June 17, 2013

Hazardous Waste Programs Branch
Clean Air and Sustainability Division
U.S. Environmental Protection Agency Region 2
290 Broadway, 22nd Fl.
New York, New York 10007-1866
212-637-4184
park.andy@epa.gov

RE: Remedial Investigation Report
Historic Spill 21 – Tank 7930
Case #09-05-19-1218-35
Hess Corporation – Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Dear Mr. Park,

This Remedial Investigation Report for the Historic Spill 21 is being submitted by EnviroTrac Ltd. on behalf of Hess Corporation – Port Reading Refinery located at 750 Cliff Road in Port Reading, New Jersey.

If you have any questions or require additional information, please contact our office at 609-387-5553.

Sincerely,
EnviroTrac, Ltd.

David J. Carlson, PG
Senior Project Manager
NJDEP LSRP# 581780

Cc: Phil Cole, NJDEP – BCM (3 copies & 1 Electronic)
Nidal Azzam – USEPA Region II (w/o enclosure)
Andy Park – USEPA Region II (w/ enclosure)
Howard Goldman, Hess Corporation (w/enclosure)
John Engdahl, Hess Corporation (enfos)
EnviroTrac Project File

Case Inventory Document						
I. Area(s) of Concern, Receptor and Emergency Response Tracking	***Impacted Media***	***Contaminants of Concern***	***Exposure Route***	***Receptors***		
				Existing	***Potential***	
Historic Spill- 21	Soil	Benzene, Toluene, Ethylbenzene, Total Xylenese	None	None	None	**June 2013** Remdial Investigation Report (RIR) and updated Receptor Evaluation (RE) - Historic Spill (HS)-21 is located at Tank 7930. On May 9, 2009, a hole was discovered in the water draw sump from Tank 7930. Note- water draw sumps at HC-PR facility are manual and water does not enter the sump without an operator at the water draw valve adjacent to sump. However, on basis of a suspected release of gasoline-impacted water the NJDEP was notified and Incident #09-05-19-1218-35 was assigned. The tank was taken out of service for repair and approximately 2.5 feet of impacted soil was removed from below the sump (area=3'x3'). On June 2, 2009, a soil sample (7930 Sump PE-1) was collected and analyzed for VO+10. The results indicated several compounds above the NJDEP IGWSSL. On October 28, 2009, one (1) temporary monitoring well (TK-7930-TW-1) was installed. The sample was analyzed for VO+10 and BN+15. The results indicate that all results are below the NJDEP GWQS. HC-PR is requesting no further action for HS-21.

New Jersey Department of Environmental Protection
Site Remediation Program

REMEDIAL INVESTIGATION REPORT FORM

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Hess Corporation - Port Reading Refinery- Historic Spill 21

List all AKAs:

Street Address: 750 Cliff Road

Municipality: Woodbridge (Township, Borough or City)

County: Middlesex Zip Code: 07077

Program Interest (PI) Number(s): 006148 Case Tracking Number(s): 09-05-19-1218-35

Date Remediation Initiated Pursuant to N.J.A.C. 7:26C-2: 05/19/2009

State Plane Coordinates for a central location at the site: Easting: 561544 Northing: 630878

Municipal Block(s) and Lot(s):

Block #	756	Lot #	3	Block #		Lot #	
Block #		Lot #		Block #		Lot #	
Block #		Lot #		Block #		Lot #	
Block #		Lot #		Block #		Lot #	

SECTION B. SUBMITTAL STATUS

	Not Applicable	Included in this Submission	Previously Submitted	Date Of Submission	Date of Revised Submission	Date of Document Withdrawal
Public Notification	☐	☐	☒	09/09/2009		
Immediate Environmental Concern Report	☒	☐	☐			
IEC Engineered System Response Action Report	☒	☐	☐			
Vapor Concern Mitigation Report	☒	☐	☐			
LNAPL Interim Remedial Measure Report	☒	☐	☐			
Preliminary Assessment Report	☒	☐	☐			
Receptor Evaluation	☐	☒	☐			
Site Investigation Report	☐	☒	☐			
Remedial Investigation/Remedial Action Work Plan	☐	☒	☐			
Remedial Action Report	☒	☐	☐			
Response Action Outcome	☐	☒	☐			
Alternative Soil Remediation Standard and/or Screening level Application Form	☒	☐	☐			
Case Inventory Document	☐	☒	☐			
Permit Application – list:	☒	☐	☐			
	☐	☐	☐			
	☐	☐	☐			
	☐	☐	☐			
Radionuclide Remedial Investigation Workplan	☒	☐	☐			
Radionuclide Remedial Investigation Report	☒	☐	☐			
Radionuclide Remedial Action Workplan	☒	☐	☐			
Radionuclide Remedial Action Report	☒	☐	☐			

SECTION C. SITE USE

Current Site Use (check all that apply)

- ☒ Industrial
- ☐ Residential
- ☐ Commercial
- ☐ School or child care
- ☐ Other _____
- ☐ Agricultural
- ☐ Park or recreational use
- ☐ Vacant
- ☐ Government

Intended Future Site Use (check all that apply)

- ☒ Industrial
- ☐ Residential
- ☐ Commercial
- ☐ School or child care
- ☐ Park or recreational use
- ☐ Vacant
- ☐ Government
- ☐ Future site use unknown

SECTION D. PUBLIC FUNDS

Did the remediation utilize public funds? ..... ☐ Yes ☒ No

If "Yes," check applicable: ☐ UST Grant ☐ UST Loan ☐ Brownfield Reimbursement Program ☐ HDSRF Grant ☐ HDSRF Loan ☐ Landfill Reimbursement Program ☐ Spill Fund ☐ Schools Development Authority

SECTION E. SCOPE OF THE REMEDIAL INVESTIGATION REPORT

1. Does the Remedial Investigation address:
   - ☒ Area(s) of Concern (AOCs) Only
   - ☐ Entire Site (based on a completed and submitted Preliminary Assessment/Site Investigation)
2. Total number of contaminated AOCs associated with the case: 21
3. Total number of contaminated AOCs addressed in this submittal: 1
4. Is the Remedial Investigation complete for the contaminated AOCs addressed in this submittal? ..... ☒ Yes ☐ No
5. Is the Remedial Investigation complete for all AOCs associated with this case? ..... ☐ Yes ☒ No

   If "Yes," provide date: _____

SECTION F. SITE CONDITIONS

1. Check each media-type and highest concentration of contamination present above any applicable standards/criteria at the time of remedial investigation:

Soil in ppm					GW = Ground Water in ppb						SW = Surface Water in ppb						Sed = Sediment in ppm				
	Soil ppm	GW ppb	SW ppb	Sed ppm			Soil ppm	GW ppb	SW ppb	Sed ppm			Soil ppm	GW ppb	SW ppb	Sed ppm	
*VOCs	☒	☐	☐	☐	<100		☐	☐	☐	☐	100–1,000		☐	☐	☐	☐	>1,000
*SVOCs	☐	☐	☐	☐	<100		☐	☐	☐	☐	100–1,000		☐	☐	☐	☐	>1,000
*PAHs	☐	☐	☐	☐	<10		☐	☐	☐	☐	10–100		☐	☐	☐	☐	>100
*Metals	☐	☐	☐	☐	<100		☐	☐	☐	☐	100–1,000		☐	☐	☐	☐	>1,000
PCBs	☐	☐	☐	☐	<10		☐	☐	☐	☐	10–100		☐	☐	☐	☐	>100
*Pesticides	☐	☐	☐	☐	<1		☐	☐	☐	☐	1-10		☐	☐	☐	☐	>10
Dioxin (ppb)	☐	☐	☐	☐	<1 ppb		☐	☐	☐	☐	1-10 ppb		☐	☐	☐	☐	>10 ppb
Chromium	☐	☐	☐	☐	<100		☐	☐	☐	☐	100–1,000		☐	☐	☐	☐	>1,000
Mercury	☐	☐	☐	☐	<100		☐	☐	☐	☐	100–1,000		☐	☐	☐	☐	>1,000
Arsenic	☐	☐	☐	☐	<10		☐	☐	☐	☐	10–100		☐	☐	☐	☐	>100
EPH	☐			☐	<1,700		☐			☐	1,700–5,100		☐			☐	>5,100

2. For any contaminant group (*) checked above, identify the compound/element with the highest concentration over its applicable remediation standard:

   Benzene (0.707 mg/kg) _____ _____ _____ _____

3. Were the laboratory reporting minimum detection limits below applicable remediation standards/ criteria required for the site? ..... ☒ Yes ☐ No

4. Are any of the following conditions currently present? (check all that apply)

Ground water:

- ☐ Contaminated ground water in the overburden aquifer
- ☐ Contaminated ground water in a confined aquifer
- ☐ Contaminated ground water in the bedrock aquifer
- ☐ Contaminated ground water in multiple aquifer units
- ☐ Multiple distinct ground water plumes
- ☐ Contaminated ground water migrating off-site
- ☐ Background ground water contamination
- ☐ Contaminated ground water discharging to surface water
- ☐ Residual or free product
- ☐ Radionuclides

Soil:

- ☐ On-site discharge(s) impacting soil off-site
- ☐ Chromate Production Waste
- ☐ Munitions and explosives of concern
- ☐ Contaminated soil in the saturated zone
- ☐ Historic pesticide impacts to soil
- ☐ Residual or free product
- ☐ Radionuclides
- ☐ Historic Fill
- ☐ Soil contamination due to naturally occurring background conditions

SECTION G. APPLICABLE REMEDIATION STANDARDS

1 Were Default Remediation Standards used for all compounds? ..... ☒ Yes ☐ No
(If "Yes," check all that apply)

- ☒ Direct Contact
- ☒ Impact to Ground Water Soil Screening Levels
- ☒ Ecological Screening Levels

2. Has compliance averaging been utilized to determine compliance with the Inhalation Pathway?..... ☐ Yes ☒ No

3. Has a compliance option been utilized to determine compliance with the Impact to Ground Water Pathway? (If "Yes," check all that apply) ..... ☐ Yes ☒ No

- ☐ Immobile Compounds
- ☐ Data evaluation for metals and semi-volatiles
- ☐ Data evaluation for volatile organics derived from discharges of petroleum mixtures

4. Were Alternate Remediation Standards used for the Ingestion/Dermal Pathway? ..... ☐ Yes ☒ No

5. Were Alternate Remediation Standards used for the Inhalation Pathway?..... ☐ Yes ☒ No

6. Were Site Specific Standards used for the Impact to Ground Water Pathway? ..... ☐ Yes ☒ No
(If "Yes," check all that apply)

- ☐ Soil-Water Partitioning Equation ☐ SPLP ☐ Sesoil ☐ Sesoil/AT123D
- ☐ DAF Modification ☐ Immobile Chemicals List
- ☐ Soil and Ground Water Analytical Data Evaluation

7. Were site specific Ecological Remediation Goals used? ..... ☐ Yes ☒ No

8. What is the ground water classification for this site as per N.J.A.C. 7:9C? (check all that apply)

- ☐ Class I-A ☒ Class II-A
- ☐ Class I-PL Pinelands Protection Area ☐ Class III-A
- ☐ Class I-PL Pinelands Preservation Area ☐ Class III-B

SECTION H. BACKGROUND CONDITIONS

Did the RI demonstrate via a background investigation, outside the influence of on-site AOCs **and** operational areas, that:

1. all or any part of the ground water contamination is migrating onto this site per N.J.A.C. 7:26E-3.7(g)?..... ☐ Yes ☒ No ☐ NA

2. soil contamination is naturally occurring per N.J.A.C. 7:26E-3.10..... ☐ Yes ☒ No ☐ NA

SECTION I. ALTERNATIVE STANDARD / VARIANCES

Alternative remediation standard

If proposing an alternative remediation standard pursuant to N.J.A.C. 7:26D-7.4, or alternate vapor intrusion screening level, check here ☐ and attach the Alternative Soil Remediation Standard and/or Screening Level Application Form as an addendum.

A site-specific screening level was developed for the evaluation of the VI pathway ..... ☐ Yes ☒ No

Variance from regulations

If the Licensed Site Remediation Professional has varied from the Technical Rules, provide the citation(s) from which the remediation varied and the page(s) in the attached document where the rationale for the variance is provided.

N.J.A.C. 7:26E- _____ Page _____

N.J.A.C. 7:26E- _____ Page _____

N.J.A.C. 7:26E- _____ Page _____

SECTION J. HISTORIC FILL

1. The presence of historic fill is supported by (check all that apply):

   ☐ Boring logs ☐ Test Pits ☐ Trenches ☐ Aerial Photos ☒ NJDEP Mapped Areas

   ☐ No historic fill identified at the site. If none, skip to K. below.

