
2	MA	Middlesex	Commanding Officer's Quarters, Watertown Arsenal	443 Arsenal St.	Watertown	1976-10-07	
3	MA	Middlesex	Fowle, Edmund, House	26-28 Marshall St.	Watertown	1977-11-11	
4	MA	Middlesex	Pratt, Miles, House	106 Mt. Auburn St.	Watertown	1985-05-09	
5	MA	Middlesex	Town Diner	627 Mount Auburn St.	Watertown	1999-09-22	Diners of Massachusetts MPS
6	MA	Middlesex	Watertown Arsenal Historic District	Arsenal St.	Watertown	1999-05-14	

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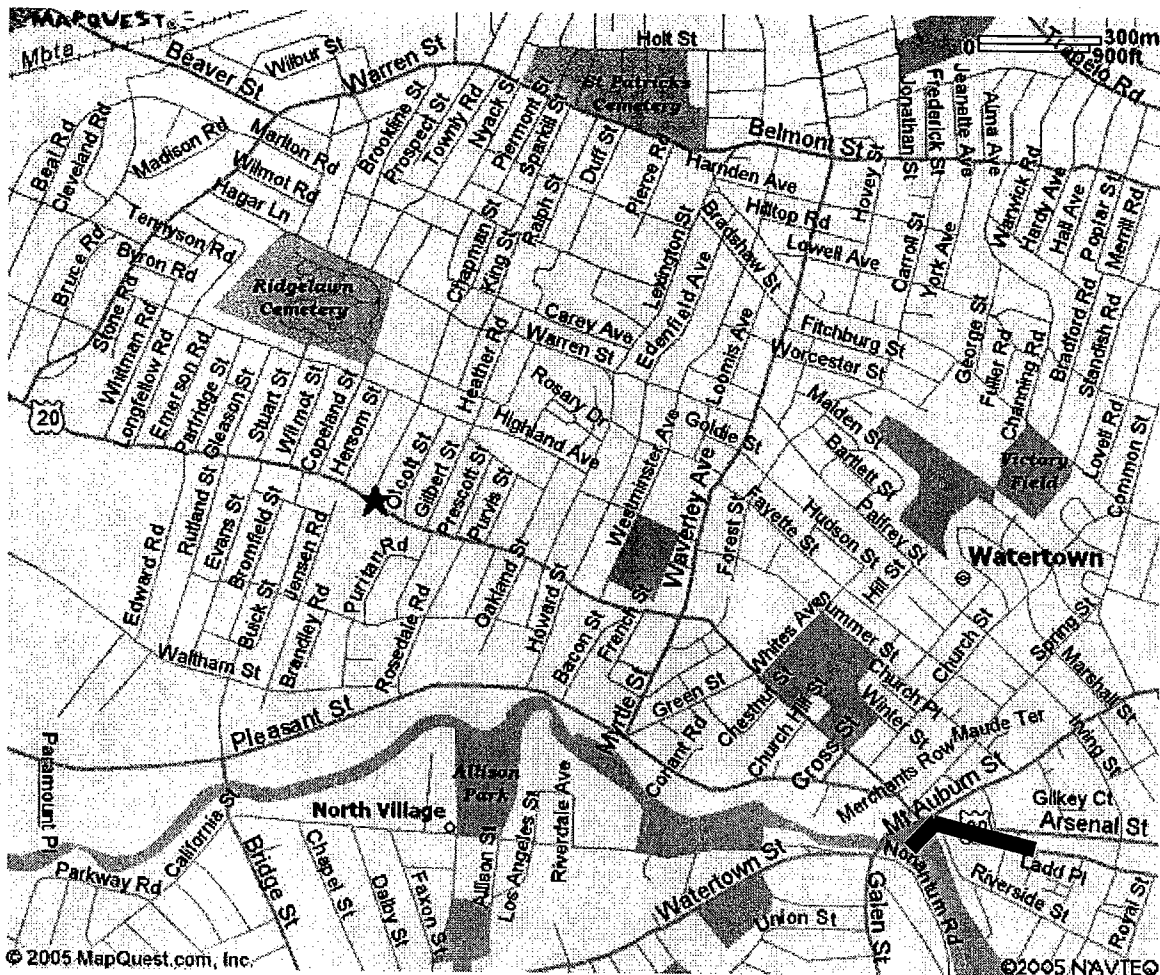




562 Main St
Watertown MA
02472-2224 US

Notes:

Abraham Browne House
Listed: 03-09-1990



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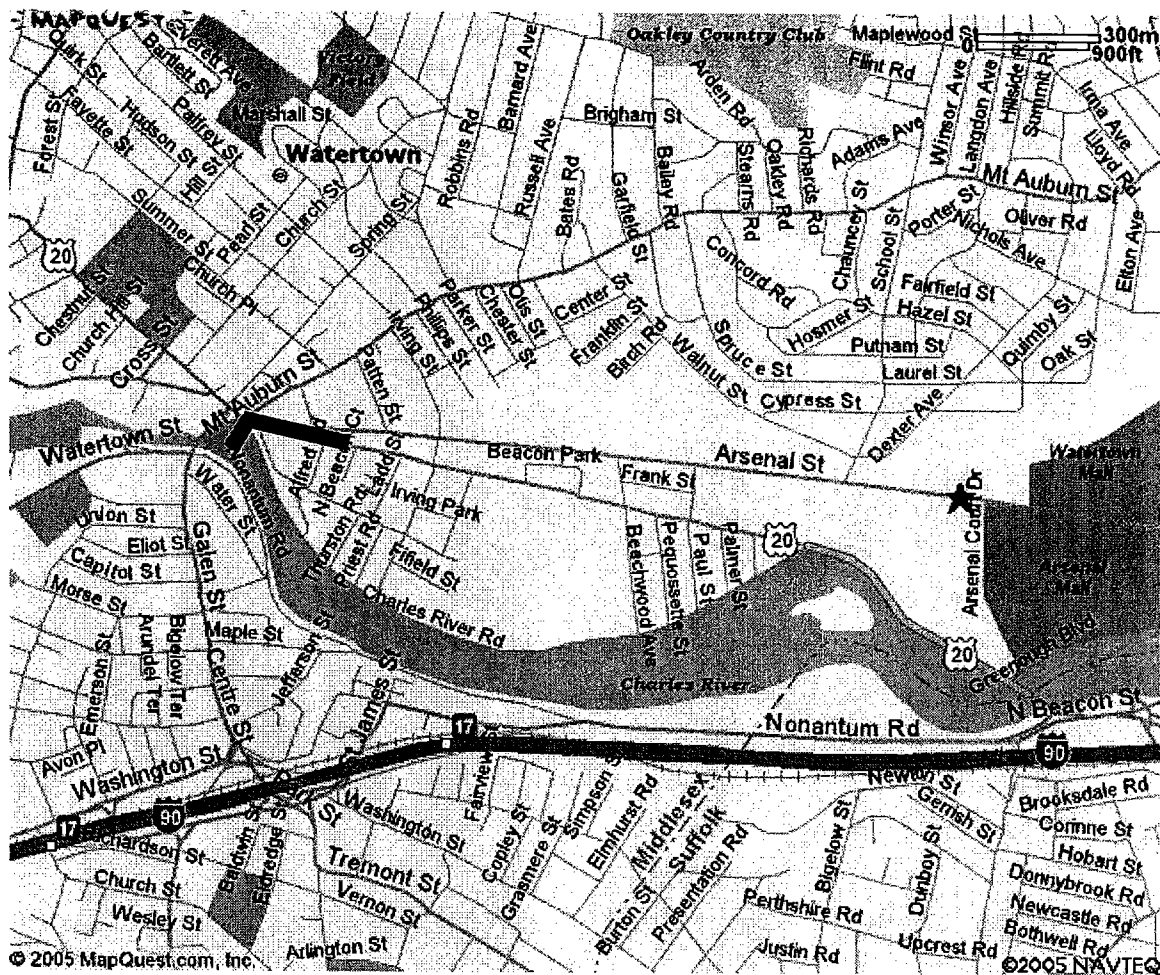
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443 Arsenal St
Watertown MA
02472-2775 US

Notes:

Commanding Officer's Quarters
Watertown Arsenal
Listed: 10-07-1976



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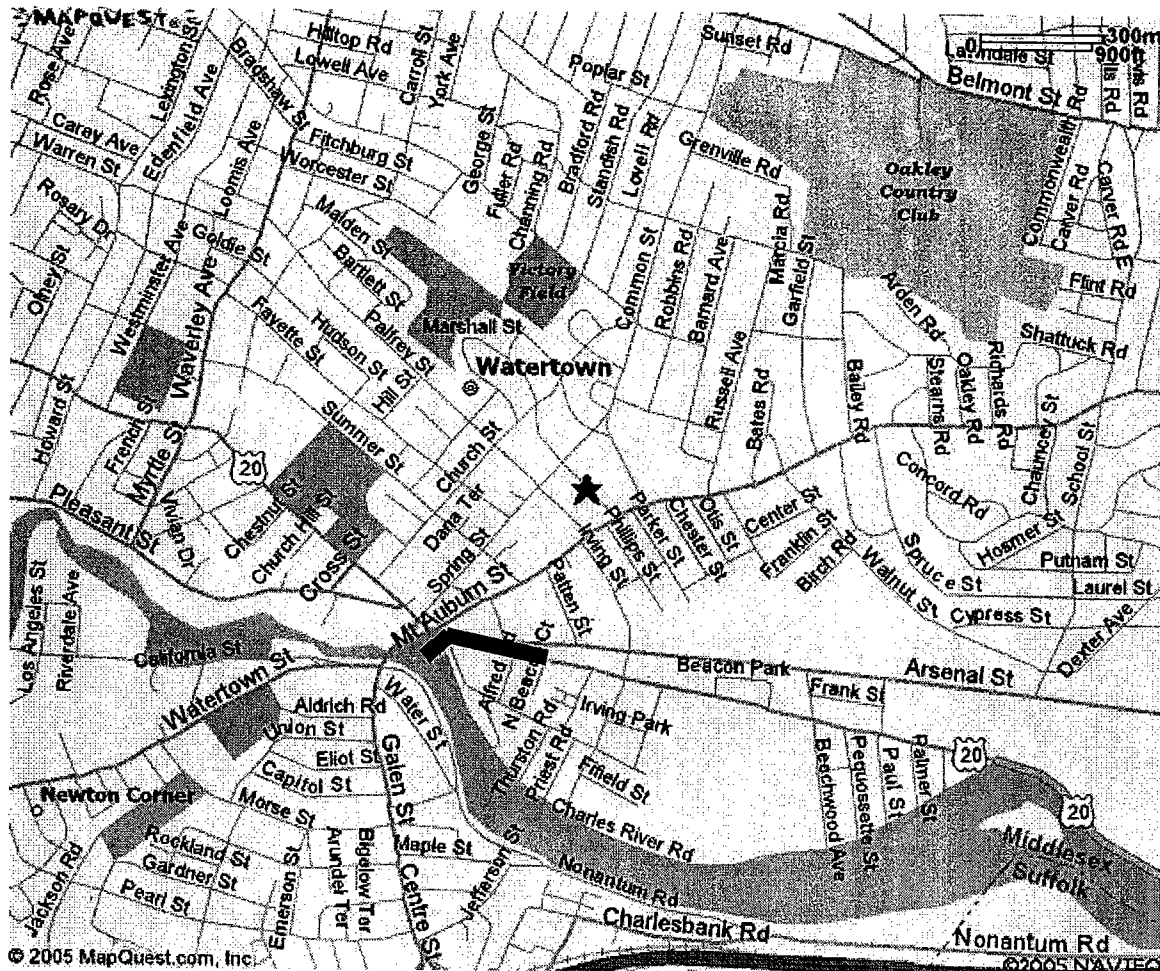
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26 Marshall St
Watertown MA
02472-3408 US

Notes:

Edmund Fowle House
Listed: 11-11-1977



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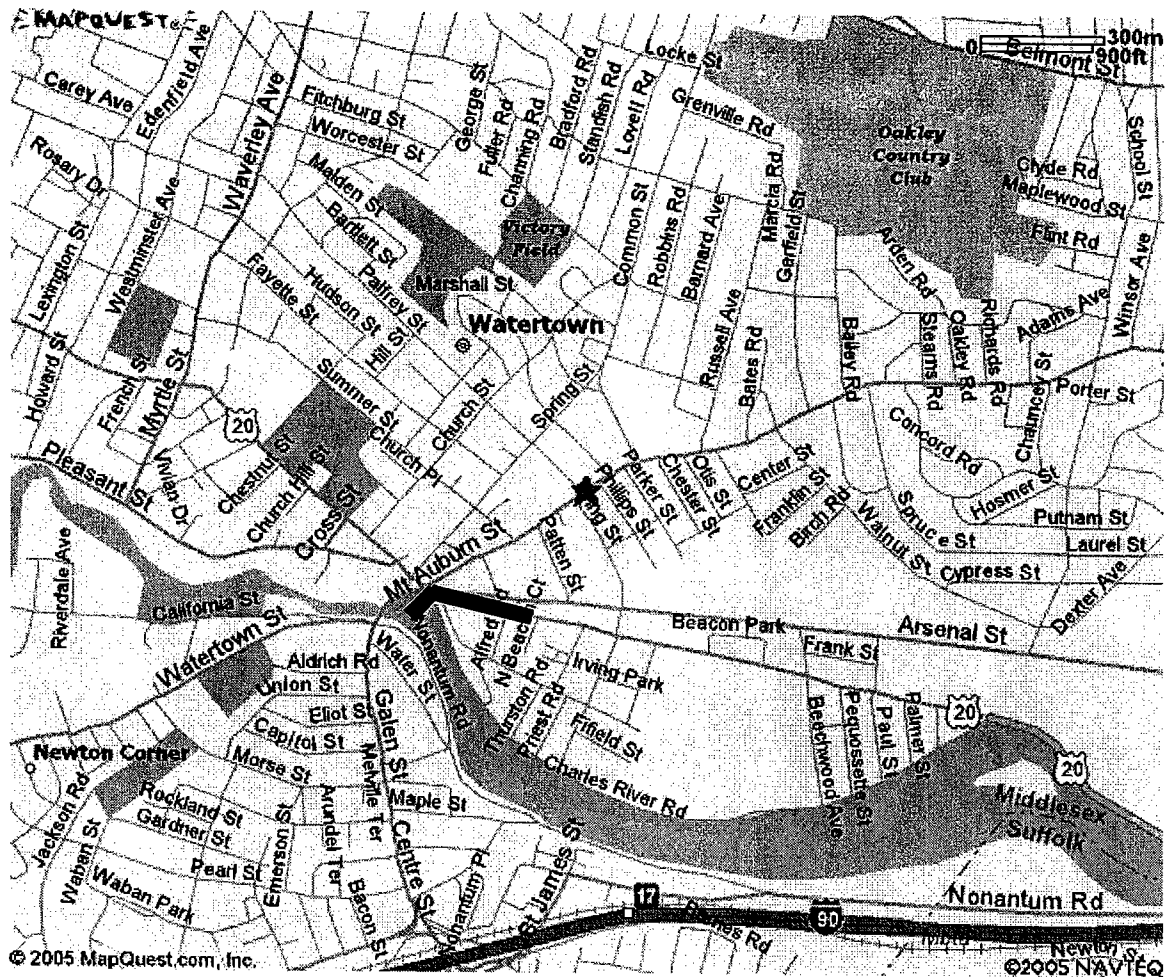
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106 Mount Auburn St
Watertown MA
02472-3931 US

Notes:

Miles Pratt House
Listed: 05-09-1985



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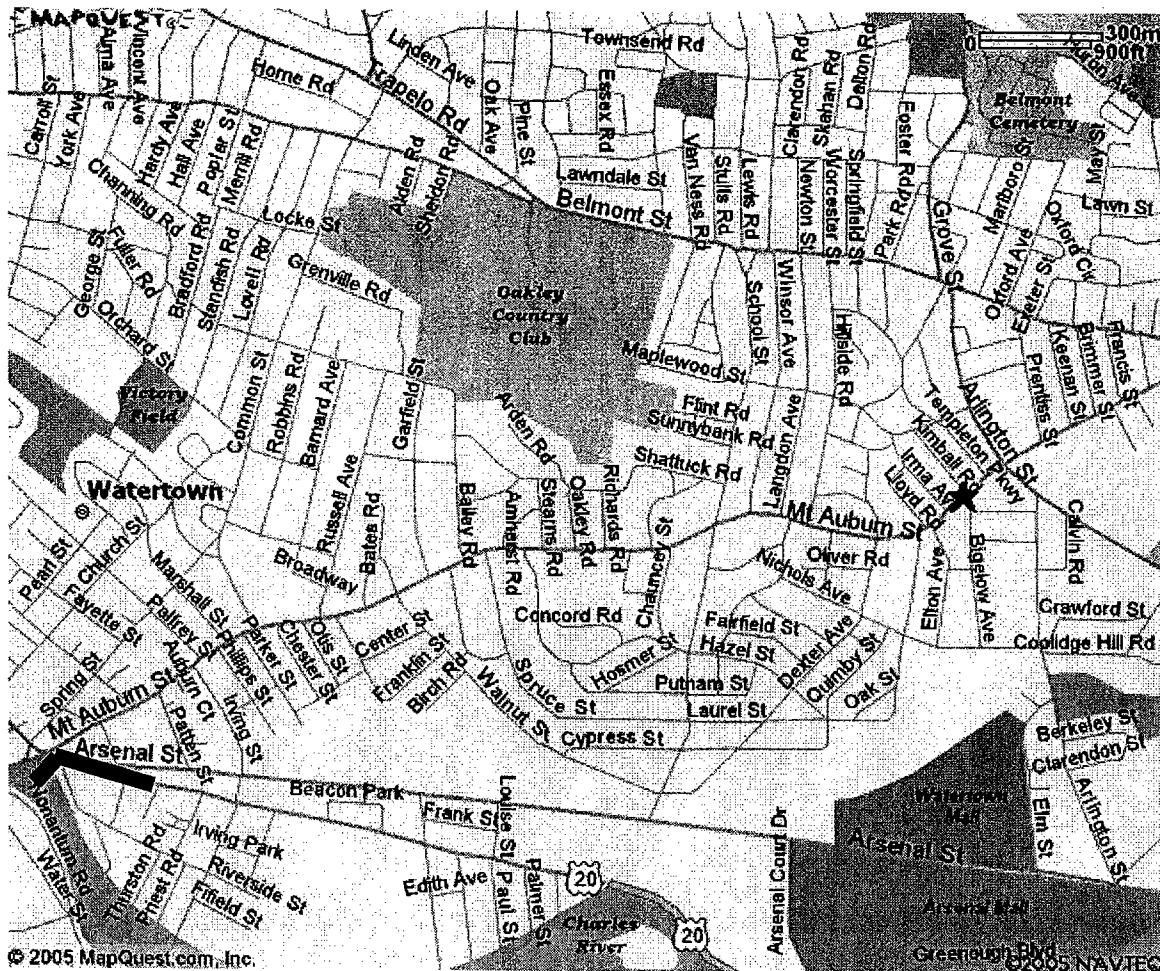
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627 Mount Auburn St
Watertown MA
02472-4103 US

Notes:

Town Diner
Listed: 09-22-1999



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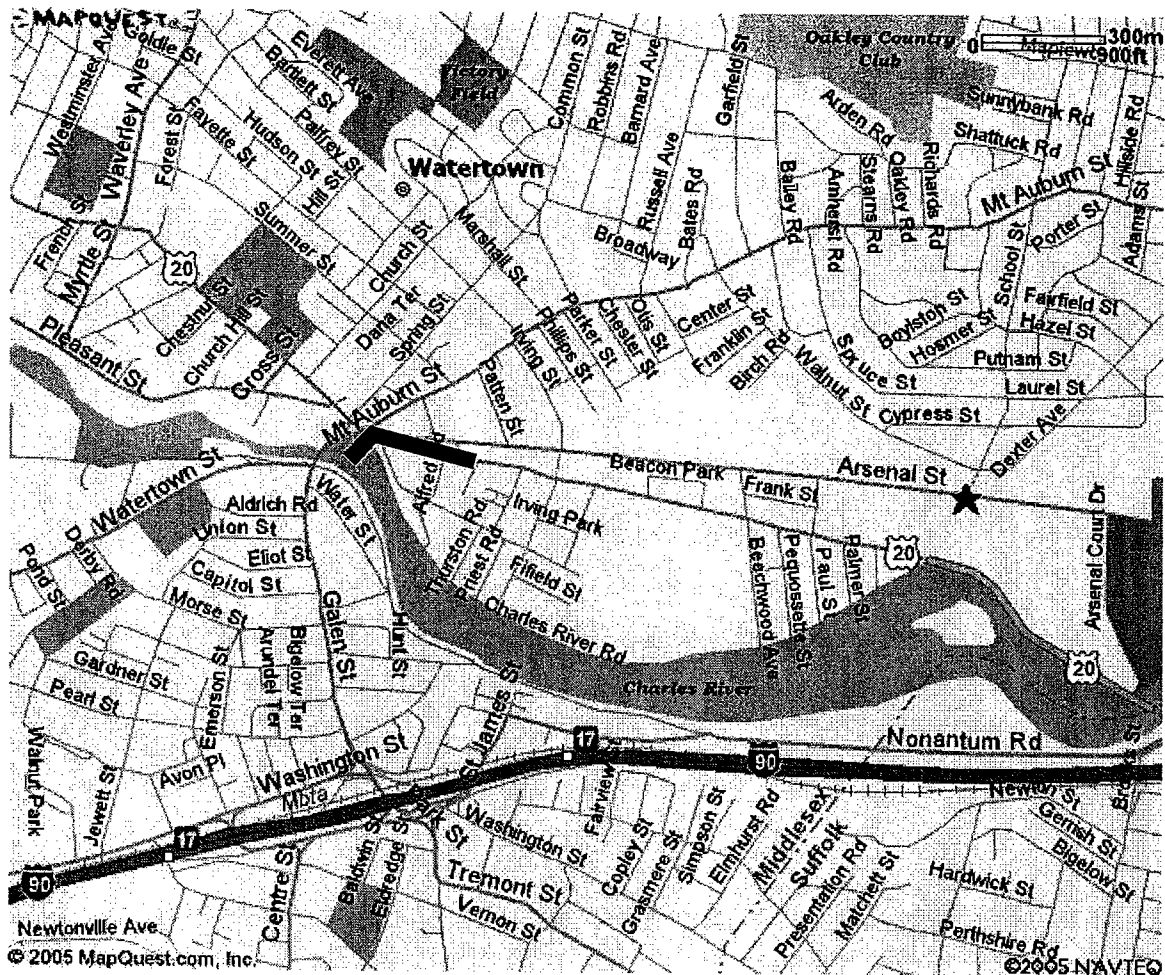
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School St & Arsenal St
Watertown MA
02472 US

Notes:

Watertown Arsenal Historic District
Listed: 05-14-1999



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QUESTION 7 SUPPLEMENTAL INFORMATION

Amerada Hess Corporation

Station #21526, 22 North Beacon Street, Watertown, MA

Question 7 requests that analytical data used to support the application to be attached. The attached analytical data report addresses the sampling conducted on September 29, 2005. For benzene, toluene, ethylbenzene, (m, o, p) xylenes, methyl-tert-butyl ether (MTBE), total BTEX, and total petroleum hydrocarbons, the analytical results from October 2004 through August 2005 (sampling under NPDES Permit Exclusion MA-02I-039) were used to supplement the September 29, 2005 results.