2. How was the historic fill characterized pursuant to N.J.A.C. 7:26E-4.6? (check all that apply)

   ☐ Samples were collected outside areas potentially impacted by on-site operations (i.e., AOC(s))

   ☐ Contaminant levels in Table 4.2 at N.J.A.C. 7:26E-4.6

3. Are any other AOCs (i.e., location of discharge and any contaminants that may have migrated from that area) located within the defined boundaries of the historic fill? ..... ☒ Yes ☐ No

   If "No," skip to K. below

4. Have the same contaminant type(s) (e.g., lead, arsenic, and/or benzo(a)pyrene, etc.) characterized as being present in the historic fill been **sampled for** as a contaminant of concern at these co-located AOCs? ..... ☒ Yes ☐ No

SECTION K. GROUND WATER TRIGGER

1. Was a ground water investigation conducted at all AOCs where a ground water investigation was triggered pursuant to N.J.A.C. 7:26E-3.7 and 4.4(a)? ..... ☒ Yes ☐ No ☐ NA

2. Is contamination in soils fully delineated?..... ☐ Yes ☒ No

SECTION L. GROUND WATER REMEDIAL INVESTIGATION INFORMATION

1. Are contaminants present with a specific gravity less than that of water? ..... ☒ Yes ☐ No

   a. If "Yes," were any monitor wells installed in unconfined aquifers in which the water table is higher than the top of the well screen? ..... ☐ Yes ☒ No

   If "Yes" to 1a, identify the affected wells. _____

2. Are contaminants present with a specific gravity greater than that of water? ..... ☐ Yes ☒ No

   a. If "Yes," were multiple depth discrete ground water samples collected in a vertical profile at each ground water sampling location where dense contaminants were suspected?..... ☐ Yes ☐ No

3. Is ground water in the bedrock aquifer contaminated?..... ☐ Yes ☒ No

   If "Yes," answer questions 3a and 3b.

   a. Were bedrock cores collected? ..... ☐ Yes ☐ No

   b. Were geophysical logging methods conducted to characterize the bedrock aquifer pursuant to N.J.A.C. 7:26E-4.4(g)5? ..... ☐ Yes ☐ No

4. Is contamination in ground water fully delineated?..... ☒ Yes ☐ No

SECTION M. ECOLOGICAL RECEPTORS

1. Have soil, sediment, and/or surface water data been collected from Environmentally Sensitive Natural Resources (ESNR)? ☐ Yes ☒ No ☐ NA
   a. If "Yes," do contaminant concentrations at the ESNR exceed ecological screening criteria or the aquatic chronic NJSWQS [N.J.A.C.7:9B]? ☐ Yes ☒ No
   b. If "Yes," have soil and sediment data been collected from both surface and subsurface intervals in the ESNR? ☐ Yes ☒ No
   c. If No for 1b, provide explanation No completed pathway to receptor exists
2. Have contaminant migration pathways from the site/AOC to the ESNR been identified? ☐ Yes ☒ No
3. Do the results of the Ecological Evaluation require a remedial investigation of ecological receptors? ☐ Yes ☒ No

   If No, provide explanation _____
4. Has an Ecological Risk Assessment been conducted [N.J.A.C.7:26E-4.7]? ☐ Yes ☒ No
5. Is remediation required in an ESNR? ☐ Yes ☒ No

SECTION N. LABORATORY DATA

1. Were all data submitted in the appropriate full and/or reduced formats according to the deliverables defined in N.J.A.C. 7:26E-2? ☒ Yes ☐ No
2. Do all data submitted meet the quality assurance/quality control (QA/QC) requirements incorporated by reference in N.J.A.C. 7:26E-2 for:
   sampling ☒ Yes ☐ No
   analysis ☒ Yes ☐ No
3. How was it determined that the data complied with the QA/QC requirements?
   ☒ Laboratory non-conformance summary/narrative
   ☐ Laboratory correspondence
   ☐ LSRP review
   ☐ Independent contractor review
   ☐ Other: _____
4. Has any data been qualified and used? ☐ Yes ☒ No
5. Has any data been rejected and used? ☐ Yes ☒ No
6. Comments:

SECTION O. MISCELLANEOUS

1. Were any regulated USTs identified during the course of the RI that were not previously known? ☐ Yes ☒ No

   If "Yes," list tank size, contents and registration number(s). _____

   _____

1a. If "Yes," to item N.1. above and if these USTs were Federally Regulated, was the source/cause of release identified on a Confirmed Discharge Notification form? ☐ Yes ☐ No

   If "No," complete and submit a revised Confirmed Discharge Notification form.

2. Were additional Areas of Concern identified during the RI? ☐ Yes ☒ No

   If "Yes," identify AOC: _____

3. Identify Remedial Measures (RMs) conducted during the RI (check all that apply):

- ☐ Soil excavation
- ☐ Potable water supply treatment or replacement
- ☐ Hydraulic containment of source area
- ☐ Soil vapor extraction
- ☐ Enhanced fluid recovery (EFR)
- ☐ Other(s), specify: _____
- ☐ UST closure
- ☐ Free product recovery
- ☐ Vapor intrusion mitigation
- ☒ No RMs were conducted during the RI

4. Did the remedial investigation include sampling to characterize any on-site contaminated media for either on-site or off-site reuse? ..... ☐ Yes ☒ No

5. Has clean fill has been brought onto the site? ..... ☐ Yes ☒ No

   If yes, has it been analyzed? ..... ☐ Yes ☐ No

6. Has new information (material facts, data or other information) been generated during the RI that corrects or contradicts information, or changes conclusions from, previously submitted reports or information? ..... ☐ Yes ☒ No

   If "Yes," explain: _____

7. Have past deficiencies/notice of deficiencies been addressed in this submittal? ..... ☒ Yes ☐ No

SECTION P. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: Hess Corporation

Representative First Name: John Representative Last Name: Engdahl

Title: Senior Specialist

Phone Number: (732) 750-6934 Ext: _____ Fax: (732) 750-6805

Mailing Address: One Hess Plaza

City/Town: Woodbridge State: NJ Zip Code: 07095

Email Address: JEngdahl@hess.com

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____ Date: 6/17/2013

Name/Title: John Engdahl/ Senior Specialist **No Changes Since Last Submittal** ☒

SECTION Q. LICENSED SITE REMEDIATION PROFESSIONAL INFORMATION AND STATEMENT

LSRP ID Number: 581780

First Name: David Last Name: Carlson

Phone Number: (609) 387-5553 Ext: Fax: (609) 387-5533

Mailing Address: 3 Terri Ln, Suite #8

City/Town: Burlington State: NJ Zip Code: 08016

Email Address: davec@envirotrac.com

I certify that I am a Licensed Site Remediation Professional authorized pursuant to N.J.S.A. 58:10C to conduct business in New Jersey. As the Licensed Site Remediation Professional of record for this remediation, I:

[SELECT ONE OR BOTH OF THE FOLLOWING AS APPLICABLE]:

☐ *directly oversaw and supervised all of the referenced remediation, and\or*

☒ *personally reviewed and accepted all of the referenced remediation presented herein.*

I believe that the information contained herein, and including all attached documents, is true, accurate and complete.

It is my independent professional judgment and opinion that the remediation conducted at this site, as reflected in this submission to the Department, conforms to, and is consistent with, the remediation requirements in N.J.S.A. 58:10C-14.

My conduct and decisions in this matter were made upon the exercise of reasonable care and diligence, and by applying the knowledge and skill ordinarily exercised by licensed site remediation professionals practicing in good standing, in accordance with N.J.S.A. 58:10C-16, in the State of New Jersey at the time I performed these professional services.

I am aware pursuant to N.J.S.A. 58:10C-17 that for purposely, knowingly or recklessly submitting false statement, representation or certification in any document or information submitted to the board or Department, etc., that there are significant civil, administrative and criminal penalties, including license revocation or suspension, fines and being punished by imprisonment for conviction of a crime of the third degree.

LSRP Signature: Date: 6/17/2013

LSRP Name/Title: David J. Carlson/ Senior Project Manager **No Changes Since Last Submittal** ☒

Company Name: EnviroTrac Ltd

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

New Jersey Department of Environmental Protection
Site Remediation Program

RECEPTOR EVALUATION (RE) FORM

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Hess Corporation- Port Reading Refinery- Historic Spill 21

List all AKAs:

Street Address: 750 Cliff Road

Municipality: Woodbridge (Township, Borough or City)

County: Middlesex Zip Code: 07077

Program Interest (PI) Number(s): 006148 Case Tracking Number(s): 09-05-19-1218-35

Indicate the type of submission:

☐ Initial RE Submission

☒ Updated RE Submission

Indicate the reason for submission of an updated RE form

☐ Submission of an Immediate Environmental Concern (IEC) source control report;
☒ Submission of a Remedial Investigation Report;
☐ Submission of a Remedial Action Report;

Check if included in updated RE

☐ The known concentration or extent of contamination in any medium has increased;
☐ A new AOC has been identified;
☐ A new receptor is identified;
☐ A new exposure pathway has been identified.

SECTION B. ON SITE AND SURROUNDING PROPERTY USE

1. Identify any sensitive populations/uses that are currently on-site or surrounding property usage within 200 feet of the site boundary (check all that apply):

	On-site	Off-site
None of the following	☒	☒
Residences or residential property	☐	☐
Public or Private Schools grades K-12	☐	☐
Child care centers	☐	☐
Public parks, playgrounds or other recreation areas	☐	☐
Other sensitive population use(s) Explain _____	☐	☐

If any of the above applies, attach a list of addresses, facility names, type of use, and a map depicting each location relative to the site.

2. Current site uses (check all that apply):

☒ Industrial ☐ Residential ☐ Commercial ☐ Agricultural
☐ School or child care ☐ Government ☐ Park or recreational use
☐ Vacant ☐ Other: _____

3. Planned future site uses and off-site use within 200 ft of site boundary (check all that apply):

☒ Industrial ☐ Residential ☐ Commercial ☐ Agricultural
☐ School or child care ☐ Government ☐ Park or recreational use
☐ Vacant ☐ Other: _____

Provide a map depicting the location of the proposed changes in land use.

SECTION C. DESCRIPTION OF CONTAMINATION

1. Identify if any of the following exist at the site (check all that apply):
   - ☐ Free product [N.J.A.C. 7:26E-1.8] identified is ☐ LNAPL* or ☐ DNAPL**. Date identified: _____
   - ☐ Residual product [N.J.A.C. 7:26E-1.8]
   - ☐ Other high concentration source materials not identified above (e.g., buried drums, containers, unsecured friable asbestos)

     Explain: _____

   * LNAPL – measured thickness of .01 feet or more

   **DNAPL – See US EPA DNAPL Overview

2. Soil Migration Pathway

   Has soil contamination been delineated to the applicable Direct Contact Soil Remediation Standard? ..... ☒ Yes ☐ No

   Are all soils either below the applicable Direct Contact Criteria or under an institutional control (i.e. deed notice)? ..... ☒ Yes ☐ No

3. If this evaluation is submitted with a technical document that includes contaminant summary information, proceed to Section D. Otherwise attach a brief summary of all currently available data and information to be included in the site investigation or remedial investigation report.

SECTION D. GROUND WATER USE

1. Has the requirement for ground water sampling been triggered? ..... ☒ Yes ☐ No ☐ Unknown
   If "No," proceed to Section F. If "Unknown," explain:

   _____

2. Is Ground water contaminated above the Ground Water Remediation Standards [N.J.A.C.7:9C]? ..... ☐ Yes ☒ No ☐ Unknown

   Or ☐ Awaiting laboratory data with the expected due date: _____

   If "Yes," provide the date that the laboratory data was available and confirmed contamination above the Ground Water Remediation Standards. Date: _____

   If "Unknown," explain: _____

   If "No," or awaiting laboratory data proceed to Section F.

3. Has ground water contamination been delineated to the applicable Remediation Standard? ..... ☒ Yes ☐ No
4. Has a well search been completed? ..... ☒ Yes ☐ No

   Date of most recent or updated well search: 02/11/2011

   Identify if any of the following conditions exist based on the well search [N.J.A.C.7:26E-1.14(a)] (check all that apply):
   - ☐ Potable wells located within 500 feet from the downgradient edge of the currently known extent of contamination.
   - ☐ Potable well located 250 feet upgradient or 500 feet side gradient of the currently known extent of contamination.
   - ☐ Ground water contamination is located within a Tier 1 wellhead protection area (WHPA).

5. Is a completed Well Search Spreadsheet or historical well search table attached and has an electronic copy of the spreadsheet been submitted to srpgis_wrs@dep.state.nj.us. ..... ☒ Yes ☐ No

   If "No," explain: _____

6. Are any private potable or irrigation wells located within ½ mile of the currently known extent of contamination? ..... ☐ Yes ☒ No

   If "Yes," was a door to door survey completed? ..... ☐ Yes ☐ No

   If survey was not completed explain: _____

7. Has sampling been conducted of ☐ potable well(s) and /or ☐ non-potable use well(s)? ..... ☐ Yes ☒ No

   If "No," provide justification then proceed to Section E.

   There are none

8 Has contamination been identified in potable well(s) above Ground Water Remediation Standards that is not suspected to be from the site? (If "Yes," provide justification) ..... ☐ Yes ☒ No

_____

9 Has contamination been identified in potable well(s) that is above the Ground Water Remediation Standards or Federal Drinking Water Standards? ..... ☐ Yes ☒ No

Provide date laboratory data was received: _____

Or ☐ awaiting laboratory data with the expected due date: _____

If "Yes" for potable well contamination **not attributable to background**, follow the IEC Guidance Document at http://www.nj.gov/dep/srp/guidance/index.html#iec for required actions and answer the following:

Has an engineered system response action been completed on all receptors? ..... ☐ Yes ☐ No
Provide a brief narrative description:

Date completed: _____ NJDEP Case Manager: _____

10. Were Non-potable use well(s) sampled and results were above Class II Ground Water Remediation Standards? ..... ☐ Yes ☒ No

Provide date laboratory data was received: _____
Or ☐ awaiting laboratory data with the expected due date: _____

11. Has the ground water use evaluation been completed? ..... ☒ Yes ☐ No

SECTION E. VAPOR INTRUSION (VI)

1. Contaminants present in ground water exceed the Vapor Intrusion Ground Water Screening Levels that trigger a VI evaluation. (see NJDEP Vapor Intrusion Technical Guidance). ... ☐ Yes ☒ No ☐ Unknown

Or ☐ Awaiting laboratory data and the expected due date: _____

Provide the date that the laboratory data was available and confirmed contamination above the Vapor Intrusion Trigger Levels. Date: _____

2. Other existing conditions that trigger a VI evaluation. (see NJDEP Vapor Intrusion Technical Guidance)

☐ Wet basement or sump containing free product or ground water containing volatile organics
☐ Methane generating conditions causing oxygen deficient or explosion concern
☐ Other human or safety concern from the VI pathway (i.e. elemental mercury, unsaturated contamination, elevated soil gas or indoor vapor (explain):

If you answered "No," or awaiting laboratory data to Question 1., *and* did not check any boxes in Question 2, proceed to Section F, "Ecological Receptors", otherwise complete the rest of this section.

3. Has ground water contamination been delineated to the applicable Ground Water Vapor Screening Level? ..... ☐ Yes ☐ No

4. Was a site specific screening level, modeling or other alternative approach employed for the VI pathway? ..... ☐ Yes ☐ No

5. Identify and locate on a scaled map any buildings/sensitive populations that exist within the following distances from ground water contamination with concentrations above the Vapor Intrusion Ground Water Screening Levels or specific threats (check all that apply):

☐ 30 feet of petroleum free product or dissolved petroleum hydrocarbon contamination in ground water
☐ 100 feet of any non-petroleum free product or any non-petroleum dissolved volatile organic ground water contamination
☐ No buildings exist within the specified distances

6. The vapor intrusion pathway is a concern at or adjacent to the site (if "No," attach justification) ..... ☐ Yes ☐ No

7. Has soil gas sampling of the building(s) been conducted? ☐ Yes ☐ No ☐ N/A
   If "No," or "N/A," proceed to #10

8. Has indoor air sampling been conducted at the identified building(s)? ☐ Yes ☐ No
   If "No," proceed to #10

9 Has indoor air contamination been identified but not suspected to be from the site?
   (if "Yes," attach justification) ☐ Yes ☐ No

10. Indoor air results were above the NJDEP's Rapid Action Levels. ☐ Yes ☐ No

    Provide the date that the laboratory data was available and confirmed contamination above the Rapid Action Levels. Date: _____

    Or ☐ Awaiting laboratory data with the expected due date: _____

    If "Yes" to #8 above, follow the IEC Guidance Document at http://www.nj.gov/dep/srp/guidance/index.html#iec **for required actions.**

    The IEC engineering system response for control was implemented for all identified structures ☐ Yes ☐ No

    Date: _____ NJDEP Case Manager: _____

11. Indoor air sampling was conducted and results were above the NJDEP's Indoor Air Screening Levels but at or below the Rapid Action Levels ☐ Yes ☐ No

    Provide the date that the laboratory data was available. Date: _____

    Or ☐ Awaiting laboratory data with the expected due date: _____

    If "Yes" to #10 above, answer the following:

    Has the Vapor Concern (VC) Response Action Form notifying the NJDEP of the exceedances been submitted? ☐ Yes ☐ No
    Date: _____

    Has a plan to mitigate and monitor the exposure been submitted? ☐ Yes ☐ No
    Date: _____

    Has the Mitigation Response Action Report been submitted? ☐ Yes ☐ No
    Date: _____

12. Has the vapor intrusion investigation been completed? ☐ Yes ☐ No
    If "No", is the vapor intrusion investigation stepping out as part of the site investigation or remedial investigation. (If "No," attach justification) ☐ Yes ☐ No

SECTION F. ECOLOGICAL RECEPTORS

1. Has an Ecological Evaluation (EE) has been conducted? [N.J.A.C. 7:26E-1.16] ☒ Yes ☐ No

   Date conducted: _____

2. Do the results of an EE trigger a remedial investigation of ecological receptors? [N.J.A.C. 7:26E-4.8]. ☐ Yes ☒ No

3. Has a remedial investigation of ecological receptors been conducted? ☐ Yes ☒ No

   Date conducted: _____

4. Provide the name(s) of any surface water body on or within 200 feet of the site:

   _____

5. Is free product or residual product located within 100 feet from an ecological receptor? ☐ Yes ☒ No

6. Available data indicate an impact on: ☐ Ecological receptor(s) ☐ Surface water ☐ Sediment

   If this evaluation is submitted with a technical document that includes contaminant summary information, proceed to Section G. Otherwise attach a description of the type of contamination and provide a schedule and a description of all actions to be taken to mitigate exposure

SECTION G. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: Hess Corporation

Representative First Name: John Representative Last Name: Engdahl

Title: Senior Specialist

Phone Number: (732) 750-6934 Ext: Fax: (732) 750-6105

Mailing Address: One Hess Plaza

City/Town: Woodbridge State: NJ Zip Code: 07095

Email Address: JEngdahl@Hess.com

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date: 6/17/2013

Name/Title: John Engdahl/ Senior Specialist **No Changes Since Last Submittal** ☐

SECTION H. LICENSED SITE REMEDIATION PROFESSIONAL INFORMATION AND STATEMENT

LSRP ID Number: 581780

First Name: Dave Last Name: Carlson

Phone Number: (609) 387-5553 Ext: Fax: (609) 387-5533

Mailing Address: 3 Terri Ln, Suite #8

City/Town: Burlington State: NJ Zip Code: 08016

Email Address: davec@envirotrac.com

I certify that I am a Licensed Site Remediation Professional authorized pursuant to N.J.S.A. 58:10C to conduct business in New Jersey. As the Licensed Site Remediation Professional of record for this remediation, I:

[SELECT ONE OR BOTH OF THE FOLLOWING AS APPLICABLE]:

☐ *directly oversaw and supervised all of the referenced remediation, and\or*

☒ *personally reviewed and accepted all of the referenced remediation presented herein.*

I believe that the information contained herein, and including all attached documents, is true, accurate and complete.

It is my independent professional judgment and opinion that the remediation conducted at this site, as reflected in this submission to the Department, conforms to, and is consistent with, the remediation requirements in N.J.S.A. 58:10C-14.

My conduct and decisions in this matter were made upon the exercise of reasonable care and diligence, and by applying the knowledge and skill ordinarily exercised by licensed site remediation professionals practicing in good standing, in accordance with N.J.S.A. 58:10C-16, in the State of New Jersey at the time I performed these professional services.

I am aware pursuant to N.J.S.A. 58:10C-17 that for purposely, knowingly or recklessly submitting false statement, representation or certification in any document or information submitted to the board or Department, etc., that there are significant civil, administrative and criminal penalties, including license revocation or suspension, fines and being punished by imprisonment for conviction of a crime of the third degree.

LSRP Signature: Date: 6/17/2013

LSRP Name/Title: David J. Carlson/ Senior Project Manager **No Changes Since Last Submittal** ☒

Company Name: EnviroTrac Ltd.

Completed forms should be sent to the municipal clerk, designate health department, and:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

Remedial Investigation Report
Historic Spill- 21 Tank 7930
Hess Corporation – Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

SRP PI # 006148

June 17, 2013

Prepared for:

John J. Engdahl
Senior Specialist
Hess Corporation
One Hess Plaza
Woodbridge, NJ 07095

Prepared by:

EnviroTrac Ltd.
3 Terri Lane, Suite #8
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Senior Project Manager
NJDEP LSRP# 581780

TABLE OF CONTENTS

1.0 Introduction

2.0 Historical and Background Information

- 2.1 Historical Information
- 2.2 Background
- 2.3 Site Specific Geology and Hydrogeology
- 2.4 Groundwater Flow Direction

3.0 Receptor Evaluation

- 3.1 Groundwater Use
- 3.2 Vapor Intrusion
- 3.3 Ecological Evaluation
  - 3.3.1 Environmentally Sensitive Natural Resources
  - 3.3.2 Contaminants of Potential Ecological Concern
  - 3.3.3 Contaminant Migration Pathway
  - 3.3.4 Conclusion of Receptor Evaluation

4.0 Technical Overview

- 4.1 Summary
- 4.2 Quality Assurance and Control

5.0 Remedial Investigation Activities

6.0 Conclusion

FIGURES

Figure 1 Site Location Map/ USGS Topographic Map

Figure 2 Site Plan

Figure 3 Site Plan and Sample Locations - HS-21

Figure 4 Schematic Cross Section of Tank 7930

Figure 5 Western Lithology Cross Section

Figure 6 Groundwater Flow Map- August 25, 2011

Figure 7 Groundwater Flow Map- November 26, 2012

TABLES

Table 1 Soil Sampling Analytical Summary Table- HS-21

Table 2 Temporary Well Analytical Data Summary Table HS-21

EnviroTrac

APPENDICES

Appendix I	**Historic Aerial Photographs (1931-2007)**
Appendix II	**Historic Topographic Maps (1891-1981)**
Appendix III	**Historic Fill Quadrangle Maps (Arthur Kill and Perth Amboy)**
Appendix IV	**Confirmation Report**
Appendix V	**Schematic Diagram of Tank Sump**
Appendix VI	**NJDEP 2001 Geologic Survey Map**
Appendix VII	**Cross Section Boring Logs**
Appendix VIII	**Permeability Testing NJPDES Permit NJ0028878 Submitted Sept. 15, 2011 to NJDEP, Bureau of Release Prevention**
Appendix IX	**Drainage System Schematic Drawings**
Appendix X	**Laboratory Analytical Data Package – Soil Sample— 7930 Sump (PE-1)—June 2, 2009**
Appendix XI	**Laboratory Analytical Data Packages – Temporary Well-- TK 7930-TW-1—October 28, 2009**
Appendix XII	**South Landfarm Groundwater Monitoring Figure and Table – October 27, 2009 Quarterly**
Appendix **XIII**	**Site Activity Records and Field Notes**

Remedial Investigation Report
Historic Spill-21 Tank 7930
Hess Corporation – Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

1.0 Introduction

EnviroTrac Ltd. (ET) has been retained by Hess Corporation (Hess) to provide environmental consulting services with regard to subsurface conditions at the Hess Corporation – Port Reading (HC-PR) Refining facility ("facility"). The facility is located at 750 Cliff Road in Port Reading, Middlesex County, New Jersey. **Figure 1** is a United States Geological Survey (USGS) 7.5 minute series quadrangle map (Arthur Kill, New Jersey) depicting the facility and associated land features.

This Remedial Investigation Report (RIR) presents investigative activities occurring at the HC-PR's Historic Spill 21 – Tank 7930. The location of Historic Spill (HS) - 21 is shown on **Figure 2**, and Site Plan for HS-21 is presented at **Figure 3**.

Historic Spill-21 is located on the north central portion of the facility, within a bermed area containing Tanks 7930 and 7933, which are utilized for gasoline storage. To the west is HC-PR's Alkylation Unit and the Gasoline Treatment Area is located to the northwest. Tank fields are located to the south and east and the Sulfur Recovery Unit and Sour Water stripper are located to the north. The closest residential land use is approximately 1,200-feet north of the AOC.

2.0 Historical and Background Information

2.1 Historical Information

A review of available historic aerial photographs and historic topographic maps of the site and the area of HS-21 has been conducted. The photographs range from 1931 through 2007 and topographic maps range from 1891 to 1981 and indicate that the site was sparsely developed with residential properties until 1957. HS-21, and the areas to the north, east and west appears to be dry upland fields, with residential properties approximately 700 feet north and west and 300 feet east. The main channel of Smith Creek was located to the south. The Smith Creek, its tributaries, and salt marshes are not shown in the area of HS-21, confirming it is not located on former marshland. .

The specific location is shown on the edge of the historic fill area on the NJDEP Historic Fill Quadrangles for Arthur Kill and Perth Amboy. The area identified as HS-21, that is Tank 7930, was constructed between 1957 and 1966. Photographs between 1966 and 1979 indicate minimal changes to the area. The 1986 photograph depicts the gasoline treatment area to the west. Historical aerial photographs are presented in **Appendix I**, historic topographic maps are presented in **Appendix II**, and Historic Fill Quadrangles are presented in **Appendix III**.

The HC-PR facility currently processes low sulfur gas oils and residuals as feed to a Fluidized Catalytic Cracking Unit (FCCU) that converts gas oil into gasoline, fuel oil and hydrocarbon products (e.g. methane, ethane and liquefied petroleum gas). HC-PR operations were initiated in 1958 with a Crude Topping Unit and underwent various expansions between 1958 and 1970. In 1974, refining operations were suspended; and the facility functioned only as a bulk storage and distribution terminal until 1985. In April 1985, following a lengthy retrofit, the HC-PR facility resumed operations. In early 2013 Hess Corporation announced it will be exiting the marketing and refining business. As such, refining activities onsite have stopped and the process units are currently being decommissioned.

2.2 Incident Description

The discussion below is based on the initial Discharge Confirmation Report for HS-21 dated June 17, 2009 and first person interview of Mr. William O'Mahoney, former Maintenance Supervisor at the facility. Note that Mr. O'Mahoney is cited on the Discharge Confirmation Report. Mr. O'Mahoney supervised the inspection and repairs to the water draw sump.

On May 19, 2009, Tank 7930, a 2,000,000-gallon gasoline above ground storage tank (AST), was placed out of service for an internal inspection. The inspection was conducted based on the observation of water seepage from the junction of the concrete ring wall and the steel tank base. In response to the observation Hess performed the following actions:

- The NJDEP and Incident #09-05-19-1218-35 was assigned;
- the tank was emptied; and
- the tank was cleaned and inspected by Hess personnel.

During the course of the inspection, corrosion and scale were identified in the base of a water draw sump. As shown on **Figure 4**, the sump is located inside bottom of the tank. Chicago Bridge and Iron Company (CB&I) of Bloomfield, New Jersey was retained to remove the sump.

On June 2, 2009, Hess personnel removed the water exhibiting a gasoline odor from the sump and base of the tank and CB&I removed the metal sump from the storage tank floor. Heavy scale was observed above and beneath the steel sump. After sump removal from the tank floor, accumulated soil and heavy scale was removed from the bottom of the sump. A hole that was "approximately ¼" in diameter" was then observed. A new sump was installed in accordance with standard American Petroleum Institute (API) Standard 653 – Tank Inspection, Repair, and Alteration, and Reconstruction.

The bottom of the sump was determined to be approximately 2.0 feet below bottom of the tank floor. The soil encountered at the top of sump/bottom of tank floor interface returned photo-ionization detector (PID) readings of 88 parts per million (ppm). The 88 ppm may have not been solely representative of the soil conditions in this location, as the readings were being taken inside the vented gasoline storage AST. In response to these observations, soil was removed from the sump excavation area (approximately 2.0 feet in diameter) to an approximate depth of 5.0-feet below bottom of tank floor. This resulted in the reported accumulation of approximately 2.5 cubic feet (approximately 20-gallons per Discharge Confirmation Report) of soil excavated from below the sump.