10/19/05

Technical Report for

Shaw Environmental & Infrastructure

Hess S/S #21526, 22 N. Beacon Street, Watertown, MA
829967

Accutest Job Number: M51202

Sampling Date: 09/29/05

Report to:

Shaw Environmental & Infrastructure

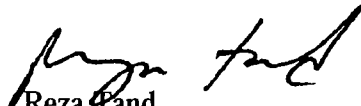
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Total number of pages in report: 66



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


Reza Fand
Lab Director

Certifications: MA (M-MA136) CT (PH-0109) NH (250204) RI (00071) ME (MA136) FL (E87579)
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Accutest Laboratories

Sample Summary

Shaw Environmental & Infrastructure

Job No: M51202

Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Project No: 829967

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
M51202-1	09/29/05	10:00 JAL	09/29/05	AQ	Ground Water	AS-INF
M51202-1A	09/29/05	10:00 JAL	09/29/05	AQ	Ground Water	AS-INF
M51202-2	09/29/05	00:00 JAL	09/29/05	AQ	Trip Blank Water	TRIP BLANK

Report of Analysis

Client Sample ID:	AS-INF	Date Sampled:	09/29/05
Lab Sample ID:	M51202-1	Date Received:	09/29/05
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Hess S/S #21526, 22 N. Beacon Street, Watertown, MA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P1981.D	1	10/06/05	AMY	n/a	n/a	MSP68
Run #2	P1983.D	10	10/06/05	AMY	n/a	n/a	MSP68

Run #	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	5.0	ug/l	
71-43-2	Benzene	68.2	0.50	ug/l	
108-86-1	Bromobenzene	ND	5.0	ug/l	
74-97-5	Bromochloromethane	ND	5.0	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	ug/l	
75-25-2	Bromoform	ND	1.0	ug/l	
74-83-9	Bromomethane	ND	2.0	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	ug/l	
104-51-8	n-Butylbenzene	10.0	5.0	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	ug/l	
75-15-0	Carbon disulfide	ND	5.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	1.0	ug/l	
75-00-3	Chloroethane	ND	2.0	ug/l	
67-66-3	Chloroform	ND	1.0	ug/l	
74-87-3	Chloromethane	ND	2.0	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	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	
75-71-8	Dichlorodifluoromethane	ND	2.0	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	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/l	

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:	AS-INF	Date Sampled:	09/29/05
Lab Sample ID:	M51202-1	Date Received:	09/29/05
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Hess S/S #21526, 22 N. Beacon Street, Watertown, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	ug/l	
60-29-7	Ethyl Ether	ND	5.0	ug/l	
100-41-4	Ethylbenzene	181	1.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/l	
591-78-6	2-Hexanone	ND	5.0	ug/l	
98-82-8	Isopropylbenzene	10.3	5.0	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	521 ^a	10	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	ug/l	
74-95-3	Methylene bromide	ND	5.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	ug/l	
91-20-3	Naphthalene	74.1	5.0	ug/l	
103-65-1	n-Propylbenzene	20.3	5.0	ug/l	
100-42-5	Styrene	ND	5.0	ug/l	
994-05-8	tert-Amyl Methyl Ether	143	2.0	ug/l	
75-65-0	Tert Butyl Alcohol	228	100	ug/l	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	ug/l	
109-99-9	Tetrahydrofuran	57.9	10	ug/l	
108-88-3	Toluene	218	1.0	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	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	
75-69-4	Trichlorofluoromethane	ND	1.0	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	331	5.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	49.3	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
	m,p-Xylene	340	1.0	ug/l	
95-47-6	o-Xylene	493 ^a	10	ug/l	

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Report of Analysis

Client Sample ID:	AS-INF	Date Sampled:	09/29/05
Lab Sample ID:	M51202-1	Date Received:	09/29/05
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Hess S/S #21526, 22 N. Beacon Street, Watertown, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
1330-20-7	Xylene (total)	833 ^a	10	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%	101%	82-127%
2037-26-5	Toluene-D8	101%	93%	88-112%
460-00-4	4-Bromofluorobenzene	97%	97%	80-118%

(a) Result is from Run# 2

ND = Not detected
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E = Indicates value exceeds calibration range

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Report of Analysis

Client Sample ID:	AS-INF	Date Sampled:	09/29/05
Lab Sample ID:	M51202-1	Date Received:	09/29/05
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C		
Project:	Hess S/S #21526, 22 N. Beacon Street, Watertown, MA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F16152.D	1	10/06/05	PB	09/29/05	OP9725	MSF881
Run #2							

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

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	10	ug/l	
120-83-2	2,4-Dichlorophenol	ND	10	ug/l	
105-67-9	2,4-Dimethylphenol	ND	10	ug/l	
51-28-5	2,4-Dinitrophenol	ND	20	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	ug/l	
88-75-5	2-Nitrophenol	ND	10	ug/l	
100-02-7	4-Nitrophenol	ND	20	ug/l	
87-86-5	Pentachlorophenol	ND	10	ug/l	
108-95-2	Phenol	ND	5.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	10	ug/l	
83-32-9	Acenaphthene	ND	5.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	ug/l	
120-12-7	Anthracene	ND	5.0	ug/l	
92-87-5	Benzidine	ND	20	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	10	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	ug/l	
106-47-8	4-Chloroaniline	ND	10	ug/l	
218-01-9	Chrysene	ND	5.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ug/l	

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Report of Analysis

Client Sample ID:	AS-INF	Date Sampled:	09/29/05
Lab Sample ID:	M51202-1	Date Received:	09/29/05
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C SW846 3510C		
Project:	Hess S/S #21526, 22 N. Beacon Street, Watertown, MA		

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
106-46-7	1,4-Dichlorobenzene	ND	5.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	10	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	10	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	10	ug/l	
117-84-0	Di-n-octyl phthalate	ND	10	ug/l	
84-66-2	Diethyl phthalate	ND	10	ug/l	
131-11-3	Dimethyl phthalate	ND	10	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	10	ug/l	
206-44-0	Fluoranthene	ND	5.0	ug/l	
86-73-7	Fluorene	ND	5.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	ug/l	
67-72-1	Hexachloroethane	ND	5.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	ug/l	
78-59-1	Isophorone	ND	5.0	ug/l	
91-20-3	Naphthalene	12.1	5.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	ug/l	
129-00-0	Pyrene	ND	5.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	46%		10-120%
4165-62-2	Phenol-d5	29%		10-120%
118-79-6	2,4,6-Tribromophenol	86%		31-123%
4165-60-0	Nitrobenzene-d5	63%		32-120%
321-60-8	2-Fluorobiphenyl	73%		32-120%
1718-51-0	Terphenyl-d14	73%		33-123%

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Report of Analysis

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2.1
2

Client Sample ID:	AS-INF	Date Sampled:	09/29/05
Lab Sample ID:	M51202-1	Date Received:	09/29/05
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 504 EPA 504		
Project:	Hess S/S #21526, 22 N. Beacon Street, Watertown, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	YZ28768.D	1	10/03/05	CZ	10/01/05	OP9741	GYZ1197
Run #2							

	Initial Volume	Final Volume
Run #1	35.6 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.015	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	140%		26-158%
460-00-4	Bromofluorobenzene (S)	53%		26-158%

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Report of Analysis

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2.1
2

Client Sample ID:	AS-INF	Date Sampled:	09/29/05
Lab Sample ID:	M51202-1	Date Received:	09/29/05
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 608 EPA 608		
Project:	Hess S/S #21526, 22 N. Beacon Street, Watertown, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	YZ28874.D	1	10/07/05	CZ	10/06/05	OP9777	GYZ1201
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	5.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	Units	Q
12674-11-2	Aroclor 1016	ND	0.50	ug/l	
11104-28-2	Aroclor 1221	ND	0.50	ug/l	
11141-16-5	Aroclor 1232	ND	0.50	ug/l	
53469-21-9	Aroclor 1242	ND	0.50	ug/l	
12672-29-6	Aroclor 1248	ND	0.50	ug/l	
11097-69-1	Aroclor 1254	ND	0.50	ug/l	
11096-82-5	Aroclor 1260	ND	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	89%		44-132%
877-09-8	Tetrachloro-m-xylene	87%		44-132%
2051-24-3	Decachlorobiphenyl	89%		12-151%
2051-24-3	Decachlorobiphenyl	84%		12-151%

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 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	AS-INF	Date Sampled:	09/29/05
Lab Sample ID:	M51202-1	Date Received:	09/29/05
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Hess S/S #21526, 22 N. Beacon Street, Watertown, MA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Antimony	< 6.0	6.0	ug/l	1	10/04/05	10/06/05 AC	EPA 200.7 ²	EPA 200.7 ³
Arsenic	9.9	5.0	ug/l	1	10/04/05	10/06/05 AC	EPA 200.7 ²	EPA 200.7 ³
Cadmium	< 4.0	4.0	ug/l	1	10/04/05	10/06/05 AC	EPA 200.7 ²	EPA 200.7 ³
Chromium	< 10	10	ug/l	1	10/04/05	10/06/05 AC	EPA 200.7 ²	EPA 200.7 ³
Copper	< 25	25	ug/l	1	10/04/05	10/06/05 AC	EPA 200.7 ²	EPA 200.7 ³
Iron	5070	100	ug/l	1	10/04/05	10/06/05 AC	EPA 200.7 ²	EPA 200.7 ³
Lead	< 5.0	5.0	ug/l	1	10/04/05	10/06/05 AC	EPA 200.7 ²	EPA 200.7 ³
Mercury	< 0.20	0.20	ug/l	1	10/04/05	10/04/05 MA	EPA 245.1 ¹	EPA 245.1 ⁴
Nickel	< 40	40	ug/l	1	10/04/05	10/06/05 AC	EPA 200.7 ²	EPA 200.7 ³
Selenium	< 10	10	ug/l	1	10/04/05	10/06/05 AC	EPA 200.7 ²	EPA 200.7 ³
Silver	< 5.0	5.0	ug/l	1	10/04/05	10/06/05 AC	EPA 200.7 ²	EPA 200.7 ³
Zinc	< 20	20	ug/l	1	10/04/05	10/06/05 AC	EPA 200.7 ²	EPA 200.7 ³

(1) Instrument QC Batch: MA6308

(2) Instrument QC Batch: MA6319

(3) Prep QC Batch: MP7702

(4) Prep QC Batch: MP7707

RL = Reporting Limit

Report of Analysis

Client Sample ID:	AS-INF	Date Sampled:	09/29/05
Lab Sample ID:	M51202-1	Date Received:	09/29/05
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Hess S/S #21526, 22 N. Beacon Street, Watertown, MA		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 0.010	0.010	mg/l	1	09/30/05 08:16	MA	SW846 7196A
Cyanide	< 0.010	0.010	mg/l	1	10/01/05 12:14	MA	EPA 335.3
Oil And Grease, Gravimetric	< 4.1	4.1	mg/l	1	09/30/05	BF	EPA 1664
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/30/05	BF	EPA 160.2
Total Residual Chlorine	< 0.050	0.050	mg/l	1	09/29/05 16:05	MA	EPA 330.4

RL = Reporting Limit

Report of Analysis

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2.2
2

Client Sample ID:	AS-INF	Date Sampled:	09/29/05
Lab Sample ID:	M51202-1A	Date Received:	09/29/05
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C BY SIM SW846 3510C		
Project:	Hess S/S #21526, 22 N. Beacon Street, Watertown, MA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F16285.D	1	10/12/05	PN	09/29/05	OP9727	MSF887
Run #2							

Run #	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	ND	1.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	1.0	ug/l	
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	0.13	0.050	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.050	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	
91-57-6	2-Methylnaphthalene	3.4	0.20	ug/l	
91-20-3	Naphthalene	12.5	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	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	46%		10-120%
4165-62-2	Phenol-d5	31%		10-120%
118-79-6	2,4,6-Tribromophenol	91%		23-135%
4165-60-0	Nitrobenzene-d5	59%		30-120%
321-60-8	2-Fluorobiphenyl	70%		25-120%
1718-51-0	Terphenyl-d14	74%		24-132%

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:	TRIP BLANK	Date Sampled:	09/29/05
Lab Sample ID:	M51202-2	Date Received:	09/29/05
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Hess S/S #21526, 22 N. Beacon Street, Watertown, MA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P1980.D	1	10/06/05	AMY	n/a	n/a	MSP68
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	5.0	ug/l	
71-43-2	Benzene	ND	0.50	ug/l	
108-86-1	Bromobenzene	ND	5.0	ug/l	
74-97-5	Bromochloromethane	ND	5.0	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	ug/l	
75-25-2	Bromoform	ND	1.0	ug/l	
74-83-9	Bromomethane	ND	2.0	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	ug/l	
75-15-0	Carbon disulfide	ND	5.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	1.0	ug/l	
75-00-3	Chloroethane	ND	2.0	ug/l	
67-66-3	Chloroform	ND	1.0	ug/l	
74-87-3	Chloromethane	ND	2.0	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	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	
75-71-8	Dichlorodifluoromethane	ND	2.0	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	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/l	

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:	TRIP BLANK	Date Sampled:	09/29/05
Lab Sample ID:	M51202-2	Date Received:	09/29/05
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Hess S/S #21526, 22 N. Beacon Street, Watertown, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	ug/l	
60-29-7	Ethyl Ether	ND	5.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/l	
591-78-6	2-Hexanone	ND	5.0	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	ug/l	
74-95-3	Methylene bromide	ND	5.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	ug/l	
100-42-5	Styrene	ND	5.0	ug/l	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/l	
75-65-0	Tert Butyl Alcohol	ND	100	ug/l	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	ug/l	
109-99-9	Tetrahydrofuran	ND	10	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	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	
75-69-4	Trichlorofluoromethane	ND	1.0	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
	m,p-Xylene	ND	1.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	

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:	TRIP BLANK	Date Sampled:	09/29/05
Lab Sample ID:	M51202-2	Date Received:	09/29/05
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Hess S/S #21526, 22 N. Beacon Street, Watertown, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
1330-20-7	Xylene (total)	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	117%		82-127%
2037-26-5	Toluene-D8	95%		88-112%
460-00-4	4-Bromofluorobenzene	103%		80-118%

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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



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

ACCUTEST QUOTE #:

[illegible]

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Betty Baer

From: Busch, Donald [Donald.Busch@shawgrp.com]
Sent: Thursday, September 29, 2005 4:10 PM
To: Betty Baer
Subject: FW: Hess 21526 Watertown

Betty:

PCBs - Method 608

Donald Busch

Shaw Environmental

3 Riverside Drive

Andover, MA 01810

978-691-2156

978-691-2101 (Fax)

From: Collins, James
Sent: Thursday, September 29, 2005 4:05 PM
To: Busch, Donald
Subject: FW: Hess 21526 Watertown

From: Betty Baer [mailto:bettyb@accutest.com]
Sent: Thursday, September 29, 2005 3:55 PM
To: Collins, James
Subject: Hess 21526 Watertown

We rec'd a Chain for this site 9/29/05 with a requested analysis of PCB by 8270, this method is not for PCB, please advise

1

MS1202: Chain of Custody
Page 2 of 3

what you need.