Upon excavation of the soil, soil sample 7930 Sump (PE-1) was collected from directly below the sump location, at a depth of 5.0- to 5.5-feet beneath the floor of the tank. PID readings at the sample depth were 12 ppm. Please refer to **Figure 4** for a cross section diagram of the tank, the sump location inside of the tank, and the soil sample location. Schematic drawings for the tank are found in **Appendix V**. Based upon the field observations and PID screening levels it was estimated by the tank repair team that the quantity of water released was less than 5 gallons. A quantified measurement of the volume of water actually released would be near impossible to estimate due to the location of the sump (beneath the AST) and the nature of its use. The amount of scale and accumulated soil on both inside and outside of the sump and in and around the ¼" hole may have restricted the loss of water. Also, the AST sits upon engineered/compacted fill material, and the low permeability of the fill could have also contained the volume of the release. The Discharge Confirmation Report can be found in **Appendix IV**.

2.3 Site Specific Geology and Hydrogeology

According to the NJDEP Geologic Survey Map of New Jersey 2001, the site is underlain by the Raritan Formation and is part of the Coastal Plain Physiographic Province. Soils within this formation are composed predominantly of clayey silt overlying quartz sand. The site is located on the Potomac-Raritan-Magothy bedrock aquifer system. The Geologic Survey Map for the Arthur Kill is presented in **Appendix VI**.

There are no pronounced geological surface features, such as rock outcroppings, on the subject facility. Site-specific stratigraphy was gathered during soil boring and monitoring well advancement and installation activities in the site area and other parts of HC-PR. The documented lithology confirms the aerial photograph observations that the facility is geographically divided into two distinct sections. In general, on the western portion of the HC-PR, where the office and production facilities are now located, unconsolidated clays, silts, silty sands and clayey sands underlie the facility.

In general, the eastern and southeastern portions of the facility (Detention Basin, eastern tank fields, and wastewater treatment) are underlain by 10 to 20 feet of natural sandy fill assumed to be from dredging operations related to the Arthur Kill. This material sits above an approximately 10-foot thick confining marsh layer comprised of organic matter, sands, and peat. Beneath this stratum the limited boring data indicates 10 feet of primarily fine to coarse sands followed by an approximately 15-foot layer of dense glacial till. This is subsequently underlain by a layer of fine to coarse sand with some silt and gravel, and weathered, jointed shale. The predicted depth of the shale at the site is approximately 50-feet bgs and based on a 1958 boring log, the depth to the shale may be as deep as 200-feet bgs at the Arthur Kill shoreline.

HS-21 is situated on the “western” lithology of HC-PR. A lithologic cross section of the ‘western lithology’, based on boring and well log descriptions has been prepared, and is presented as **Figure 5**. The ground surface under HS-21 is covered with a re-enforced concrete pad that is approximately 24 inches thick and beneath which 3- to 5-feet of sandy fill material that overlies approximately 10-feet of red clay with interspersed sand and gravel, which overlies approximately 10-feet of red fine sand, lens of gravel and clay. The gravel and clay lenses vary in thickness through the profile. The sandy fill materials were excavated below the tank sump. Dark grey clays have been encountered from about 25-40 feet bgs. These overlie approximately 10 feet of red-brown sand with silt and clay and the deepest lithologic information for HS-21 documents grey clay from 50 to 58 feet bgs. Shale bedrock is anticipated below this layer. The cross section is presented in **Figure 5;** and the boring logs utilized are included in **Appendix VII.** In addition, boring logs for the temporary well installed at Tank 7930 (TK 7930-TW-1) and for borings conducted at the nearby Historic Spill 6 (HS-6 boring series) are enclosed for review. The location of HS-6 is shown on **Figure 2**.

Groundwater movement is a function of topography, lithology, elevations of recharge discharge areas, and anthropogenic influences. Given the proximity of the facility to the Arthur Kill, a tidal survey was performed in May and June of 2002. The results of the survey concluded that facility wells adjacent to the Arthur Kill are tidally influenced, but those within the “interior” portions of the facility are unaffected by tidal influences.

The headwaters of Smith Creek, a Category Two waterway, are located to the south of the facility. The creek previously flowed through the entire HC-PR facility, but was progressively filled during the course of facility development. The portion of the Arthur Kill adjacent to the facility is classified as “SE3”, the general surface water classification applied to the saline waters of estuaries.

Depth to ground water within the shallow, unconfined water table across the facility has been observed ranging between 1.5- to 10.5-feet bgs. The average hydraulic gradient across the

entire site is 0.001 feet per foot (ft/ft). Depth to static water at HS-21 was observed at approximately 3.5-feet bgs on October 28, 2009 during groundwater sampling. Please note that groundwater was not encountered during soil sampling on June 2, 2009.

In compliance with the NJPDES Permit NJ0028878, a soil permeability study was conducted in June 2011. The containment berm of Tank 7930 was part of the study. The entire study can be found as **Appendix VIII** of this document. According to the permeability findings, it would take product release to the ground surface at Tank 7930 in excess of 11,000 hours to affect groundwater at this location.

2.4 Topography

According to the United States Geological Survey *Arthur Kill Quadrangle, New Jersey / New York* 7.5 Minute Series Topographic Map, topography of the facility is generally level at an approximate elevation of 7- to 15-feet above mean sea level (msl). The USGS Topographic Map is presented as **Figure 1.**

2.5 Groundwater Direction

As demonstrated by groundwater monitoring associated with the Quarterly Groundwater Monitoring Program at the nearby South Landfarm groundwater flow on October 27, 2009 was toward the south. **Figure 2** contains a depiction of the South Landfarm relative to HS-21. **Appendix XII** contains a copy of the map and data table developed for that October 27, 2009 event.

As depicted in **Figure 5** Groundwater Flow Map- August 25, 2011, ground water flow direction was toward the south in the HS-21 area.

As depicted in **Figure 6** Groundwater Flow Map- June 26, 2012 the dominant groundwater flow pattern in the HS-21 area is towards the south.

3.0 Receptor Evaluation

A formal Receptor Evaluation for the entire HC-PR facility was submitted to the NJDEP in March 2011. The section below customizes information developed by that formal evaluation to address the conditions specific to HS-21. The format and contents of the Receptor Evaluation below correspond to the requirements specified in the August 2012 NJDEP document *Technical Guidance for Ecological Evaluations*.

3.1 Groundwater Use

The site area is serviced by a municipal water supply, which is provided by the Middlesex Water Company. The Middlesex Water Company draws water from the Delaware-Raritan Canal to a water treatment and pumping station located in New Brunswick, New Jersey. Groundwater is not used in any process at the facility. Well searches were conducted by The Shaw Group in December 2006 and EnviroTrac in February 2011. The well search results have previously been submitted to the NJDEP. There are no domestic supplies, irrigation or industrial use wells reported within 0.5 miles of the site.

3.2 Vapor Intrusion

The land cover in the area of HS-21 is a mix of asphalt and concrete; several structures are located within or adjacent to HS-21. These structures are used in the distribution of gasoline and other petroleum products, therefore are exempt from indoor air sampling as per the *NJDEP Vapor Intrusion Guidance Document, January 2012*.

Due to the nature of the facilities, and shallow groundwater, sub-slab sampling is not proposed at this time. Remediation is ongoing, and change in land use is not anticipated, institutional controls are planned, therefore, no sub-slab sampling is proposed at this time.

3.3 Ecological Evaluation

An ecological evaluation (EE) was conducted at HS-21. The EE did not identify environmentally sensitive natural resources (ESNR) within 500-feet of HS-21. Contaminants of Potential Ecological Concern (COPEC) have been identified within HS-21. Present data demonstrates there is not a migration pathway from HS-21 to the nearest ESNR.

3.3.1 Environmentally Sensitive Natural Resources

As stated above the nearest ESNR is located at a surface water body is located 600 feet south of HS-21. The surface water body is known as AOC 12 - Detention Basin. A review of the NJDEP GIS Digital data indicates that freshwater emergent wetlands are located around AOC 12 - Detention Basin and patches of cord grass (*Spartina Alterniflora*) were identified surrounding the Detention Basin. To the south of the Detention basin are freshwater emergent (0.14 miles) and riverine (0.16 miles) wetlands. No wetlands were identified within the boundaries of HS-21.

A review of available information regarding the possible presence of environmentally sensitive areas and New Jersey or Federally listed species found no rare, threatened or endangered species inhabiting any portions of the site or adjacent to the subject facility. However, rare wildlife species were identified within ¼ mile of the northern boundary of the HC-PR facility. That is was at a location greater than 1,500 feet northeast of HS-21.

During the on-site field investigation of HS-21, there were no visual observations of existing contaminant migration pathways, such as stressed or dead vegetation, discolored soil, absence of biota from particular areas, or seeps and discharges. The subject site is fully developed and surrounded by chain-link fence. Interspersed areas of anthropogenic structures, e.g. industrial buildings, above ground storage tank farms, bulkheads, and roadway system cover most of the site.

3.3.2 Contaminants of Potential Ecological Concern (COPECS)

Groundwater and soil samples from the area of HS-21 have been compared to the applicable NJDEP Ecological Screening Criteria. COPECs have been identified in the soils at HS-21 but not groundwater. The COPECs identified in soil are benzene, toluene, ethylbenzene, and xylenes.

3.3.3 Contaminant Migration Pathways

Subsurface utilities, including storm sewer lines and process sewer lines (typically six feet bgs ranging from 10- to 18-inches in diameter), and pipelines relating to HC-PR operations run throughout the facility.

Process and surface water in the HS-21 area is directed to the facility sewer system shown on **Figures 6 and 7**. Further detail on the drainage system in the area is shown on the figures included in **Appendix IX**. All subsurface drains terminate at the AWWTS. Groundwater impact has not been detected at HS-21. Therefore, neither groundwater nor the subsurface drainage presents a contaminant migration pathway.

3.3.4 Conclusion of Ecological Evaluation

ENSRs have not been identified within or adjacent to HS-21. There are no completed contaminant migration pathways. Based on the findings of the EE for HS-21, no further EE is required.

4.0 Technical Overview

4.1 Summary of Findings

HS-21 tank 7930 is subject to remedial investigation due to the May 19, 2009 release of gasoline-impacted water through a compromise in the steel structure of the water draw sump of Tank 7930. On June 2, 2009, impacted soil was excavated and a post-excavation soil sample designated 7930 Sump (PE-1) was collected from 5.0- to 5.5-feet BITB to evaluate subsurface soils. On October 28, 2009, temporary well TK 7930-TW-1 was installed at HS-21 at a location 30-feet hydraulically downgrade from the water-draw sump location.

The well was installed on the outside of the tank as close as safely possible to the sump and previous sample location. Based on the results HC-PR is requesting closure for Case #09-05-19-1218-35.

4.2 Quality Assurance and Quality Control

Laboratory analytical data generated by EnviroTrac throughout the course of the investigation are considered reliable, all samples were submitted to Accutest Laboratories, a NJ certified laboratory. No issues have been identified with regard to holding times; method detection limits (MDLs) or precision and accuracy. Laboratory data for groundwater samples referred to in the report are enclosed in **Appendix VII** and **Appendix VIII.**

5.0 Remedial Investigation Activities

On June 2, 2009, one soil sample (7930 Sump PE-1) was collected by stainless steel hand auger from the depth of 5.0- to 5.5-feet area of directly beneath HS-21, and submitted to Accutest Laboratory (NJDEP Certification #12129), of Dayton, New Jersey under proper chain of custody procedures, and analyzed for volatile organic compounds plus library search by USEPA method 8260. Groundwater was not encountered during collection of the soil sample.

The laboratory reported analytical data benzene, toluene and total xylenes above the NJDEP Impact to Groundwater Soil Remediation Standard (IGWSRS) in soil sample 7930 Sump (PE-1). Soil sampling analytical data is summarized in **Table 1.** The analytical results demonstrate that the compounds of concern are below Residential Direct Contact Soil Remediation Standards (RDCSRS). The laboratory analytical data report package for is presented in **Appendix X.**

Groundwater sampling was conducted at Tank 7930 to confirm that the exceedance of IGWSRS at sample 7930 Sump PE-1 did not adversely affect groundwater. Note that the water draw sump in the tank was replaced during June 2009 and the tank was placed back in service. Therefore, the sump location was not available and the nearest appropriate downgrade location was chosen for groundwater sampling. The temporary well location was selected based on the most recent and applicable groundwater direction data available. The down gradient location was selected based on the October 27, 2009 groundwater level measurements and flow map developed for the quarterly monitoring of the nearby South Landfarm (see Figure 2 for Landfarm location). A location immediately adjacent to Tank 7930 in the downgrade direction from the water draw sump was selected. **Appendix XII** contains a map and the applicable field data table demonstrating groundwater flow direction on October 27, 2009.

On October 28, 2009, one temporary well (TK 7930-TW-1) was installed at the downgradient area. The sump and the temporary well point are approximately 30 linear feet apart as shown on Figure 3. Temporary Well TK-7930-TW-1 was advanced to a total depth approximately 10 feet bgs; groundwater was measured at approximately 3.5 bgs after the well had stabilized.

The temporary well point was installed using direct push technology. The soil cores obtained from the well installation were saved and returned to the boring from which they came. As with most shallow temporary well points, the well consisted entirely of slotted screen to ensure that the groundwater remains below the screened interval. The drilling was performed via Geoprobe® by Summit Drilling Co., Inc. of Bridgewater, New Jersey, under direct supervision of EnviroTrac Ltd. A copy of the log for TK-7930-TW-1 is included in **Appendix VII.** As shown on the well log indications of impact such as odor or soil staining, nor elevated photo-ionization detector readings were encountered during well installation. All drill cuttings were returned to the boring after removal of the PVC casing.

Note that in previous communication with NJDEP/EPA the location of temporary monitoring well was inaccurately illustrated on report figures. The formerly presented location was based on 2009 large scale mapping that, when reduced to HS-21 specific scale yielded an inaccurate location. The current location (hydraulically down gradient) used in this report is correct. In fact, it is the only possible location a geoprobe could enter and operate at Tank 7930. As shown on Figure 3 the access to the tank field via ramp is blocked by permanent pipeline to the east and semi-permanent (in place 2009 through present) pipeline to the west.

A groundwater grab sample was collected by bailer in accordance with NJDEP Field Sampling Procedures Manual 2005, and submitted to Accutest for analysis of VO+10 via EPA 8260 and semi-volatile organic compounds plus library search (SVO+15) via EPA 8270 with analyses for polycyclic aromatic hydrocarbons (PAH) via Selective Ion Monitoring (SIM). The groundwater sample location is depicted in **Figure 3.**

Analytical data reported no targeted VO and SVO compounds above the GWQS in groundwater sample TK 7930-TW-1. Groundwater sampling analytical data is summarized in **Table 2.** The laboratory analytical data report package for is presented in **Appendix XI.**

6.0 Conclusion

HS-21, Tank 7930 is subject to remedial investigation due to the observed release of waster from the tank/concrete interface. In response to this observation, the 2,000,000-gallon gasoline AST was taken out of service and inspected. During the inspection, the water draw sump was pumped dry. The sump was subsequently removed revealing a ¼" hole surrounded by heavy scale and accumulated soil. Based on field observations, it was estimated that approximately 5-gallons of water that had been impacted by gasoline was released at the engineered/compacted fill underlying the AST.

Remedial Investigation was conducted that included the collection and analysis of one soil and one groundwater sample from appropriate locations in accordance to NJDEP regulations. Analytical results indicated that benzene, toluene and total xylenes above the IGWSRS in the engineered/compacted fill below the gasoline storage AST. All concentrations were below Direct Contact residential and non-residential Soil Remediation Standards. All targeted volatile organic and semi-volatile organic compounds were reported below their respective NJDEP GWQS in groundwater. The results of the sampling show that the release had no impact on localized downgrade groundwater quality.

1. Based on the information above, HC-PR requests closure for Case #09-05-19-1218-35.

Table 1
Historic Spill 21- Soil Sampling Analytical Summary
Hess- Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

Sample Location	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylene	Total Volatile TICs
NRDCSRS		5	91000	110000	170000	-
RDCSRS		2	6300	7800	12000	-
IGWSRS		0.005	4	8	12	100/500
7930 Sump PE-1	June 2, 2009	0.707	5.120	2.330	15.700	64.300(10)J

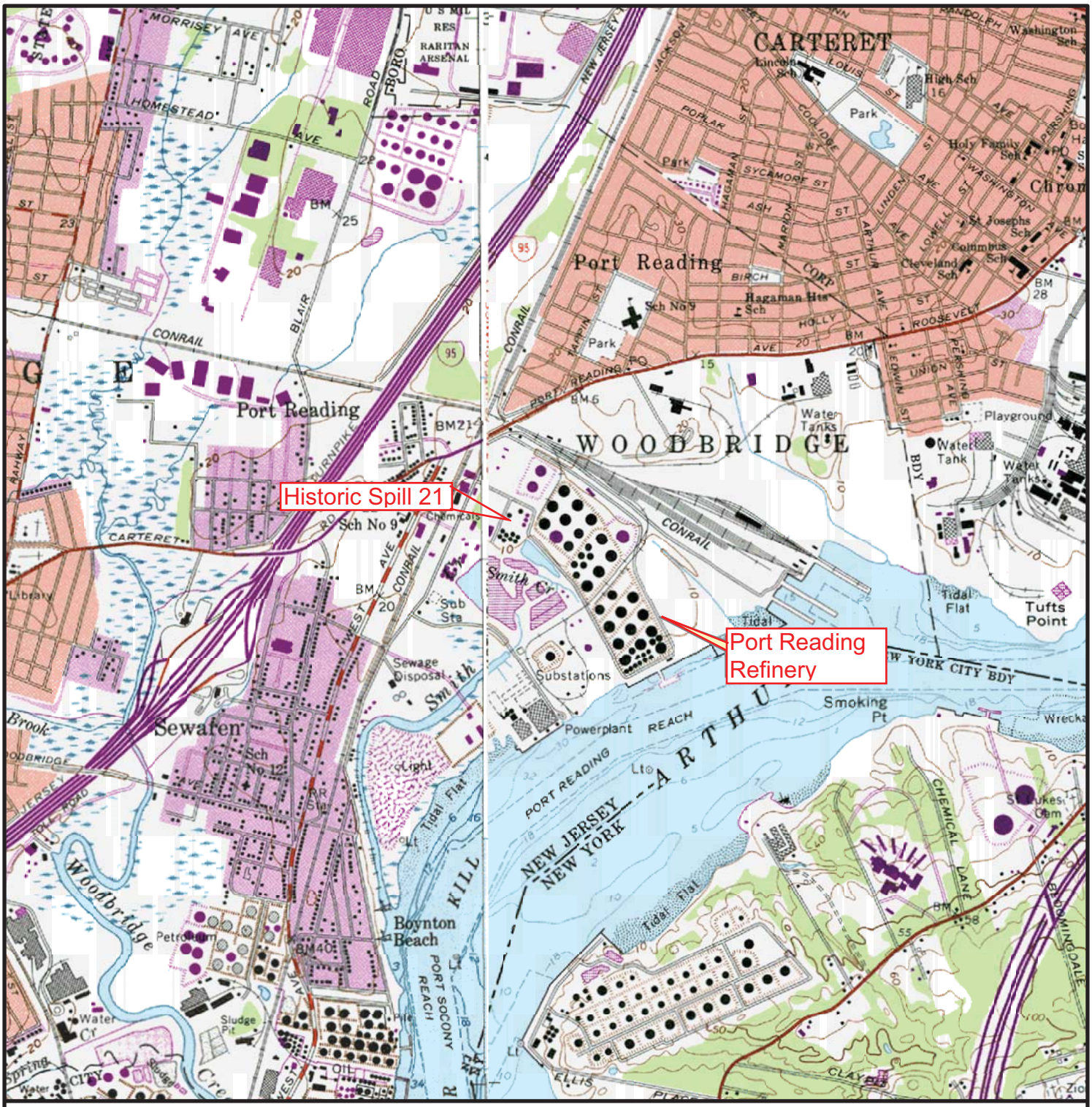
All samples in mg/kg unless otherwise noted.
NRDCSRS - Non-Residential Direct Contact Soil Remediation Standard
RDCSRS - Residential Direct Contact Soil Remediation Standard
IGWSRS - Impact to Ground Water Soil Remediation Standard (Default)
- Sample Above NRDCSRS
- Sample Above RDCSRS but Below NRDCSRS
- Sample Above IGWSRS but Below NRDCSRS and RDCSRS

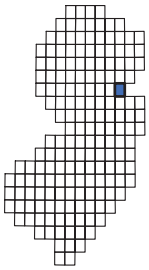
Table 2
Temporary Well Analytical Data Summary- Historic Spill 21
Hess Corporation- Port Reading Refinery
750 Cliff Rd
Port Reading, Middlesex County, New Jersey

		Volatile Organics																																
Sample ID	Date	Acetone	Benzene	Bromodichloromethane	2-Butanone (MEK)	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Cyclohexane	Dibromochloromethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2 Dichloropropane	Ethylbenzene	Isopropylbenzene	Methyl Tert Butyl Ether	Methylene chloride	Methylcyclohexane	Tetrachloroethene	Tert Butyl Alcohol	Toluene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	Trichloroethene	Vinyl chloride	Xylene (total)	Total Volatile (TIC)
NJDEP GWQS		6,000	1	1	300	700	1	50	5	70	NA	1	600	600	75	50	1	70	100	1	700	700	70	3	NA	1	100	600	9	30	1	1	1,000	500
TK-7930-TW1	10/26/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

		Base Neutrals																																
Sample ID	Date	Acenaphthene	Acenaphthylene	Anthracene	Acetophenone	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-Ethylhexyl) phthalate	Chrysene	Carbazole	Caprolactam	2-Chloronaphthalene	Dibenzo(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	Butyl benzyl phthalate	1,1'-Biphenyl	4-Chloroaniline	Di-n-butyl phthalate	Di-n-octyl phthalate	Diethyl phthalate	bis(2-Ethylhexyl)phthalate	Isophorone	2-Methylnaphthalene	N-Nitroso-di-n-propylamine	Total Semi-Volatile (TIC)
NJDEP GWQS		400	100	2,000	700	0.1	0.1	0.2	100	0.5	2	5	NA	5000	600	0.3	NA	300	300	0.2	300	100	200	100	400	30	700	100	6,000	3	40	30	10	500
TK-7930-TW1	10/26/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

All data is reported in ug/kg unless otherwise noted
ND- Not Detected
NA- Not Applicable



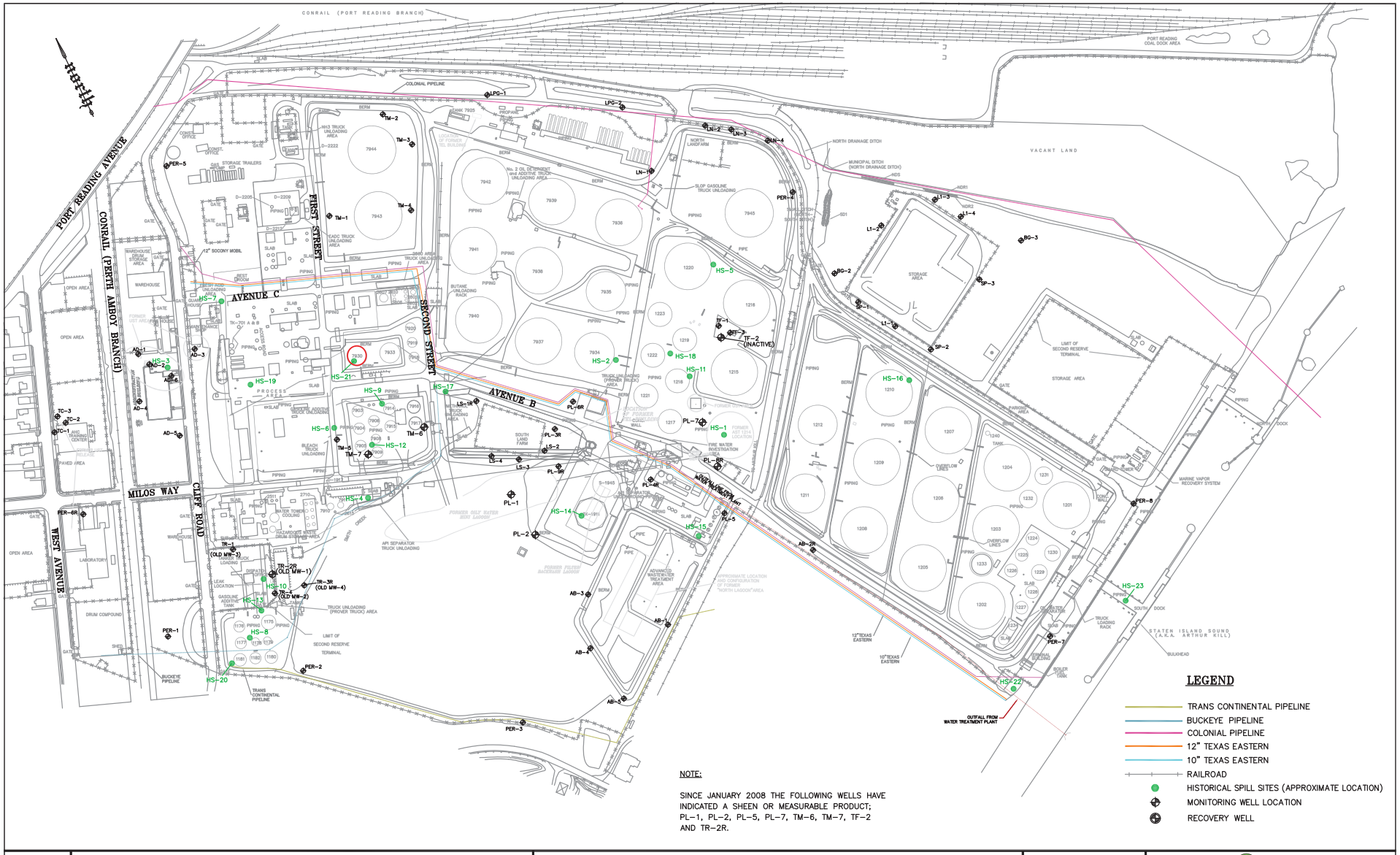


QUADRANGLE LOCATION:
ARTHUR KILL, NEW JERSEY

0 1,000 2,000 4,000 6,000 8,000 Feet

N W E S

FIGURE #	U.S.G.S. TOPOGRAPHIC MAP	DRAWN BY: B.J.S.	EnviroTrac ENVIRONMENTAL SERVICES
1	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	DATE: 7/15/10	400E CORPORATE COURT, So. PLAINFIELD NJ 07080 PHONE: (908)757-1900 FAX: (908)757-0017



NOTE:

SINCE JANUARY 2008 THE FOLLOWING WELLS HAVE INDICATED A SHEEN OR MEASURABLE PRODUCT; PL-1, PL-2, PL-5, PL-7, TM-6, TM-7, TF-2 AND TR-2R.