Thanks,

Betty

Betty Baer
Accutest Laboratories
495 Technology Center West, Building #1
Marlboro, MA 01752

Phone (508) 481- 6200
Fax (508) 481-7753

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GC/MS Volatiles

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

Page 1 of 3

Job Number: M51202
Account: EMCON Shaw Environmental & Infrastructure
Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSP68-MB	P1978.D	1	10/06/05	AMY	n/a	n/a	MSP68

The QC reported here applies to the following samples:

Method: SW846 8260B

M51202-1, M51202-2

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	5.0	ug/l	
71-43-2	Benzene	ND	0.50	ug/l	
108-86-1	Bromobenzene	ND	5.0	ug/l	
74-97-5	Bromochloromethane	ND	5.0	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	ug/l	
75-25-2	Bromoform	ND	1.0	ug/l	
74-83-9	Bromomethane	ND	2.0	ug/l	
78-93-3	2-Butanone (MEK)	ND	5.0	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	ug/l	
75-15-0	Carbon disulfide	ND	5.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	1.0	ug/l	
75-00-3	Chloroethane	ND	2.0	ug/l	
67-66-3	Chloroform	ND	1.0	ug/l	
74-87-3	Chloromethane	ND	2.0	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	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	
75-71-8	Dichlorodifluoromethane	ND	2.0	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	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	ug/l	

Method Blank Summary

Page 2 of 3

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSP68-MB	P1978.D	1	10/06/05	AMY	n/a	n/a	MSP68

The QC reported here applies to the following samples:

Method: SW846 8260B

M51202-1, M51202-2

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ug/l	
123-91-1	1,4-Dioxane	ND	25	ug/l	
60-29-7	Ethyl Ether	ND	5.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/l	
591-78-6	2-Hexanone	ND	5.0	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	ug/l	
74-95-3	Methylene bromide	ND	5.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	ug/l	
100-42-5	Styrene	ND	5.0	ug/l	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/l	
75-65-0	Tert Butyl Alcohol	ND	100	ug/l	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	ug/l	
109-99-9	Tetrahydrofuran	ND	10	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	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	
75-69-4	Trichlorofluoromethane	ND	1.0	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
	m,p-Xylene	ND	1.0	ug/l	
95-47-6	o-Xylene	ND	1.0	ug/l	

Method Blank Summary

Page 3 of 3

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSP68-MB	P1978.D	1	10/06/05	AMY	n/a	n/a	MSP68

The QC reported here applies to the following samples:

Method: SW846 8260B

M51202-1, M51202-2

CAS No.	Compound	Result	RL	Units	Q
1330-20-7	Xylene (total)	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	111% 82-127%
2037-26-5	Toluene-D8	97% 88-112%
460-00-4	4-Bromofluorobenzene	107% 80-118%



Blank Spike/Blank Spike Duplicate Summary

Page 1 of 3

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSP68-BS	P1977.D	1	10/06/05	AMY	n/a	n/a	MSP68
MSP68-BSD	P1979.D	1	10/06/05	AMY	n/a	n/a	MSP68

The QC reported here applies to the following samples:

Method: SW846 8260B

M51202-1, M51202-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	50	33.3	67	28.0	56	17	31-150/25
71-43-2	Benzene	50	51.4	103	45.2	90	13	73-127/25
108-86-1	Bromobenzene	50	44.2	88	42.7	85	3	76-124/25
74-97-5	Bromochloromethane	50	44.4	89	42.8	86	4	75-130/25
75-27-4	Bromodichloromethane	50	49.4	99	48.5	97	2	72-136/25
75-25-2	Bromoform	50	40.3	81	46.1	92	13	67-136/25
74-83-9	Bromomethane	50	55.2	110	47.3	95	15	47-133/25
78-93-3	2-Butanone (MEK)	50	40.0	80	34.6	69	14	36-150/25
104-51-8	n-Butylbenzene	50	57.7	115	49.9	100	14	73-130/25
135-98-8	sec-Butylbenzene	50	48.9	98	43.5	87	12	76-129/25
98-06-6	tert-Butylbenzene	50	51.2	102	49.3	99	4	73-130/25
75-15-0	Carbon disulfide	50	39.0	78	32.2	64	19	50-139/25
56-23-5	Carbon tetrachloride	50	45.9	92	47.0	94	2	70-141/25
108-90-7	Chlorobenzene	50	40.9	82	40.8	82	0	74-129/25
75-00-3	Chloroethane	50	88.4	177* a	73.1	146* a	19	57-134/25
67-66-3	Chloroform	50	53.4	107	48.5	97	10	70-134/25
74-87-3	Chloromethane	50	63.9	128	50.5	101	23	30-151/25
95-49-8	o-Chlorotoluene	50	51.7	103	48.0	96	7	71-130/25
106-43-4	p-Chlorotoluene	50	53.5	107	51.1	102	5	70-133/25
108-20-3	Di-Isopropyl ether	50	73.7	147* a	60.3	121	20	64-139/25
96-12-8	1,2-Dibromo-3-chloropropane	50	48.3	97	45.3	91	6	51-140/25
124-48-1	Dibromochloromethane	50	43.5	87	48.8	98	11	78-135/25
106-93-4	1,2-Dibromoethane	50	44.7	89	46.8	94	5	74-129/25
95-50-1	1,2-Dichlorobenzene	50	46.6	93	45.3	91	3	75-125/25
541-73-1	1,3-Dichlorobenzene	50	47.4	95	46.0	92	3	76-124/25
106-46-7	1,4-Dichlorobenzene	50	47.5	95	43.9	88	8	76-127/25
75-71-8	Dichlorodifluoromethane	50	51.0	102	37.1	74	32* a	30-150/25
75-34-3	1,1-Dichloroethane	50	54.7	109	45.6	91	18	70-136/25
107-06-2	1,2-Dichloroethane	50	47.3	95	49.9	100	5	68-137/25
75-35-4	1,1-Dichloroethene	50	46.1	92	38.8	78	17	65-142/25
156-59-2	cis-1,2-Dichloroethene	50	47.2	94	42.5	85	10	72-130/25
156-60-5	trans-1,2-Dichloroethene	50	44.3	89	37.3	75	17	70-134/25
78-87-5	1,2-Dichloropropane	50	54.4	109	43.5	87	22	72-131/25
142-28-9	1,3-Dichloropropane	50	45.5	91	45.2	90	1	73-131/25
594-20-7	2,2-Dichloropropane	50	56.6	113	56.4	113	0	57-150/25
563-58-6	1,1-Dichloropropene	50	40.1	80	33.6	67* a	18	72-136/25

Blank Spike/Blank Spike Duplicate Summary

Page 2 of 3

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSP68-BS	P1977.D	1	10/06/05	AMY	n/a	n/a	MSP68
MSP68-BSD	P1979.D	1	10/06/05	AMY	n/a	n/a	MSP68

The QC reported here applies to the following samples:

Method: SW846 8260B

M51202-1, M51202-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	50	59.3	119	54.1	108	9	71-133/25
10061-02-6	trans-1,3-Dichloropropene	50	58.0	116	55.5	111	4	66-135/25
123-91-1	1,4-Dioxane	250	252	101	212	85	17	50-140/25
60-29-7	Ethyl Ether	50	52.6	105	45.0	90	16	59-136/25
100-41-4	Ethylbenzene	50	50.2	100	49.7	99	1	77-126/25
87-68-3	Hexachlorobutadiene	50	39.1	78	34.2	68	13	63-135/25
591-78-6	2-Hexanone	50	45.9	92	43.6	87	5	39-157/25
98-82-8	Isopropylbenzene	50	49.6	99	45.1	90	10	74-135/25
99-87-6	p-Isopropyltoluene	50	53.1	106	47.8	96	11	76-129/25
1634-04-4	Methyl Tert Butyl Ether	50	55.6	111	52.1	104	6	65-135/25
108-10-1	4-Methyl-2-pentanone (MIBK)	50	62.5	125	54.0	108	15	55-150/25
74-95-3	Methylene bromide	50	50.9	102	50.7	101	0	77-130/25
75-09-2	Methylene chloride	50	42.6	85	37.7	75	12	67-136/25
91-20-3	Naphthalene	50	52.5	105	48.0	96	9	51-144/25
103-65-1	n-Propylbenzene	50	54.8	110	49.7	99	10	75-129/25
100-42-5	Styrene	50	44.9	90	44.9	90	0	76-130/25
994-05-8	tert-Amyl Methyl Ether	50	42.8	86	38.9	78	10	61-139/25
75-65-0	Tert Butyl Alcohol	500	507	101	476	95	6	42-161/25
637-92-3	tert-Butyl Ethyl Ether	50	69.8	140* a	60.7	121	14	62-138/25
630-20-6	1,1,1,2-Tetrachloroethane	50	43.6	87	46.3	93	6	73-131/25
79-34-5	1,1,2,2-Tetrachloroethane	50	55.7	111	47.3	95	16	62-144/25
127-18-4	Tetrachloroethene	50	38.8	78	42.3	85	9	66-142/25
109-99-9	Tetrahydrofuran	50	46.0	92	37.3	75	21	49-149/25
108-88-3	Toluene	50	49.5	99	45.7	91	8	76-124/25
87-61-6	1,2,3-Trichlorobenzene	50	45.3	91	42.2	84	7	60-137/25
120-82-1	1,2,4-Trichlorobenzene	50	43.2	86	43.0	86	0	63-133/25
71-55-6	1,1,1-Trichloroethane	50	53.1	106	49.3	99	7	71-137/25
79-00-5	1,1,2-Trichloroethane	50	51.9	104	46.0	92	12	68-134/25
79-01-6	Trichloroethene	50	50.3	101	46.0	92	9	71-130/25
75-69-4	Trichlorofluoromethane	50	47.4	95	40.9	82	15	59-144/25
96-18-4	1,2,3-Trichloropropane	50	55.0	110	48.5	97	13	60-135/25
95-63-6	1,2,4-Trimethylbenzene	50	51.9	104	48.2	96	7	74-129/25
108-67-8	1,3,5-Trimethylbenzene	50	52.1	104	49.0	98	6	76-128/25
75-01-4	Vinyl chloride	50	54.9	110	34.9	70	45* a	46-151/25
	m,p-Xylene	100	101	101	99.9	100	1	77-130/25
95-47-6	o-Xylene	50	50.1	100	51.4	103	3	79-128/25

Blank Spike/Blank Spike Duplicate Summary

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Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSP68-BS	P1977.D	1	10/06/05	AMY	n/a	n/a	MSP68
MSP68-BSD	P1979.D	1	10/06/05	AMY	n/a	n/a	MSP68

The QC reported here applies to the following samples:

Method: SW846 8260B

M51202-1, M51202-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
1330-20-7	Xylene (total)	150	151	101	151	101	0	78-129/25

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	110%	107%	82-127%
2037-26-5	Toluene-D8	102%	95%	88-112%
460-00-4	4-Bromofluorobenzene	96%	99%	80-118%

(a) Outside control limits. Associated samples are non-detect for this compound.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 3

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
M51120-12MS	P1992.D	5	10/06/05	AMY	n/a	n/a	MSP68
M51120-12MSDP	1993.D	5	10/06/05	AMY	n/a	n/a	MSP68
M51120-12	P1991.D	1	10/06/05	AMY	n/a	n/a	MSP68

The QC reported here applies to the following samples:

Method: SW846 8260B

M51202-1, M51202-2

CAS No.	Compound	M51120-12 ug/l	Spike Q	ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		250	157	63	143	57	9	30-150/35
71-43-2	Benzene	ND		250	247	99	231	92	7	67-132/20
108-86-1	Bromobenzene	ND		250	215	86	228	91	6	75-123/20
74-97-5	Bromochloromethane	ND		250	225	90	218	87	3	72-133/20
75-27-4	Bromodichloromethane	ND		250	274	110	272	109	1	67-137/20
75-25-2	Bromoform	ND		250	227	91	223	89	2	48-138/20
74-83-9	Bromomethane	ND		250	157	63	208	83	28* a	43-136/21
78-93-3	2-Butanone (MEK)	ND		250	200	80	177	71	12	30-150/48
104-51-8	n-Butylbenzene	ND		250	258	103	260	104	1	68-132/20
135-98-8	sec-Butylbenzene	ND		250	221	88	220	88	0	71-131/20
98-06-6	tert-Butylbenzene	ND		250	264	106	252	101	5	69-133/22
75-15-0	Carbon disulfide	ND		250	169	68	160	64	5	38-138/26
56-23-5	Carbon tetrachloride	ND		250	273	109	263	105	4	63-144/20
108-90-7	Chlorobenzene	ND		250	203	81	199	80	2	77-124/20
75-00-3	Chloroethane	ND		250	398	159* a	404	162* a	1	52-139/22
67-66-3	Chloroform	ND		250	269	108	262	105	3	66-141/20
74-87-3	Chloromethane	ND		250	229	92	281	112	20	30-150/23
95-49-8	o-Chlorotoluene	ND		250	247	99	251	100	2	68-134/23
106-43-4	p-Chlorotoluene	ND		250	266	106	261	104	2	65-139/21
108-20-3	Di-Isopropyl ether	ND		250	318	127	309	124	3	60-144/20
96-12-8	1,2-Dibromo-3-chloropropane	ND		250	251	100	254	102	1	42-144/25
124-48-1	Dibromochloromethane	ND		250	238	95	239	96	0	68-133/20
106-93-4	1,2-Dibromoethane	ND		250	231	92	221	88	4	69-132/20
95-50-1	1,2-Dichlorobenzene	ND		250	229	92	226	90	1	75-123/20
541-73-1	1,3-Dichlorobenzene	ND		250	232	93	237	95	2	75-122/20
106-46-7	1,4-Dichlorobenzene	ND		250	230	92	236	94	3	77-125/20
75-71-8	Dichlorodifluoromethane	ND		250	210	84	196	78	7	30-150/24
75-34-3	1,1-Dichloroethane	ND		250	258	103	243	97	6	66-141/20
107-06-2	1,2-Dichloroethane	ND		250	297	119	276	110	7	61-144/20
75-35-4	1,1-Dichloroethene	ND		250	213	85	197	79	8	57-150/20
156-59-2	cis-1,2-Dichloroethene	2.3		250	225	89	211	83	6	69-133/20
156-60-5	trans-1,2-Dichloroethene	ND		250	184	74	193	77	5	65-138/20
78-87-5	1,2-Dichloropropane	ND		250	249	100	235	94	6	69-135/20
142-28-9	1,3-Dichloropropane	ND		250	236	94	221	88	7	71-131/20
594-20-7	2,2-Dichloropropane	ND		250	293	117	276	110	6	43-147/20
563-58-6	1,1-Dichloropropene	ND		250	189	76	175	70	8	63-143/20

Matrix Spike/Matrix Spike Duplicate Summary

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Job Number: M51202
Account: EMCON Shaw Environmental & Infrastructure
Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
M51120-12MS	P1992.D	5	10/06/05	AMY	n/a	n/a	MSP68
M51120-12MSDP	1993.D	5	10/06/05	AMY	n/a	n/a	MSP68
M51120-12	P1991.D	1	10/06/05	AMY	n/a	n/a	MSP68

The QC reported here applies to the following samples:

Method: SW846 8260B

M51202-1, M51202-2

CAS No.	Compound	M51120-12 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	ND		250	297	119	285	114	4	61-134/20
10061-02-6	trans-1,3-Dichloropropene	ND		250	290	116	289	116	0	55-137/20
123-91-1	1,4-Dioxane	ND		1250	1220	98	1250	100	2	43-141/32
60-29-7	Ethyl Ether	ND		250	230	92	229	92	0	56-139/22
100-41-4	Ethylbenzene	ND		250	245	98	234	94	5	72-129/20
87-68-3	Hexachlorobutadiene	ND		250	176	70	176	70	0	60-125/20
591-78-6	2-Hexanone	ND		250	218	87	211	84	3	28-153/23
98-82-8	Isopropylbenzene	ND		250	224	90	233	93	4	70-137/20
99-87-6	p-Isopropyltoluene	ND		250	247	99	247	99	0	73-128/20
1634-04-4	Methyl Tert Butyl Ether	ND		250	280	112	274	110	2	61-137/20
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		250	297	119	285	114	4	38-161/22
74-95-3	Methylene bromide	ND		250	282	113	279	112	1	72-134/20
75-09-2	Methylene chloride	ND		250	205	82	199	80	3	64-143/20
91-20-3	Naphthalene	ND		250	242	97	255	102	5	37-146/28
103-65-1	n-Propylbenzene	ND		250	250	100	248	99	1	68-135/20
100-42-5	Styrene	ND		250	219	88	208	83	5	60-135/20
994-05-8	tert-Amyl Methyl Ether	ND		250	211	84	207	83	2	54-144/20
75-65-0	Tert Butyl Alcohol	ND		2500	2780	111	2650	106	5	31-170/29
637-92-3	tert-Butyl Ethyl Ether	ND		250	327	131	320	128	2	59-142/20
630-20-6	1,1,1,2-Tetrachloroethane	ND		250	237	95	220	88	7	66-136/20
79-34-5	1,1,2,2-Tetrachloroethane	ND		250	249	100	254	102	2	56-154/20
127-18-4	Tetrachloroethene	3.0		250	204	80	191	75	7	57-145/20
109-99-9	Tetrahydrofuran	ND		250	200	80	194	78	3	44-157/25
108-88-3	Toluene	ND		250	242	97	236	94	3	69-129/20
87-61-6	1,2,3-Trichlorobenzene	ND		250	214	86	214	86	0	37-140/27
120-82-1	1,2,4-Trichlorobenzene	ND		250	209	84	211	84	1	56-128/20
71-55-6	1,1,1-Trichloroethane	ND		250	271	108	260	104	4	65-144/20
79-00-5	1,1,2-Trichloroethane	ND		250	233	93	241	96	3	63-138/20
79-01-6	Trichloroethene	9.7		250	263	101	249	96	5	67-132/20
75-69-4	Trichlorofluoromethane	ND		250	269	108	240	96	11	52-148/26
96-18-4	1,2,3-Trichloropropane	ND		250	260	104	260	104	0	51-132/23
95-63-6	1,2,4-Trimethylbenzene	ND		250	253	101	247	99	2	64-133/20
108-67-8	1,3,5-Trimethylbenzene	ND		250	260	104	256	102	2	66-132/20
75-01-4	Vinyl chloride	3.2		250	198	78	216	85	9	39-150/23
	m,p-Xylene	ND		500	503	101	477	95	5	70-135/20
95-47-6	o-Xylene	ND		250	252	101	245	98	3	73-132/20

Matrix Spike/Matrix Spike Duplicate Summary

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Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
M51120-12MS	P1992.D	5	10/06/05	AMY	n/a	n/a	MSP68
M51120-12MSDP1993.D		5	10/06/05	AMY	n/a	n/a	MSP68
M51120-12	P1991.D	1	10/06/05	AMY	n/a	n/a	MSP68

The QC reported here applies to the following samples:

Method: SW846 8260B

M51202-1, M51202-2

CAS No.	Compound	M51120-12 ug/l	Spike Q	ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
1330-20-7	Xylene (total)	ND	750	755	101	722	96	4		72-133/20

CAS No.	Surrogate Recoveries	MS	MSD	M51120-12	Limits
1868-53-7	Dibromofluoromethane	117%	112%	126%	82-127%
2037-26-5	Toluene-D8	100%	95%	98%	88-112%
460-00-4	4-Bromofluorobenzene	99%	105%	104%	80-118%

(a) Outside control limits. Associated samples are non-detect for this compound.

Volatile Surrogate Recovery Summary

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Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Method: SW846 8260B

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
M51202-1	P1983.D	101.0	93.0	97.0
M51202-1	P1981.D	97.0	101.0	97.0
M51202-2	P1980.D	117.0	95.0	103.0
M51120-12MS	P1992.D	117.0	100.0	99.0
M51120-12MSD	P1993.D	112.0	95.0	105.0
MSP68-BS	P1977.D	110.0	102.0	96.0
MSP68-BSD	P1979.D	107.0	95.0	99.0
MSP68-MB	P1978.D	111.0	97.0	107.0

Surrogate
Compounds

Recovery
Limits

S1 = Dibromofluoromethane

82-127%

S2 = Toluene-D8

88-112%

S3 = 4-Bromofluorobenzene

80-118%

GC/MS Semi-volatiles



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

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Job Number: M51202
Account: EMCON Shaw Environmental & Infrastructure
Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9725-MB	E24561.D	1	10/04/05	PB	09/29/05	OP9725	MSE1285

The QC reported here applies to the following samples:

Method: SW846 8270C

M51202-1

CAS No.	Compound	Result	RL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	20	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	ug/l	
100-02-7	4-Nitrophenol	ND	5.0	ug/l	
87-86-5	Pentachlorophenol	ND	5.0	ug/l	
108-95-2	Phenol	ND	5.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	ug/l	
120-12-7	Anthracene	ND	5.0	ug/l	
92-87-5	Benzidine	ND	20	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	10	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	ug/l	
106-47-8	4-Chloroaniline	ND	10	ug/l	
218-01-9	Chrysene	ND	5.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	10	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	10	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	ug/l	

Method Blank Summary

Page 2 of 2

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9725-MB	E24561.D	1	10/04/05	PB	09/29/05	OP9725	MSE1285

The QC reported here applies to the following samples:

Method: SW846 8270C

M51202-1

CAS No.	Compound	Result	RL	Units	Q
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	ug/l	
206-44-0	Fluoranthene	ND	5.0	ug/l	
86-73-7	Fluorene	ND	5.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	ug/l	
67-72-1	Hexachloroethane	ND	5.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	ug/l	
78-59-1	Isophorone	ND	5.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	ug/l	
62-75-9	n-Nitrosodimethylamine	ND	5.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	ug/l	
129-00-0	Pyrene	ND	5.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/l	

CAS No.	Surrogate Recoveries	Limits
367-12-4	2-Fluorophenol	45% 10-120%
4165-62-2	Phenol-d5	31% 10-120%
118-79-6	2,4,6-Tribromophenol	82% 31-123%
4165-60-0	Nitrobenzene-d5	65% 32-120%
321-60-8	2-Fluorobiphenyl	69% 32-120%
1718-51-0	Terphenyl-d14	77% 33-123%

Method Blank Summary

Page 1 of 1

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9727-MB	F16108.D	1	10/04/05	PB	09/29/05	OP9727	MSF879

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

M51202-1A

CAS No.	Compound	Result	RL	Units	Q
87-86-5	Pentachlorophenol	ND	1.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	1.0	ug/l	
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	0.10	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.050	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	
91-57-6	2-Methylnaphthalene	ND	0.20	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
367-12-4	2-Fluorophenol	47%	10-120%
4165-62-2	Phenol-d5	32%	10-120%
118-79-6	2,4,6-Tribromophenol	83%	23-135%
4165-60-0	Nitrobenzene-d5	58%	30-120%
321-60-8	2-Fluorobiphenyl	70%	25-120%
1718-51-0	Terphenyl-d14	74%	24-132%

Blank Spike/Blank Spike Duplicate Summary

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Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9725-BS	E24562.D	1	10/04/05	PB	09/29/05	OP9725	MSE1285
OP9725-BSD	E24563.D	1	10/04/05	PB	09/29/05	OP9725	MSE1285

The QC reported here applies to the following samples:

Method: SW846 8270C

M51202-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
95-57-8	2-Chlorophenol	100	73.0	73	76.8	77	5	50-120/20
59-50-7	4-Chloro-3-methyl phenol	100	71.3	71	78.3	78	9	56-120/20
120-83-2	2,4-Dichlorophenol	100	77.0	77	88.0	88	13	56-120/20
105-67-9	2,4-Dimethylphenol	100	72.6	73	68.7	69	6	37-120/20
51-28-5	2,4-Dinitrophenol	100	56.3	56	66.6	67	17	27-120/20
534-52-1	4,6-Dinitro-o-cresol	100	78.1	78	91.5	92	16	36-125/20
88-75-5	2-Nitrophenol	100	74.6	75	77.5	78	4	54-120/20
100-02-7	4-Nitrophenol	100	43.3	43	46.2	46	6	7-120/20
87-86-5	Pentachlorophenol	100	82.2	82	94.9	95	14	40-126/20
108-95-2	Phenol	100	39.6	40	38.1	38	4	17-120/20
88-06-2	2,4,6-Trichlorophenol	100	77.9	78	90.2	90	15	53-120/20
83-32-9	Acenaphthene	50	39.0	78	39.9	80	2	55-120/20
208-96-8	Acenaphthylene	50	35.9	72	37.0	74	3	53-120/20
120-12-7	Anthracene	50	44.7	89	43.8	88	2	59-120/20
92-87-5	Benzidine	50	14.6	29	18.0	36	21* a	1-120/20
56-55-3	Benzo(a)anthracene	50	44.5	89	44.5	89	0	59-120/20
50-32-8	Benzo(a)pyrene	50	41.4	83	41.7	83	1	58-120/20
205-99-2	Benzo(b)fluoranthene	50	39.3	79	38.5	77	2	54-120/20
191-24-2	Benzo(g,h,i)perylene	50	45.0	90	46.9	94	4	58-120/20
207-08-9	Benzo(k)fluoranthene	50	43.6	87	49.0	98	12	47-124/20
101-55-3	4-Bromophenyl phenyl ether	50	48.5	97	49.2	98	1	57-120/20
85-68-7	Butyl benzyl phthalate	50	36.3	73	36.9	74	2	27-120/20
91-58-7	2-Chloronaphthalene	50	38.4	77	38.0	76	1	50-120/20
106-47-8	4-Chloroaniline	50	25.3	51	35.2	70	33* a	19-120/20
218-01-9	Chrysene	50	44.5	89	45.6	91	2	62-120/20
111-91-1	bis(2-Chloroethoxy)methane	50	43.4	87	39.9	80	8	52-120/20
111-44-4	bis(2-Chloroethyl)ether	50	39.6	79	37.7	75	5	52-120/20
108-60-1	bis(2-Chloroisopropyl)ether	50	39.5	79	40.6	81	3	44-120/20
7005-72-3	4-Chlorophenyl phenyl ether	50	45.0	90	44.4	89	1	56-120/20
95-50-1	1,2-Dichlorobenzene	50	34.9	70	36.3	73	4	37-120/20
122-66-7	1,2-Diphenylhydrazine	50	43.5	87	44.0	88	1	52-120/20
541-73-1	1,3-Dichlorobenzene	50	33.5	67	33.4	67	0	34-120/20
106-46-7	1,4-Dichlorobenzene	50	34.9	70	33.7	67	3	35-120/20
121-14-2	2,4-Dinitrotoluene	50	43.6	87	42.7	85	2	59-120/20
606-20-2	2,6-Dinitrotoluene	50	43.6	87	41.2	82	6	59-120/20
91-94-1	3,3'-Dichlorobenzidine	50	39.4	79	39.8	80	1	28-120/20

Blank Spike/Blank Spike Duplicate Summary

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Job Number: M51202
Account: EMCON Shaw Environmental & Infrastructure
Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9725-BS	E24562.D	1	10/04/05	PB	09/29/05	OP9725	MSE1285
OP9725-BSD	E24563.D	1	10/04/05	PB	09/29/05	OP9725	MSE1285

The QC reported here applies to the following samples:

Method: SW846 8270C

M51202-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
53-70-3	Dibenzo(a,h)anthracene	50	45.1	90	46.9	94	4	55-124/20
84-74-2	Di-n-butyl phthalate	50	41.6	83	41.6	83	0	47-120/20
117-84-0	Di-n-octyl phthalate	50	38.5	77	39.4	79	2	60-123/20
84-66-2	Diethyl phthalate	50	33.1	66	32.2	64	3	8-120/20
131-11-3	Dimethyl phthalate	50	18.4	37	17.6	35	4	1-120/20
117-81-7	bis(2-Ethylhexyl)phthalate	50	41.1	82	42.0	84	2	61-120/20
206-44-0	Fluoranthene	50	45.4	91	46.5	93	2	59-120/20
86-73-7	Fluorene	50	42.0	84	41.9	84	0	58-120/20
118-74-1	Hexachlorobenzene	50	53.1	106	52.2	104	2	59-120/20
87-68-3	Hexachlorobutadiene	50	37.0	74	38.9	78	5	30-120/20
77-47-4	Hexachlorocyclopentadiene	50	30.7	61	31.0	62	1	4-120/20
67-72-1	Hexachloroethane	50	32.4	65	32.4	65	0	25-120/20
193-39-5	Indeno(1,2,3-cd)pyrene	50	42.3	85	44.4	89	5	53-120/20
78-59-1	Isophorone	50	46.4	93	46.5	93	0	58-120/20
91-20-3	Naphthalene	50	36.2	72	37.2	74	3	44-120/20
98-95-3	Nitrobenzene	50	33.5	67	40.0	80	18	48-120/20
62-75-9	n-Nitrosodimethylamine	50	16.8	34	18.1	36	7	1-120/20
621-64-7	N-Nitroso-di-n-propylamine	50	43.7	87	42.9	86	2	55-120/20
86-30-6	N-Nitrosodiphenylamine	50	49.9	100	48.2	96	3	45-121/20
85-01-8	Phenanthrene	50	43.8	88	43.9	88	0	56-120/20
129-00-0	Pyrene	50	43.0	86	43.8	88	2	58-120/20
120-82-1	1,2,4-Trichlorobenzene	50	35.3	71	36.7	73	4	38-120/20

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
367-12-4	2-Fluorophenol	54%	59%	10-120%
4165-62-2	Phenol-d5	39%	40%	10-120%
118-79-6	2,4,6-Tribromophenol	92%	99%	31-123%
4165-60-0	Nitrobenzene-d5	74%	78%	32-120%
321-60-8	2-Fluorobiphenyl	86%	83%	32-120%
1718-51-0	Terphenyl-d14	87%	89%	33-123%

(a) Outside control limits. Associated samples are non-detect for this compound.

Blank Spike/Blank Spike Duplicate Summary

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Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9727-BS	F16109.D	1	10/04/05	PB	09/29/05	OP9727	MSF879
OP9727-BSD	F16110.D	1	10/04/05	PB	09/29/05	OP9727	MSF879

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

M51202-1A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
87-86-5	Pentachlorophenol	100	75.5	76	86.7	87	14	53-111/30
95-95-4	2,4,5-Trichlorophenol	100	76.3	76	84.7	85	10	53-120/30
83-32-9	Acenaphthene	50	37.5	75	38.9	78	4	47-120/30
208-96-8	Acenaphthylene	50	31.3	63	32.4	65	3	49-120/30
120-12-7	Anthracene	50	42.6	85	44.5	89	4	55-120/30
56-55-3	Benzo(a)anthracene	50	45.6	91	47.0	94	3	50-129/30
50-32-8	Benzo(a)pyrene	50	40.8	82	42.3	85	4	57-120/30
205-99-2	Benzo(b)fluoranthene	50	37.4	75	40.7	81	8	62-120/30
191-24-2	Benzo(g,h,i)perylene	50	40.9	82	42.2	84	3	57-127/30
207-08-9	Benzo(k)fluoranthene	50	40.1	80	39.3	79	2	51-120/30
218-01-9	Chrysene	50	48.5	97	50.0	100	3	54-120/30
53-70-3	Dibenzo(a,h)anthracene	50	49.0	98	51.1	102	4	45-144/30
206-44-0	Fluoranthene	50	43.5	87	45.7	91	5	51-121/30
86-73-7	Fluorene	50	38.1	76	39.2	78	3	56-120/30
193-39-5	Indeno(1,2,3-cd)pyrene	50	41.8	84	43.5	87	4	54-121/30
91-57-6	2-Methylnaphthalene	50	33.4	67	35.1	70	5	40-120/30
91-20-3	Naphthalene	50	32.5	65	34.6	69	6	37-120/30
85-01-8	Phenanthrene	50	41.1	82	42.8	86	4	51-120/30
129-00-0	Pyrene	50	40.8	82	41.3	83	1	45-120/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
367-12-4	2-Fluorophenol	52%	61%	10-120%
4165-62-2	Phenol-d5	38%	44%	10-120%
118-79-6	2,4,6-Tribromophenol	82%	94%	23-135%
4165-60-0	Nitrobenzene-d5	67%	71%	30-120%
321-60-8	2-Fluorobiphenyl	77%	80%	25-120%
1718-51-0	Terphenyl-d14	79%	81%	24-132%

Matrix Spike/Matrix Spike Duplicate Summary

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Job Number: M51202
Account: EMCON Shaw Environmental & Infrastructure
Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9725-MS	E24564.D	1	10/04/05	PB	09/29/05	OP9725	MSE1285
OP9725-MSD	E24565.D	1	10/04/05	PB	09/29/05	OP9725	MSE1285
M51224-1	E24566.D	1	10/04/05	PB	09/29/05	OP9725	MSE1285

The QC reported here applies to the following samples:

Method: SW846 8270C

M51202-1

CAS No.	Compound	M51224-1 ug/l	Spike Q	ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
95-57-8	2-Chlorophenol	ND	100	75.0	75	75.7	76	1	43-120/24	
59-50-7	4-Chloro-3-methyl phenol	ND	100	76.3	76	76.9	77	1	52-120/20	
120-83-2	2,4-Dichlorophenol	ND	100	86.1	86	79.9	80	7	49-120/23	
105-67-9	2,4-Dimethylphenol	ND	100	53.8	54	50.1	50	7	1-120/33	
51-28-5	2,4-Dinitrophenol	ND	100	68.9	69	68.5	69	1	29-124/50	
534-52-1	4,6-Dinitro-o-cresol	ND	100	86.4	86	89.1	89	3	41-126/37	
88-75-5	2-Nitrophenol	ND	100	73.5	74	84.6	85	14	48-120/31	
100-02-7	4-Nitrophenol	ND	100	47.9	48	48.1	48	0	7-120/22	
87-86-5	Pentachlorophenol	ND	100	86.3	86	85.6	86	1	24-136/40	
108-95-2	Phenol	ND	100	38.7	39	40.7	41	5	13-120/25	
88-06-2	2,4,6-Trichlorophenol	ND	100	86.0	86	83.6	84	3	44-120/26	
83-32-9	Acenaphthene	ND	50	41.4	83	41.6	83	0	51-120/25	
208-96-8	Acenaphthylene	ND	50	37.6	75	39.4	79	5	49-120/25	
120-12-7	Anthracene	ND	50	43.9	88	44.4	89	1	55-120/26	
92-87-5	Benzidine	ND	50	8.7	17	9.2	18	6	1-120/50	
56-55-3	Benzo(a)anthracene	ND	50	44.1	88	44.7	89	1	55-120/24	
50-32-8	Benzo(a)pyrene	ND	50	41.5	83	42.5	85	2	55-120/25	
205-99-2	Benzo(b)fluoranthene	ND	50	39.6	79	37.3	75	6	50-120/28	
191-24-2	Benzo(g,h,i)perylene	ND	50	46.7	93	46.5	93	0	52-120/25	
207-08-9	Benzo(k)fluoranthene	ND	50	47.8	96	52.6	105	10	41-129/40	
101-55-3	4-Bromophenyl phenyl ether	ND	50	48.7	97	49.8	100	2	53-120/24	
85-68-7	Butyl benzyl phthalate	ND	50	33.8	68	34.9	70	3	28-120/29	
91-58-7	2-Chloronaphthalene	ND	50	40.4	81	42.4	85	5	44-120/27	
106-47-8	4-Chloroaniline	ND	50	26.7	53	27.7	55	4	10-120/50	
218-01-9	Chrysene	ND	50	45.7	91	45.4	91	1	57-120/23	
111-91-1	bis(2-Chloroethoxy)methane	ND	50	41.5	83	41.5	83	0	49-120/28	
111-44-4	bis(2-Chloroethyl)ether	ND	50	37.0	74	40.7	81	10	49-120/39	
108-60-1	bis(2-Chloroisopropyl)ether	ND	50	40.0	80	42.6	85	6	41-120/30	
7005-72-3	4-Chlorophenyl phenyl ether	ND	50	46.1	92	46.9	94	2	51-120/25	
95-50-1	1,2-Dichlorobenzene	ND	50	36.8	74	40.5	81	10	36-120/31	
122-66-7	1,2-Diphenylhydrazine	ND	50	43.1	86	44.7	89	4	48-120/25	
541-73-1	1,3-Dichlorobenzene	ND	50	34.3	69	38.7	77	12	31-120/31	
106-46-7	1,4-Dichlorobenzene	ND	50	35.3	71	38.9	78	10	33-120/30	
121-14-2	2,4-Dinitrotoluene	ND	50	42.5	85	42.2	84	1	55-120/26	
606-20-2	2,6-Dinitrotoluene	ND	50	42.1	84	41.4	83	2	55-120/26	
91-94-1	3,3'-Dichlorobenzidine	ND	50	37.2	74	36.5	73	2	16-120/42	