FIGURE #				
2	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	HESS	SITE PLAN WITH HISTORIC SPILL LOCATIONS	0 350 SCALE IN FEET
			DRAWN BY: B.J.S. / REVISION DATE: 7/21/10	

EnviroTrac
ENVIRONMENTAL SERVICES
400E CORPORATE COURT, So. PLAINFIELD NJ 07080
PHONE: (908)757-1900 FAX: (908)757-0017

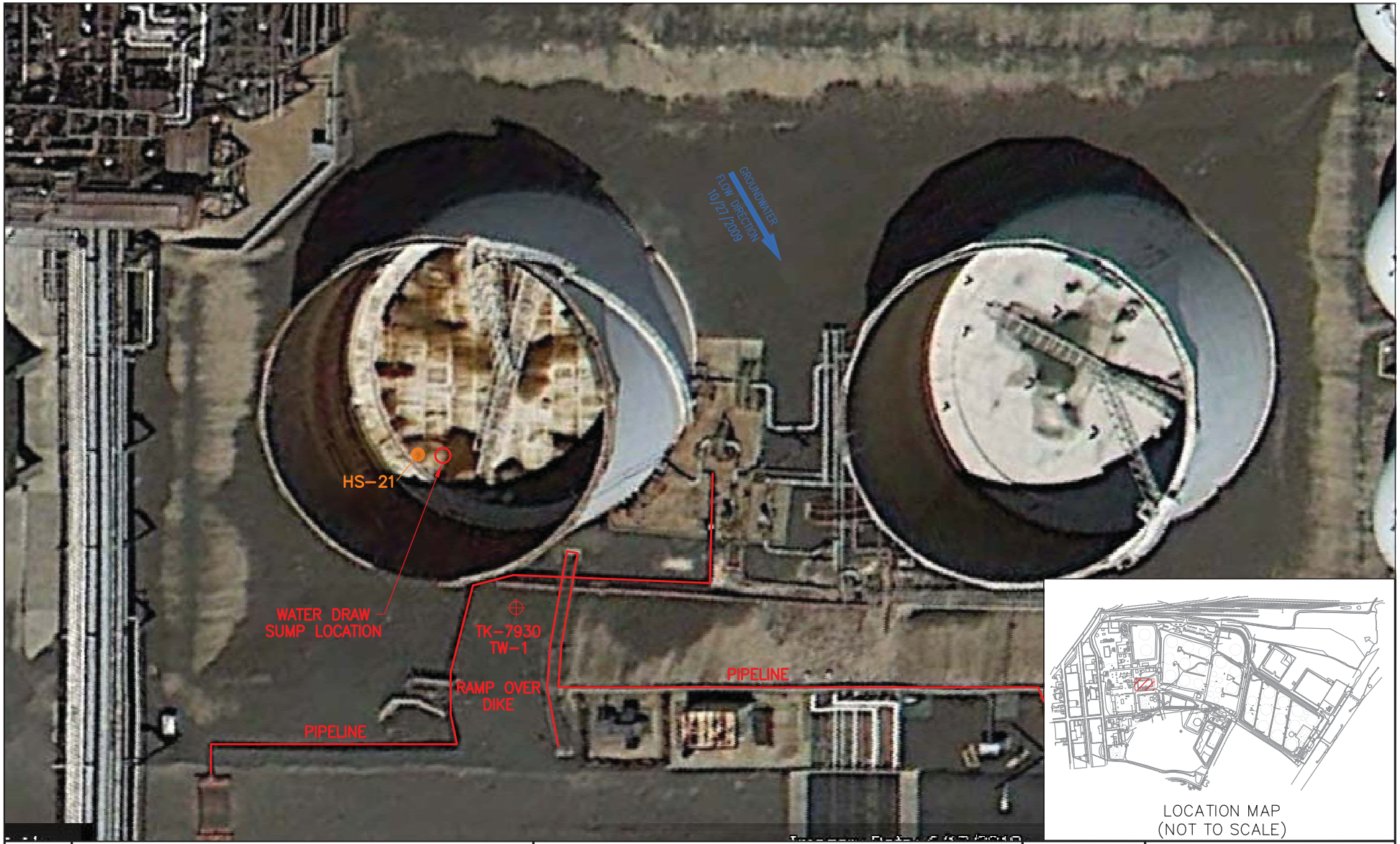


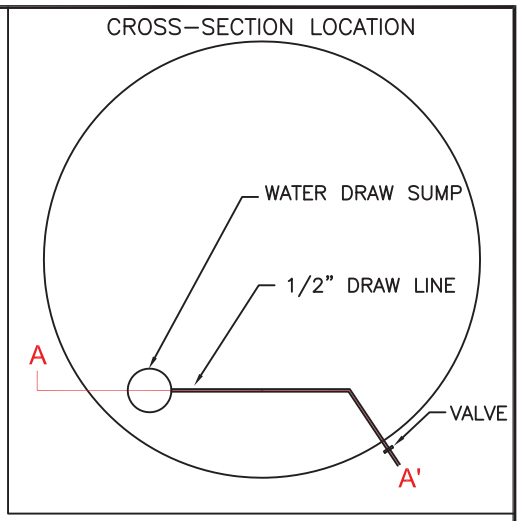
FIGURE #					
3	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	HESS	HISTORIC SPILL 21 – SITE PLAN AND SAMPLE LOCATION MAP	0 10 20 SCALE IN FEET	EnviroTrac ENVIRONMENTAL SERVICES 400E CORPORATE COURT, So. PLAINFIELD NJ, 07080 PHONE: (908)757-1900 FAX: (908)757-0017
			DRAWN BY: J.M. / REVISION DATE: 6/11/13		

NOTE:

HORIZONTAL SCALE: NOT TO SCALE.

VERTICAL SCALE: 1 INCH = 1.5 FT.

: DENOTES UNSPECIFIED DISTANCE.



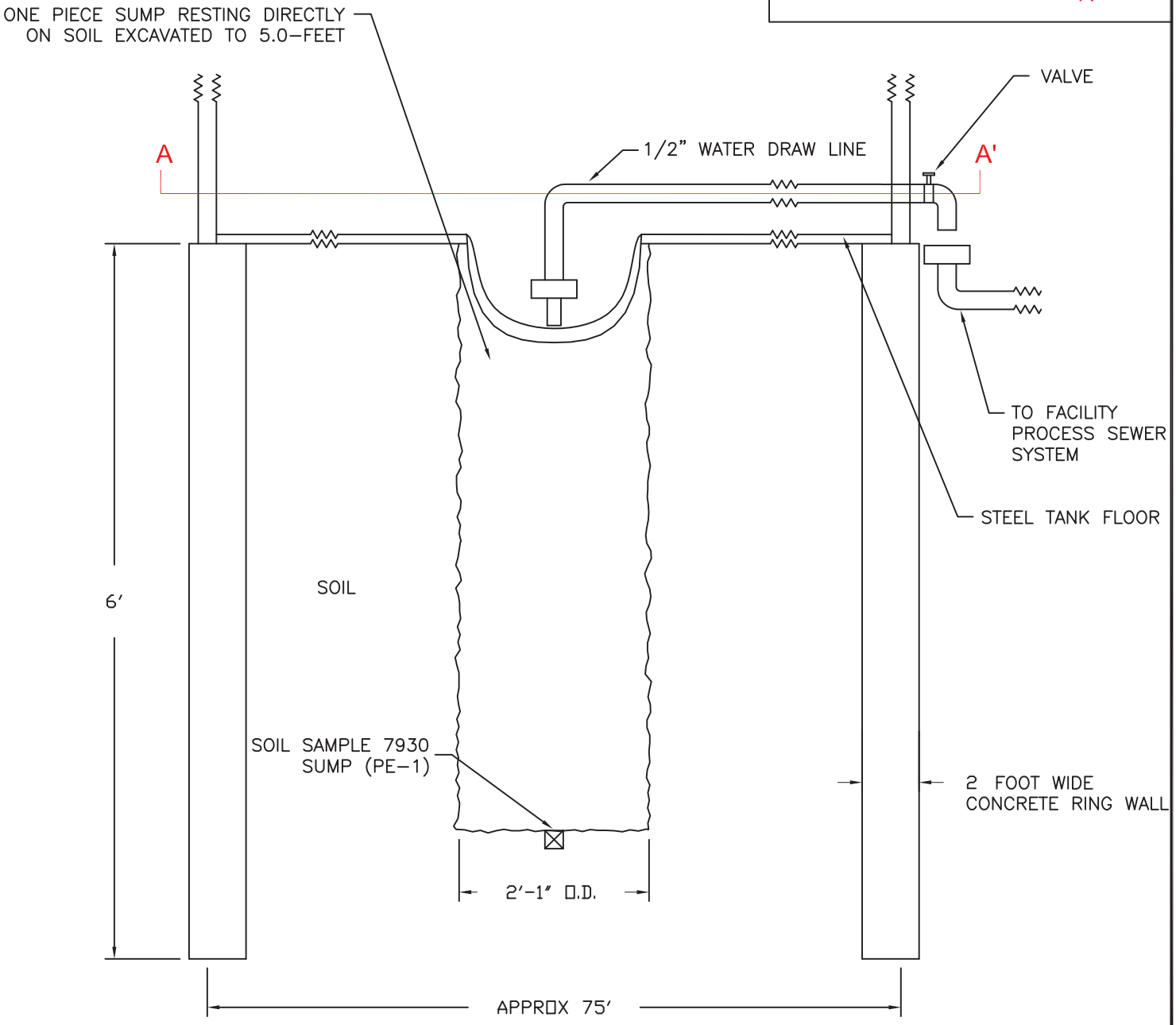
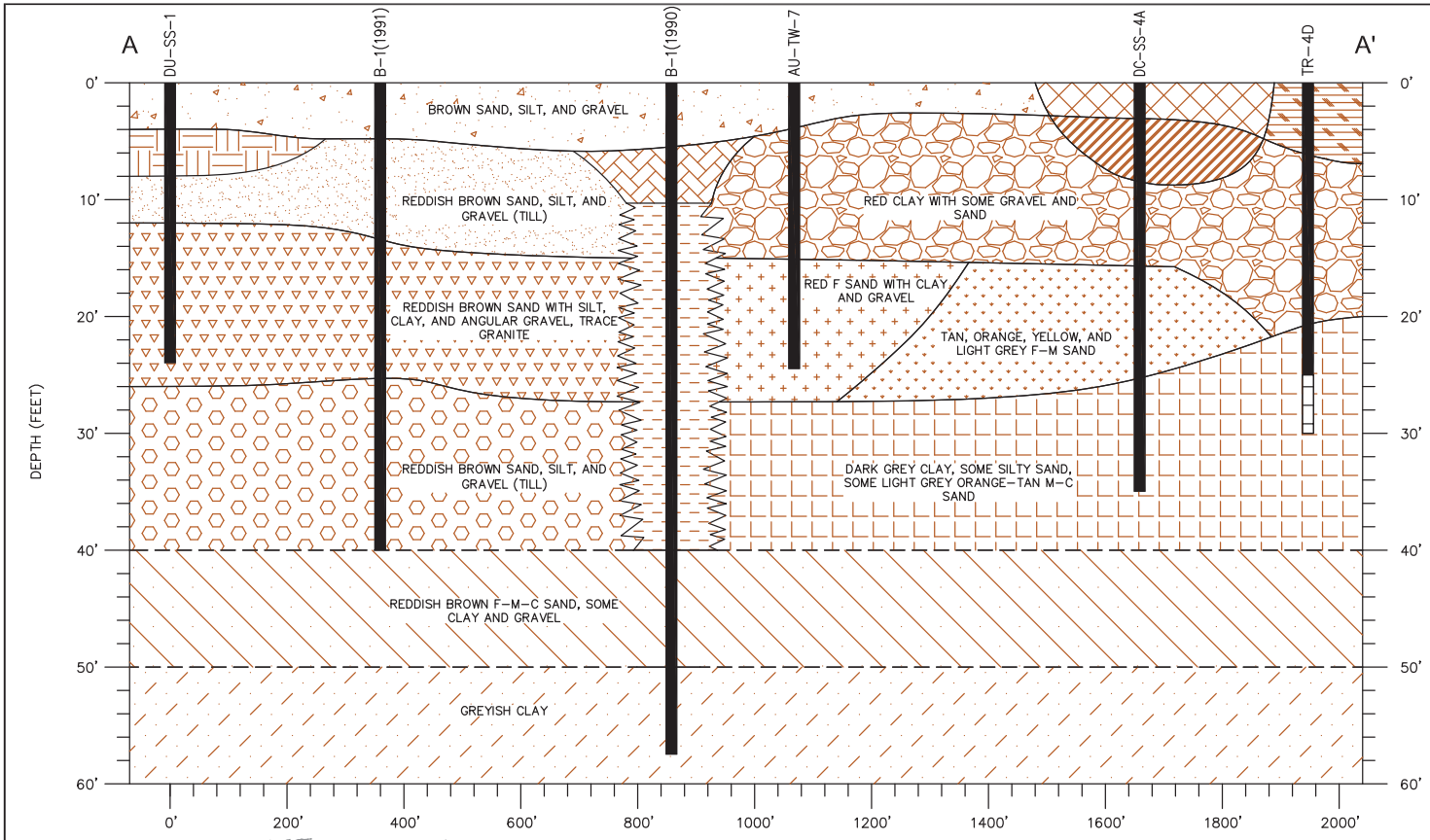


FIGURE #			
4	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	CROSS SECTION OF TANK 7930	
		DRAWN BY: J.M.	REVISION DATE: 6/12/13

EnviroTrac ENVIRONMENTAL SERVICES
400E CORPORATE COURT, So. PLAINFIELD NJ 07080
PHONE: (908)757-1900 FAX: (908)757-0017



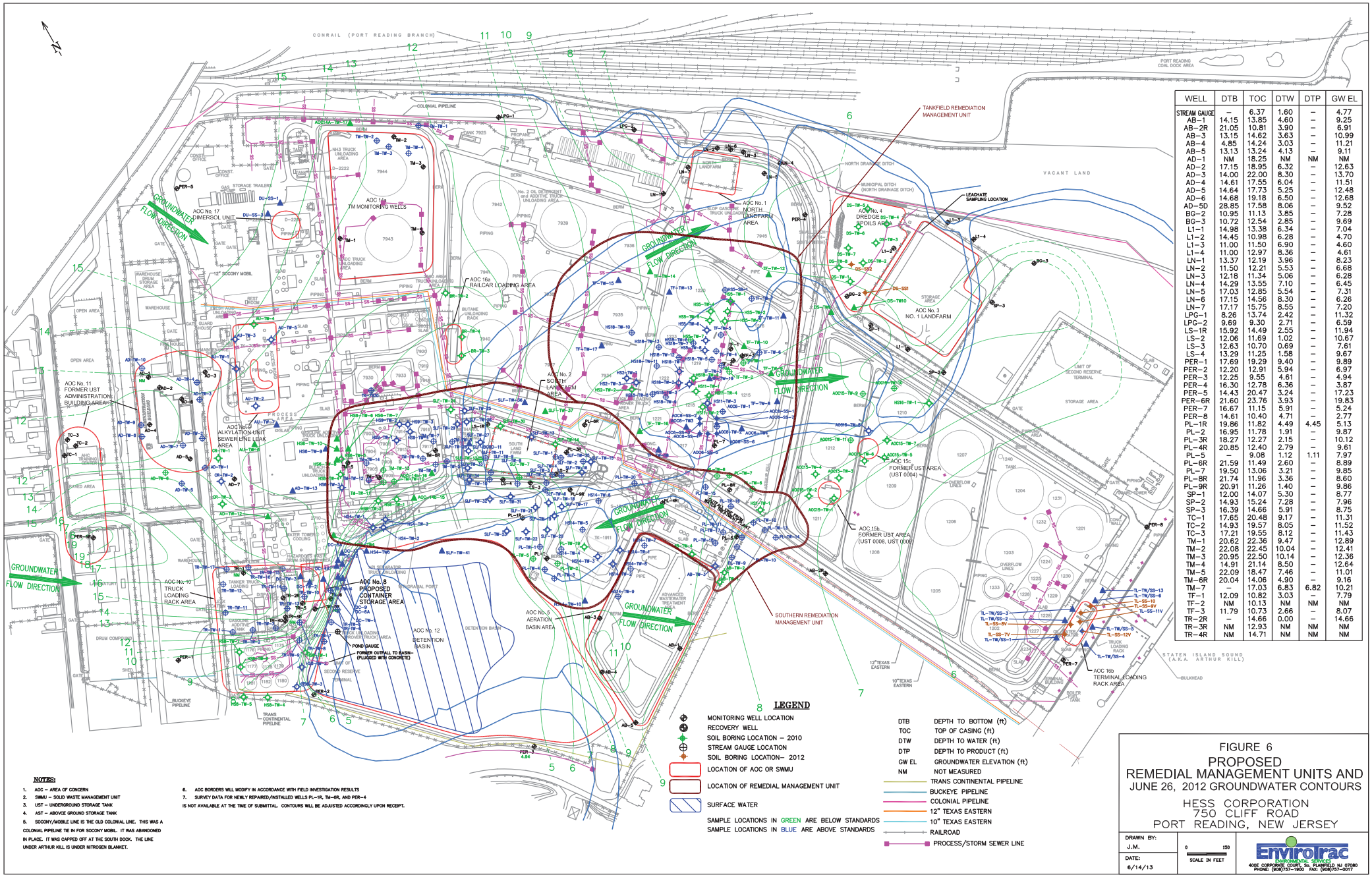
LEGEND:

- = WELL CASING
- = SCREENED INTERVAL
- = SOIL BORING
- BROWN SAND, SILT, AND GRAVEL
- BROWN SAND, SOME STONE
- DARK BROWN F SAND AND CLAY
- VERY DARK GREY BLACK CLAY
- REDDISH BROWN SILT, CLAY, AND GRAVEL (TILL)
- REDDISH GREY CLAY
- RED CLAY WITH SOME GRAVEL AND SAND
- GREY-BROWN SILT
- REDDISH BROWN SAND WITH SILT, CLAY, AND ANGULAR GRAVEL, TRACE GRANITE
- F-M-C SAND, SOME CLAY AND GRAVEL
- RED F SAND WITH CLAY AND GRAVEL
- TAN, ORANGE, YELLOW, AND LIGHT GREY F-M SAND
- REDDISH BROWN SAND, SILT, AND GRAVEL (TILL)
- DARK GREY CLAY, SOME SILTY SAND, SOME LIGHT GREY ORANGE-TAN M-C SAND
- REDDISH BROWN F-M-C SAND, SOME CLAY AND GRAVEL
- GREYISH CLAY
- LITHIOLOGIC CONTACT INFERRED

LOCATION MAP (NOT TO SCALE)

CROSS SECTION LOCATION (1" = 400')

FIGURE #	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY		NORTH-SOUTH CROSS SECTION (WESTERN PORTION OF FACILITY)		VERTICAL SCALE: 1 INCH = 10 FEET HORIZONTAL SCALE: 1 INCH = 200 FEET	EnviroTrac ENVIRONMENTAL SERVICES 400E CORPORATE COURT, So. PLAINFIELD NJ 07080 PHONE: (908)757-1900 FAX: (908)757-0017
5			DRAWN BY: J.M.	REVISION DATE: 9/6/12		



WELL	DTB	TOC	DTW	DTP	GW EL
STREAM GAUGE	–	6.37	1.60	–	4.77
AB–1	14.15	13.85	4.60	–	9.25
AB–2R	21.05	10.81	3.90	–	6.91
AB–3	13.15	14.62	3.63	–	10.99
AB–4	4.85	14.24	3.03	–	11.21
AB–5	13.13	13.24	4.13	–	9.11
AD–1	NM	18.25	NM	NM	NM
AD–2	17.15	18.95	6.32	–	12.63
AD–3	14.00	22.00	8.30	–	13.70
AD–4	14.61	17.55	6.04	–	11.51
AD–5	14.64	17.73	5.25	–	12.48
AD–6	14.68	19.18	6.50	–	12.68
AD–5D	28.85	17.58	8.06	–	9.52
BG–2	10.95	11.13	3.85	–	7.28
BG–3	10.72	12.54	2.85	–	9.69
L1–1	14.98	13.38	6.34	–	7.04
L1–2	14.45	10.98	6.28	–	4.70
L1–3	11.00	11.50	6.90	–	4.60
L1–4	11.00	12.97	8.36	–	4.61
LN–1	13.37	12.19	3.96	–	8.23
LN–2	11.50	12.21	5.53	–	6.68
LN–3	12.18	11.34	5.06	–	6.28
LN–4	14.29	13.55	7.10	–	6.45
LN–5	17.03	12.85	5.54	–	7.31
LN–6	17.15	14.56	8.30	–	6.26
LN–7	17.17	15.75	8.55	–	7.20
LPG–1	8.26	13.74	2.42	–	11.32
LPG–2	9.69	9.30	2.71	–	6.59
LS–1R	15.92	14.49	2.55	–	11.94
LS–2	12.06	11.69	1.02	–	10.67
LS–3	12.63	10.70	0.69	–	7.61
LS–4	13.29	11.25	1.58	–	9.67
PER–1	17.69	19.29	9.40	–	9.89
PER–2	12.20	12.91	5.94	–	6.97
PER–3	12.25	9.55	4.61	–	4.94
PER–4	16.30	12.78	6.36	–	3.87
PER–5	14.43	20.47	3.24	–	17.23
PER–6R	21.60	23.76	3.93	–	19.83
PER–7	16.67	11.15	5.91	–	5.24
PER–8	14.61	10.40	4.71	–	2.77
PL–1R	19.86	11.82	4.49	4.45	5.13
PL–2	16.95	11.78	1.91	–	9.87
PL–3R	18.27	12.27	2.15	–	10.12
PL–4R	20.85	12.40	2.79	–	9.61
PL–5	–	9.08	1.12	1.11	7.97
PL–6R	21.59	11.49	2.60	–	8.89
PL–7	19.50	13.06	3.21	–	9.85
PL–8R	21.74	11.96	3.36	–	8.60
PL–9R	20.91	11.26	1.40	–	9.86
SP–1	12.00	14.07	5.30	–	8.77
SP–2	14.93	15.24	7.28	–	7.96
SP–3	16.39	14.66	5.91	–	8.75
TC–1	17.65	20.48	9.17	–	11.31
TC–2	14.93	19.57	8.05	–	11.52
TC–3	17.21	19.55	8.12	–	11.43
TM–1	20.62	22.36	9.47	–	12.89
TM–2	22.08	22.45	10.04	–	12.41
TM–3	20.95	22.50	10.14	–	12.36
TM–4	14.91	21.14	8.50	–	12.64
TM–5	22.09	18.47	7.46	–	11.01
TM–6R	20.04	14.06	4.90	–	9.16
TM–7	–	17.03	6.83	6.82	10.21
TF–1	12.09	10.82	3.03	–	7.79
TF–2	NM	10.13	NM	NM	NM
TF–3	11.79	10.73	2.66	–	8.07
TR–2R	–	14.66	0.00	–	14.66
TR–3R	NM	12.93	NM	NM	NM
TR–4R	NM	14.71	NM	NM	NM

LEGEND

- MONITORING WELL LOCATION
- RECOVERY WELL
- SOIL BORING LOCATION – 2010
- STREAM GAUGE LOCATION
- SOIL BORING LOCATION– 2012
- LOCATION OF AOC OR SWMU
- LOCATION OF REMEDIAL MANAGEMENT UNIT
- SURFACE WATER

SAMPLE LOCATIONS IN GREEN ARE BELOW STANDARDS
SAMPLE LOCATIONS IN BLUE ARE ABOVE STANDARDS

DTB	DEPTH TO BOTTOM (ft)
TOC	TOP OF CASING (ft)
DTW	DEPTH TO WATER (ft)
DTP	DEPTH TO PRODUCT (ft)
GW EL	GROUNDWATER ELEVATION (ft)
NM	NOT MEASURED

- TRANS CONTINENTAL PIPELINE
- BUCKEYE PIPELINE
- COLONIAL PIPELINE
- 12" TEXAS EASTERN
- 10" TEXAS EASTERN
- RAILROAD
- PROCESS/STORM SEWER LINE

NOTES:

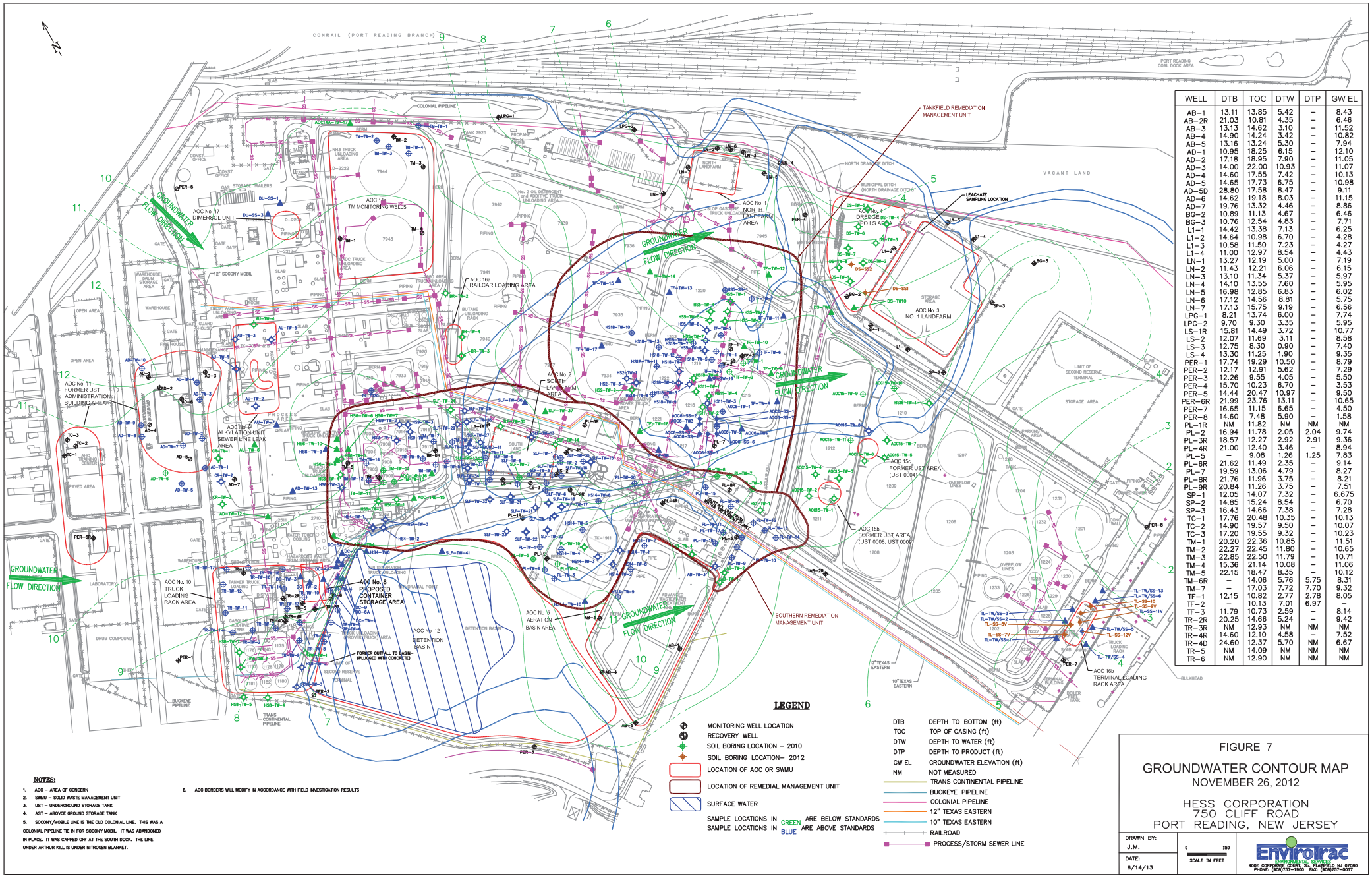
1. AOC – AREA OF CONCERN
2. SWMU – SOLID WASTE MANAGEMENT UNIT
3. UST – UNDERGROUND STORAGE TANK
4. AST – ABOVE GROUND STORAGE TANK
5. SOCONY/MOBILE LINE IS THE OLD COLONIAL LINE. THIS WAS A COLONIAL PIPELINE TIE IN FOR SOCONY MOBIL. IT WAS ABANDONED IN PLACE. IT WAS CAPPED OFF AT THE SOUTH DOCK. THE LINE UNDER ARTHUR KILL IS UNDER NITROGEN BLANKET.
6. AOC BORDERS WILL MODIFY IN ACCORDANCE WITH FIELD INVESTIGATION RESULTS
7. SURVEY DATA FOR NEWLY REPAIRED/INSTALLED WELLS PL–1R, TM–6R, AND PER–4 IS NOT AVAILABLE AT THE TIME OF SUBMITTAL. CONTOURS WILL BE ADJUSTED ACCORDINGLY UPON RECEIPT.