Matrix Spike/Matrix Spike Duplicate Summary

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Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9725-MS	E24564.D	1	10/04/05	PB	09/29/05	OP9725	MSE1285
OP9725-MSD	E24565.D	1	10/04/05	PB	09/29/05	OP9725	MSE1285
M51224-1	E24566.D	1	10/04/05	PB	09/29/05	OP9725	MSE1285

The QC reported here applies to the following samples:

Method: SW846 8270C

M51202-1

CAS No.	Compound	M51224-1 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
53-70-3	Dibenzo(a,h)anthracene	ND	50	46.0	92	46.9	94	2	47-131/24
84-74-2	Di-n-butyl phthalate	ND	50	40.9	82	41.7	83	2	46-120/25
117-84-0	Di-n-octyl phthalate	ND	50	40.0	80	39.8	80	1	57-124/26
84-66-2	Diethyl phthalate	ND	50	32.5	65	33.1	66	2	12-120/39
131-11-3	Dimethyl phthalate	ND	50	17.5	35	18.9	38	8	1-120/50
117-81-7	bis(2-Ethylhexyl)phthalate	ND	50	41.0	82	42.1	84	3	53-125/25
206-44-0	Fluoranthene	ND	50	45.6	91	46.3	93	2	56-120/25
86-73-7	Fluorene	ND	50	44.0	88	43.6	87	1	54-120/26
118-74-1	Hexachlorobenzene	ND	50	51.5	103	53.1	106	3	53-120/25
87-68-3	Hexachlorobutadiene	ND	50	39.7	79	40.6	81	2	26-120/32
77-47-4	Hexachlorocyclopentadiene	ND	50	36.9	74	42.1	84	13	2-120/37
67-72-1	Hexachloroethane	ND	50	33.9	68	36.8	74	8	25-120/35
193-39-5	Indeno(1,2,3-cd)pyrene	ND	50	42.1	84	45.0	90	7	52-120/29
78-59-1	Isophorone	ND	50	45.7	91	46.2	92	1	54-120/27
91-20-3	Naphthalene	ND	50	40.2	80	38.5	77	4	41-120/32
98-95-3	Nitrobenzene	ND	50	38.8	78	35.4	71	9	44-120/32
62-75-9	n-Nitrosodimethylamine	ND	50	16.3	33	20.1	40	21	2-120/37
621-64-7	N-Nitroso-di-n-propylamine	ND	50	42.3	85	44.5	89	5	54-120/29
86-30-6	N-Nitrosodiphenylamine	ND	50	46.4	93	48.1	96	4	44-121/25
85-01-8	Phenanthrene	ND	50	43.4	87	45.3	91	4	51-120/24
129-00-0	Pyrene	ND	50	43.2	86	44.2	88	2	53-120/24
120-82-1	1,2,4-Trichlorobenzene	ND	50	39.0	78	40.4	81	4	34-120/29

CAS No.	Surrogate Recoveries	MS	MSD	M51224-1	Limits
367-12-4	2-Fluorophenol	59%	59%	48%	10-120%
4165-62-2	Phenol-d5	39%	43%	29%	10-120%
118-79-6	2,4,6-Tribromophenol	98%	96%	86%	31-123%
4165-60-0	Nitrobenzene-d5	75%	79%	71%	32-120%
321-60-8	2-Fluorobiphenyl	85%	91%	80%	32-120%
1718-51-0	Terphenyl-d14	88%	89%	85%	33-123%

Matrix Spike/Matrix Spike Duplicate Summary

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Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9727-MS	F16111.D	1	10/04/05	PB	09/29/05	OP9727	MSF879
OP9727-MSD	F16112.D	1	10/04/05	PB	09/29/05	OP9727	MSF879
M51357-1	F16113.D	1	10/04/05	PB	09/29/05	OP9727	MSF879

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

M51202-1A

CAS No.	Compound	M51357-1 ug/l	Spike Q	ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
87-86-5	Pentachlorophenol	ND	100		80.5	81	80.1	80	0	5-137/52
95-95-4	2,4,5-Trichlorophenol	ND	100		83.9	84	81.4	81	3	40-120/26
83-32-9	Acenaphthene	ND	50		40.9	82	41.9	84	2	49-120/20
208-96-8	Acenaphthylene	ND	50		33.2	66	34.0	68	2	50-120/22
120-12-7	Anthracene	ND	50		44.8	90	44.4	89	1	58-120/20
56-55-3	Benzo(a)anthracene	ND	50		46.0	92	45.9	92	0	50-132/20
50-32-8	Benzo(a)pyrene	ND	50		41.6	83	41.6	83	0	51-120/22
205-99-2	Benzo(b)fluoranthene	ND	50		38.2	76	40.2	80	5	67-120/20
191-24-2	Benzo(g,h,i)perylene	ND	50		41.7	83	41.9	84	0	63-121/20
207-08-9	Benzo(k)fluoranthene	ND	50		41.1	82	38.7	77	6	54-120/25
218-01-9	Chrysene	ND	50		49.3	99	49.5	99	0	59-120/20
53-70-3	Dibenzo(a,h)anthracene	ND	50		47.9	96	50.3	101	5	46-146/20
206-44-0	Fluoranthene	ND	50		45.1	90	45.5	91	1	58-120/20
86-73-7	Fluorene	ND	50		39.7	79	40.3	81	1	62-120/20
193-39-5	Indeno(1,2,3-cd)pyrene	ND	50		42.6	85	42.9	86	1	52-124/20
91-57-6	2-Methylnaphthalene	ND	50		37.5	75	38.4	77	2	44-120/20
91-20-3	Naphthalene	ND	50		36.3	73	37.3	75	3	41-120/20
85-01-8	Phenanthrene	ND	50		43.4	87	43.9	88	1	51-120/21
129-00-0	Pyrene	ND	50		40.7	81	40.8	82	0	48-121/20

CAS No.	Surrogate Recoveries	MS	MSD	M51357-1	Limits
367-12-4	2-Fluorophenol	60%	57%	45%	10-120%
4165-62-2	Phenol-d5	43%	42%	27%	10-120%
118-79-6	2,4,6-Tribromophenol	94%	91%	79%	23-135%
4165-60-0	Nitrobenzene-d5	70%	71%	60%	30-120%
321-60-8	2-Fluorobiphenyl	80%	81%	86%	25-120%
1718-51-0	Terphenyl-d14	80%	78%	80%	24-132%

Semivolatile Surrogate Recovery Summary

Page 1 of 1

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Method: SW846 8270C

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
M51202-1	F16152.D	46.0	29.0	86.0	63.0	73.0	73.0
OP9725-BS	E24562.D	54.0	39.0	92.0	74.0	86.0	87.0
OP9725-BSD	E24563.D	59.0	40.0	99.0	78.0	83.0	89.0
OP9725-MB	E24561.D	45.0	31.0	82.0	65.0	69.0	77.0
OP9725-MS	E24564.D	59.0	39.0	98.0	75.0	85.0	88.0
OP9725-MSD	E24565.D	59.0	43.0	96.0	79.0	91.0	89.0

Surrogate
Compounds

Recovery
Limits

S1 = 2-Fluorophenol	10-120%
S2 = Phenol-d5	10-120%
S3 = 2,4,6-Tribromophenol	31-123%
S4 = Nitrobenzene-d5	32-120%
S5 = 2-Fluorobiphenyl	32-120%
S6 = Terphenyl-d14	33-123%

5.4

5

Semivolatile Surrogate Recovery Summary

Page 1 of 1

Job Number: M51202
Account: EMCON Shaw Environmental & Infrastructure
Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Method: SW846 8270C BY SIM

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6
M51202-1A	F16285.D	46.0	31.0	91.0	59.0	70.0	74.0
OP9727-BS	F16109.D	52.0	38.0	82.0	67.0	77.0	79.0
OP9727-BSD	F16110.D	61.0	44.0	94.0	71.0	80.0	81.0
OP9727-MB	F16108.D	47.0	32.0	83.0	58.0	70.0	74.0
OP9727-MS	F16111.D	60.0	43.0	94.0	70.0	80.0	80.0
OP9727-MSD	F16112.D	57.0	42.0	91.0	71.0	81.0	78.0

Surrogate
Compounds

Recovery
Limits

S1 = 2-Fluorophenol 10-120%
S2 = Phenol-d5 10-120%
S3 = 2,4,6-Tribromophenol 23-135%
S4 = Nitrobenzene-d5 30-120%
S5 = 2-Fluorobiphenyl 25-120%
S6 = Terphenyl-d14 24-132%

5.4
5

GC Volatiles

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

Page 1 of 1

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9741-MB	YZ28782.D	1	10/03/05	CZ	10/01/05	OP9741	GYZ1197

The QC reported here applies to the following samples:

Method: EPA 504

M51202-1

CAS No.	Compound	Result	RL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.015	ug/l	

CAS No.	Surrogate Recoveries	Limits
460-00-4	Bromofluorobenzene (S)	133% 26-158%
460-00-4	Bromofluorobenzene (S)	60% 26-158%

Blank Spike Summary

Page 1 of 1

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9741-BS	YZ28760.D	1	10/02/05	CZ	10/01/05	OP9741	GYZ1197

The QC reported here applies to the following samples:

Method: EPA 504

M51202-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
106-93-4	1,2-Dibromoethane	0.071	0.082	115	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	140%	26-158%
460-00-4	Bromofluorobenzene (S)	57%	26-158%

6.2

6

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9741-MS	YZ28761.D	1	10/02/05	CZ	10/01/05	OP9741	GYZ1197
OP9741-MSD	YZ28762.D	1	10/02/05	CZ	10/01/05	OP9741	GYZ1197
M51307-1	YZ28763.D	1	10/03/05	CZ	10/01/05	OP9741	GYZ1197

The QC reported here applies to the following samples:

Method: EPA 504

M51202-1

CAS No.	Compound	M51307-1 ug/l	Spike Q	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
106-93-4	1,2-Dibromoethane	ND	0.071	0.095	134	0.094	132	1	65-135/30

CAS No.	Surrogate Recoveries	MS	MSD	M51307-1	Limits
460-00-4	Bromofluorobenzene (S)	141%	129%	156%	26-158%
460-00-4	Bromofluorobenzene (S)	58%	53%	60%	26-158%

Volatile Surrogate Recovery Summary

Page 1 of 1

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Method: EPA 504

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
M51202-1	YZ28768.D	140.0	53.0
OP9741-BS	YZ28760.D	140.0	57.0
OP9741-MB	YZ28782.D	133.0	60.0
OP9741-MS	YZ28761.D	141.0	58.0
OP9741-MSD	YZ28762.D	129.0	53.0

Surrogate Compounds	Recovery Limits
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S1 = Bromofluorobenzene (S)	26-158%
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(a) Recovery from GC signal #1

(b) Recovery from GC signal #2

6.4

6

GC Semi-volatiles

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

Page 1 of 1

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9777-MB	YZ28868.D	1	10/07/05	CZ	10/06/05	OP9777	GYZ1201

The QC reported here applies to the following samples:

Method: EPA 608

M51202-1

CAS No.	Compound	Result	RL	Units	Q
12674-11-2	Aroclor 1016	ND	0.50	ug/l	
11104-28-2	Aroclor 1221	ND	0.50	ug/l	
11141-16-5	Aroclor 1232	ND	0.50	ug/l	
53469-21-9	Aroclor 1242	ND	0.50	ug/l	
12672-29-6	Aroclor 1248	ND	0.50	ug/l	
11097-69-1	Aroclor 1254	ND	0.50	ug/l	
11096-82-5	Aroclor 1260	ND	0.50	ug/l	

CAS No.	Surrogate Recoveries		Limits
877-09-8	Tetrachloro-m-xylene	89%	44-132%
877-09-8	Tetrachloro-m-xylene	88%	44-132%
2051-24-3	Decachlorobiphenyl	58%	12-151%
2051-24-3	Decachlorobiphenyl	57%	12-151%

Blank Spike Summary

Page 1 of 1

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9777-BS	YZ28869.D	1	10/07/05	CZ	10/06/05	OP9777	GYZ1201

The QC reported here applies to the following samples:

Method: EPA 608

M51202-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
12674-11-2	Aroclor 1016	2	1.8	90	50-114
11104-28-2	Aroclor 1221		ND		15-178
11141-16-5	Aroclor 1232		ND		10-215
53469-21-9	Aroclor 1242		ND		39-150
12672-29-6	Aroclor 1248		ND		38-158
11097-69-1	Aroclor 1254		ND		29-131
11096-82-5	Aroclor 1260	2	1.8	90	8-127

CAS No.	Surrogate Recoveries	BSP	Limits
877-09-8	Tetrachloro-m-xylene	75%	44-132%
877-09-8	Tetrachloro-m-xylene	73%	44-132%
2051-24-3	Decachlorobiphenyl	54%	12-151%
2051-24-3	Decachlorobiphenyl	52%	12-151%

7.2
7

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP9777-MS	YZ28871.D	1	10/07/05	CZ	10/06/05	OP9777	GYZ1201
OP9777-MSD	YZ28872.D	1	10/07/05	CZ	10/06/05	OP9777	GYZ1201
M51439-1	YZ28873.D	1	10/07/05	CZ	10/06/05	OP9777	GYZ1201

The QC reported here applies to the following samples:

Method: EPA 608

M51202-1

CAS No.	Compound	M51439-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
12674-11-2	Aroclor 1016	ND		2	1.8	90	1.8	90	0	50-114/30
11104-28-2	Aroclor 1221	ND			ND		ND		nc	15-178/30
11141-16-5	Aroclor 1232	ND			ND		ND		nc	10-215/30
53469-21-9	Aroclor 1242	ND			ND		ND		nc	39-150/30
12672-29-6	Aroclor 1248	ND			ND		ND		nc	38-158/30
11097-69-1	Aroclor 1254	ND			ND		ND		nc	29-131/30
11096-82-5	Aroclor 1260	ND		2	1.9	95	1.9	95	0	8-127/30

CAS No.	Surrogate Recoveries	MS	MSD	M51439-1	Limits
877-09-8	Tetrachloro-m-xylene	80%	81%	92%	44-132%
877-09-8	Tetrachloro-m-xylene	76%	76%	89%	44-132%
2051-24-3	Decachlorobiphenyl	102%	99%	106%	12-151%
2051-24-3	Decachlorobiphenyl	98%	96%	101%	12-151%

7.3

7

Semivolatile Surrogate Recovery Summary

Page 1 of 1

Job Number: M51202

Account: EMCON Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, 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
M51202-1	YZ28874.D	89.0	87.0	89.0	84.0
OP9777-BS	YZ28869.D	75.0	73.0	54.0	52.0
OP9777-MB	YZ28868.D	89.0	88.0	58.0	57.0
OP9777-MS	YZ28871.D	80.0	76.0	102.0	98.0
OP9777-MSD	YZ28872.D	81.0	76.0	99.0	96.0

Surrogate
Compounds

Recovery
Limits

S1 = Tetrachloro-m-xylene 44-132%
S2 = Decachlorobiphenyl 12-151%

(a) Recovery from GC signal #1

(b) Recovery from GC signal #2

7.4
7

Metals Analysis

QC Data Summaries



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: M51202
Account: EMCON - Shaw Environmental & Infrastructure
Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

QC Batch ID: MP7702
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 10/04/05

Metal	RL	IDL	MB raw	Final
Aluminum	200	22		
Antimony	6.0	2.4	0.61	<6.0
Arsenic	5.0	3.3	-3.8	<5.0
Barium	200	.64		
Beryllium	4.0	.18	anr	
Boron	100	1.8		
Cadmium	4.0	.22	-0.27	<4.0
Calcium	5000	5.9		
Chromium	10	.72	-0.52	<10
Cobalt	50	.69		
Copper	25	1.2	0.15	<25
Iron	100	20	-7.5	<100
Lead	5.0	1.2	-0.93	<5.0
Magnesium	5000	7.7		
Manganese	15	.36		
Molybdenum	100	.48		
Nickel	40	.49	-0.35	<40
Potassium	5000	19		
Selenium	10	1.7	2.5	<10
Silicon	100	11		
Silver	5.0	.12	-0.38	<5.0
Sodium	5000	94		
Strontium	10	.12		
Thallium	10	3.1	anr	
Tin	100	1.7	anr	
Titanium	50	1.6		
Tungsten	100			
Vanadium	50	1.3		
Zinc	20	3.8	1.3	<20

Associated samples MP7702: M51202-1

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

8.1.1

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: M51202
 Account: EMCON - Shaw Environmental & Infrastructure
 Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

QC Batch ID: MP7702
 Matrix Type: AQUEOUS

Methods: EPA 200.7
 Units: ug/l

Prep Date: 10/04/05 10/04/05

Metal	M51202-1 Original MS	Spikelot MPIAWS1	% Rec	QC Limits	M51202-1 Original DUP	RPD	QC Limits
Aluminum							
Antimony	0.0	490	500	98.0	75-125	0.0 0.0	NC 0-20
Arsenic	9.9	523	500	102.6	75-125	9.9 7.8	23.7 (a) 0-20
Barium							
Beryllium	anr						
Boron							
Cadmium	0.0	513	500	102.6	75-125	0.0 0.0	NC 0-20
Calcium							
Chromium	0.84	507	500	101.2	75-125	0.84 0.75	11.3 0-20
Cobalt							
Copper	3.7	532	500	105.7	75-125	3.7 2.5	38.7 (a) 0-20
Iron	5070	6920	2000	92.5	75-125	5070 5050	0.4 0-20
Lead	0.0	1010	1000	101.0	75-125	0.0 0.0	NC 0-20
Magnesium							
Manganese							
Molybdenum							
Nickel	2.3	515	500	102.5	75-125	2.3 2.1	9.1 0-20
Potassium							
Selenium	2.3	451	500	89.7	75-125	2.3 2.7	16.0 0-20
Silicon							
Silver	0.0	224	200	112.0	75-125	0.0 0.0	NC 0-20
Sodium							
Strontium							
Thallium	anr						
Tin	anr						
Titanium							
Tungsten							
Vanadium							
Zinc	9.9	520	500	102.0	75-125	9.9 9.6	3.1 0-20

Associated samples MP7702: M51202-1

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) RPD acceptable due to low duplicate and sample concentrations.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: M51202

Account: EMCON - Shaw Environmental & Infrastructure
Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MAQC Batch ID: MP7702
Matrix Type: AQUEOUSMethods: EPA 200.7
Units: ug/l

Prep Date: 10/04/05

Metal	BSP Result	Spikelot MPIAWS1	% Rec	QC Limits
Aluminum				
Antimony	470	500	94.0	80-120
Arsenic	495	500	99.0	80-120
Barium				
Beryllium	anr			
Boron				
Cadmium	506	500	101.2	80-120
Calcium				
Chromium	489	500	97.8	80-120
Cobalt				
Copper	488	500	97.6	80-120
Iron	1900	2000	95.0	80-120
Lead	978	1000	97.8	80-120
Magnesium				
Manganese				
Molybdenum				
Nickel	495	500	99.0	80-120
Potassium				
Selenium	495	500	99.0	80-120
Silicon				
Silver	209	200	104.5	80-120
Sodium				
Strontium				
Thallium	anr			
Tin	anr			
Titanium				
Tungsten				
Vanadium				
Zinc	506	500	101.2	80-120

Associated samples MP7702: M51202-1

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

8.1.3

8

SERIAL DILUTION RESULTS SUMMARY

Login Number: M51202
 Account: EMCON - Shaw Environmental & Infrastructure
 Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

QC Batch ID: MP7702
 Matrix Type: AQUEOUS

Methods: EPA 200.7
 Units: ug/l

Prep Date: 10/04/05

Metal	M51202-1 Original	SDL 1:5	RPD	QC Limits
Aluminum				
Antimony	0.00	0.00	NC	0-10
Arsenic	9.94	0.00	100.0(a)	0-10
Barium				
Beryllium	anr			
Boron				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	0.840	0.00	100.0(a)	0-10
Cobalt				
Copper	3.65	6.40	75.3 (a)	0-10
Iron	5070	4870	3.9	0-10
Lead	0.00	0.00	NC	0-10
Magnesium				
Manganese				
Molybdenum				
Nickel	2.26	2.78	23.0 (a)	0-10
Potassium				
Selenium	2.25	0.00	100.0(a)	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium	anr			
Tin	anr			
Titanium				
Tungsten				
Vanadium				
Zinc	9.86	0.00	100.0(a)	0-10

Associated samples MP7702: M51202-1

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: M51202
Account: EMCON - Shaw Environmental & Infrastructure
Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

QC Batch ID: MP7707
Matrix Type: AQUEOUS

Methods: EPA 245.1
Units: ug/l

Prep Date: 10/04/05

Metal	RL	IDL	MB raw	final
Mercury	0.20	.067	-0.023	<0.20

Associated samples MP7707: M51202-1

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

8.2.1
8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: M51202
 Account: EMCON - Shaw Environmental & Infrastructure
 Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

QC Batch ID: MP7707
 Matrix Type: AQUEOUS

Methods: EPA 245.1
 Units: ug/l

Prep Date: 10/04/05 10/04/05

Metal	M51100-1 Original MS		Spikelot HGRWS1	% Rec	QC Limits	M51100-1 Original DUP		RPD	QC Limits
Mercury	0.0	3.0	3	100.0	75-125	0.0	0.0	NC	0-20

Associated samples MP7707: M51202-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

8.2.2
 8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: M51202
 Account: EMCON - Shaw Environmental & Infrastructure
 Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

QC Batch ID: MP7707
 Matrix Type: AQUEOUS

Methods: EPA 245.1
 Units: ug/l

Prep Date: 10/04/05

Metal	BSP Result	Spikelot HGRWS1	% Rec	QC Limits
Mercury	3.1	3	103.3	80-120

Associated samples MP7707: M51202-1

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

8.2.3
 8

General Chemistry

QC Data Summaries

6

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: M51202

Account: EMCON - Shaw Environmental & Infrastructure
Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN17971	0.010	<0.010	mg/l	.1	0.099	99.0	80-120%
Cyanide	GP6011/GN17989	0.010	<0.010	mg/l	0.1	0.102	102.0	90-110%
Cyanide	GP6011/GN17989			mg/l	0.2	0.206	103.0	90-110%
Oil And Grease, Gravimetric	GP6010/GN17973	4.0	<4.0	mg/l	40	39.8	100.0	80-120%
Solids, Total Suspended	GN17969	4.0	<4.0	mg/l				
Total Residual Chlorine	GN17965	0.050	<0.050	mg/l	.5	0.50	100.0	-%

Associated Samples:

Batch GN17965: M51202-1

Batch GN17969: M51202-1

Batch GN17971: M51202-1

Batch GP6010: M51202-1

Batch GP6011: M51202-1

9.1
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**DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY**

Login Number: M51202
Account: EMCON - Shaw Environmental & Infrastructure
Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN17971	M51225-1	mg/l	<0.010	<0.010	200.0(a)	0-20%
Cyanide	GP6011/GN17989	M51100-2	mg/l	<0.010	<0.010	0.0	0-20%
Solids, Total Suspended	GN17969	M51121-1	mg/l	<4.0	<4.0	0.0	0-20%
Total Residual Chlorine	GN17965	M51202-1	mg/l	<0.050	<0.050	0.0	0-20%

Associated Samples:

Batch GN17965: M51202-1

Batch GN17969: M51202-1

Batch GN17971: M51202-1

Batch GP6011: M51202-1

(a) RPD acceptable due to low duplicate and sample concentrations.

9.2

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**MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY**

Login Number: M51202
Account: EMCON - Shaw Environmental & Infrastructure
Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GN17971	M51225-1	mg/l	<0.010	.1	0.086	85.8	75-125%
Cyanide	GP6011/GN17989	M51100-2	mg/l	<0.010	0.1	0.10	100.0	75-125%
Oil And Grease, Gravimetric	GP6010/GN17973	M51198-3	mg/l	<5.1	40.8	41.1	101.0	75-125%
Total Residual Chlorine	GN17965	M51202-1	mg/l	<0.050	.5	0.40	80.0	-%

Associated Samples:
Batch GN17965: M51202-1
Batch GN17971: M51202-1
Batch GP6010: M51202-1
Batch GP6011: M51202-1

9.3
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MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: M51202

Account: EMCON - Shaw Environmental & Infrastructure

Project: Hess S/S #21526, 22 N. Beacon Street, Watertown, MA

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Oil And Grease, Gravimetric	GP6010/GN17973	M51198-3	mg/l	<5.1	40.8	40.9	0.5	

Associated Samples:

Batch GP6010: M51202-1

9.4
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