FIGURE 6
PROPOSED
REMEDIAL MANAGEMENT UNITS AND
JUNE 26, 2012 GROUNDWATER CONTOURS

HESS CORPORATION
750 CLIFF ROAD
PORT READING, NEW JERSEY

DRAWN BY: J.M.
DATE: 6/14/13
SCALE IN FEET: 0 150

EnviroTrac
ENGINEERING & SERVICES
400E CORPORATE COURT, Sr. PLAINFIELD NJ 07080
PHONE: (908)757-1900 FAX: (908)757-0017



WELL	DTB	TOC	DTW	DTP	GW EL
AB–1	13.11	13.85	5.42	–	8.43
AB–2R	21.03	10.81	4.35	–	6.46
AB–3	13.13	14.62	3.10	–	11.52
AB–4	14.90	14.24	3.42	–	10.82
AB–5	13.16	13.24	5.30	–	7.94
AD–1	10.95	18.25	6.15	–	12.10
AD–2	17.18	18.95	7.90	–	11.05
AD–3	14.00	22.00	10.93	–	11.07
AD–4	14.60	17.55	7.42	–	10.13
AD–5	14.65	17.73	6.75	–	10.98
AD–5D	28.80	17.58	8.47	–	9.11
AD–6	14.62	19.18	8.03	–	11.15
AD–7	19.76	13.32	4.46	–	8.86
BG–2	10.89	11.13	4.67	–	6.46
BG–3	10.76	12.54	4.83	–	7.71
L1–1	14.42	13.38	7.13	–	6.25
L1–2	14.64	10.98	6.70	–	4.28
L1–3	10.58	11.50	7.23	–	4.27
L1–4	11.00	12.97	8.54	–	4.43
LN–1	13.27	12.19	5.00	–	7.19
LN–2	11.43	12.21	6.06	–	6.15
LN–3	13.10	11.34	5.37	–	5.97
LN–4	14.10	13.55	7.60	–	5.95
LN–5	16.98	12.85	6.83	–	6.02
LN–6	17.12	14.56	8.81	–	5.75
LN–7	17.13	15.75	9.19	–	6.56
LPG–1	8.21	13.74	6.00	–	7.74
LPG–2	9.70	9.30	3.35	–	5.95
LS–1R	15.81	14.49	3.72	–	10.77
LS–2	12.07	11.69	3.11	–	8.58
LS–3	12.75	8.30	0.90	–	7.40
LS–4	13.30	11.25	1.90	–	9.35
PER–1	17.74	19.29	10.50	–	8.79
PER–2	12.17	12.91	5.62	–	7.29
PER–3	12.26	9.55	4.05	–	5.50
PER–4	15.70	10.23	6.70	–	3.53
PER–5	14.44	20.47	10.97	–	9.50
PER–6R	21.99	23.76	13.11	–	10.65
PER–7	16.65	11.15	6.65	–	4.50
PER–8	14.60	7.48	5.90	–	1.58
PL–1R	NM	11.82	NM	NM	NM
PL–2	16.94	11.78	2.05	2.04	9.74
PL–3R	18.57	12.27	2.92	2.91	9.36
PL–4R	21.00	12.40	3.46	–	8.94
PL–5	–	9.08	1.26	1.25	7.83
PL–6R	21.62	11.49	2.35	–	9.14
PL–7	19.59	13.06	4.79	–	8.27
PL–8R	21.76	11.96	3.75	–	8.21
PL–9R	20.84	11.26	3.75	–	7.51
SP–1	12.05	14.07	7.32	–	6.675
SP–2	14.85	15.24	8.54	–	6.70
SP–3	16.43	14.66	7.38	–	7.28
TC–1	17.76	20.48	10.35	–	10.13
TC–2	14.90	19.57	9.50	–	10.07
TC–3	17.20	19.55	9.32	–	10.23
TM–1	20.20	22.36	10.85	–	11.51
TM–2	22.27	22.45	11.80	–	10.65
TM–3	22.85	22.50	11.79	–	10.71
TM–4	15.36	21.14	10.08	–	11.06
TM–5	22.15	18.47	8.35	–	10.12
TM–6R	–	14.06	5.76	5.75	8.31
TM–7	–	17.03	7.72	7.70	9.32
TF–1	12.15	10.82	2.77	2.78	8.05
TF–2	–	10.13	7.01	6.97	–
TF–3	11.79	10.73	2.59	–	8.14
TR–2R	20.25	14.66	5.24	–	9.42
TR–3R	NM	12.93	NM	NM	NM
TR–4R	14.60	12.10	4.58	–	7.52
TR–4D	24.60	12.37	5.70	NM	6.67
TR–5	NM	14.09	NM	NM	NM
TR–6	NM	12.90	NM	NM	NM

NOTES:

1. AOC – AREA OF CONCERN
2. SWMU – SOLID WASTE MANAGEMENT UNIT
3. UST – UNDERGROUND STORAGE TANK
4. AST – ABOVE GROUND STORAGE TANK
5. SOCONY/MOBILE LINE IS THE OLD COLONIAL LINE. THIS WAS A COLONIAL PIPELINE TIE IN FOR SOCONY MOBIL. IT WAS ABANDONED IN PLACE. IT WAS CAPPED OFF AT THE SOUTH DOCK. THE LINE UNDER ARTHUR KILL IS UNDER NITROGEN BLANKET.
6. AOC BORDERS WILL MODIFY IN ACCORDANCE WITH FIELD INVESTIGATION RESULTS

FIGURE 7

GROUNDWATER CONTOUR MAP
NOVEMBER 26, 2012

HESS CORPORATION
750 CLIFF ROAD
PORT READING, NEW JERSEY

DRAWN BY: J.M.
DATE: 6/14/13
0 150
SCALE IN FEET

EnviroTrac
ENGINEERING & SERVICES
400E CORPORATE COURT, St. PLAINFIELD NJ 07080
PHONE: (908)757-1900 FAX: (908)757-0017

Appendix I

Historic Aerial Photographs (1931-2007)

750 Cliff Road, Port Reading, NJ » Overlays Compare Share Purchase

2007 T1962
2006 T1957
2002 T1947
1995
1986
1980
1979
1972
1970
1966
1963
1957
1954
1947
1940
1931

Historic Spill- 21

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750 Cliff Road, Port Reading, NJ
»
Overlays
Compare
Share
Purchase
2007
T1962
2006
T1957
2002
T1947
1995
1986
1980
1979
1972
1970
1966
1963
1957
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1947
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1931
Historic Spill 21
©2011 HistoricAerials.com
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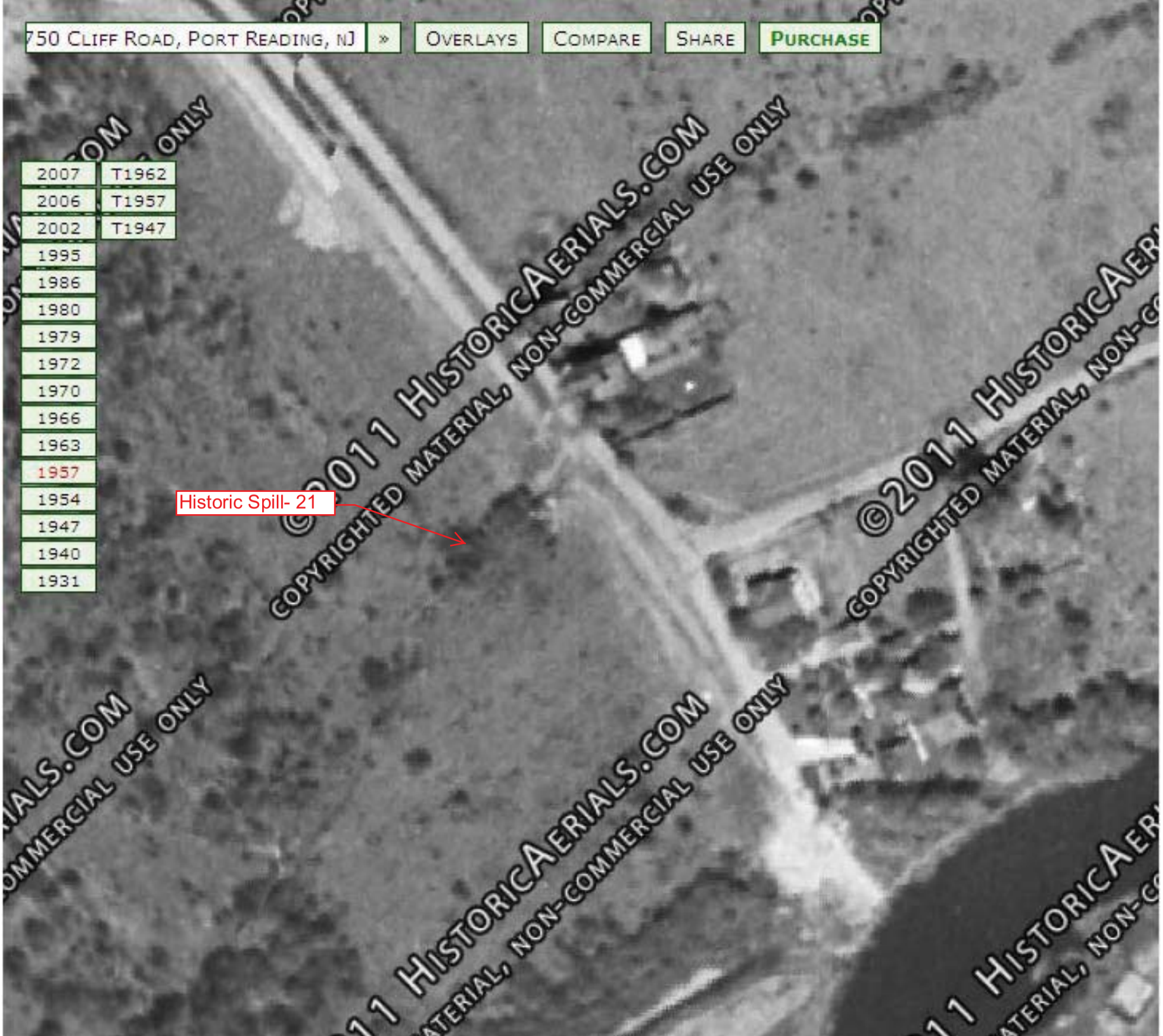
750 Cliff Road, Port Reading, NJ
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Overlays
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Historic Spill- 21
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Historic Spill- 21
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750 Cliff Road, Port Reading, NJ
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Overlays
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T1962
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T1947
Historic Spill- 21
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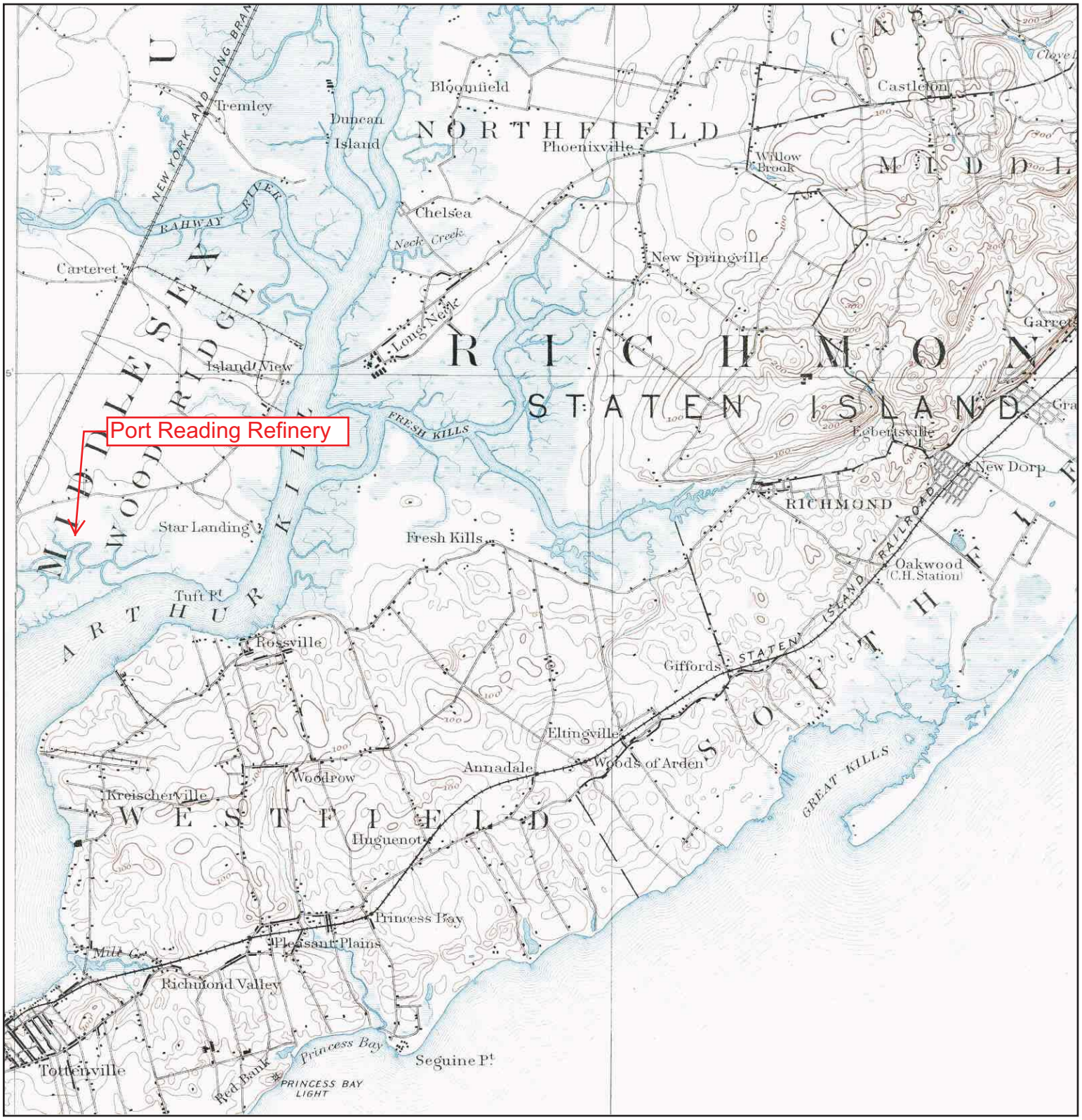
Appendix II

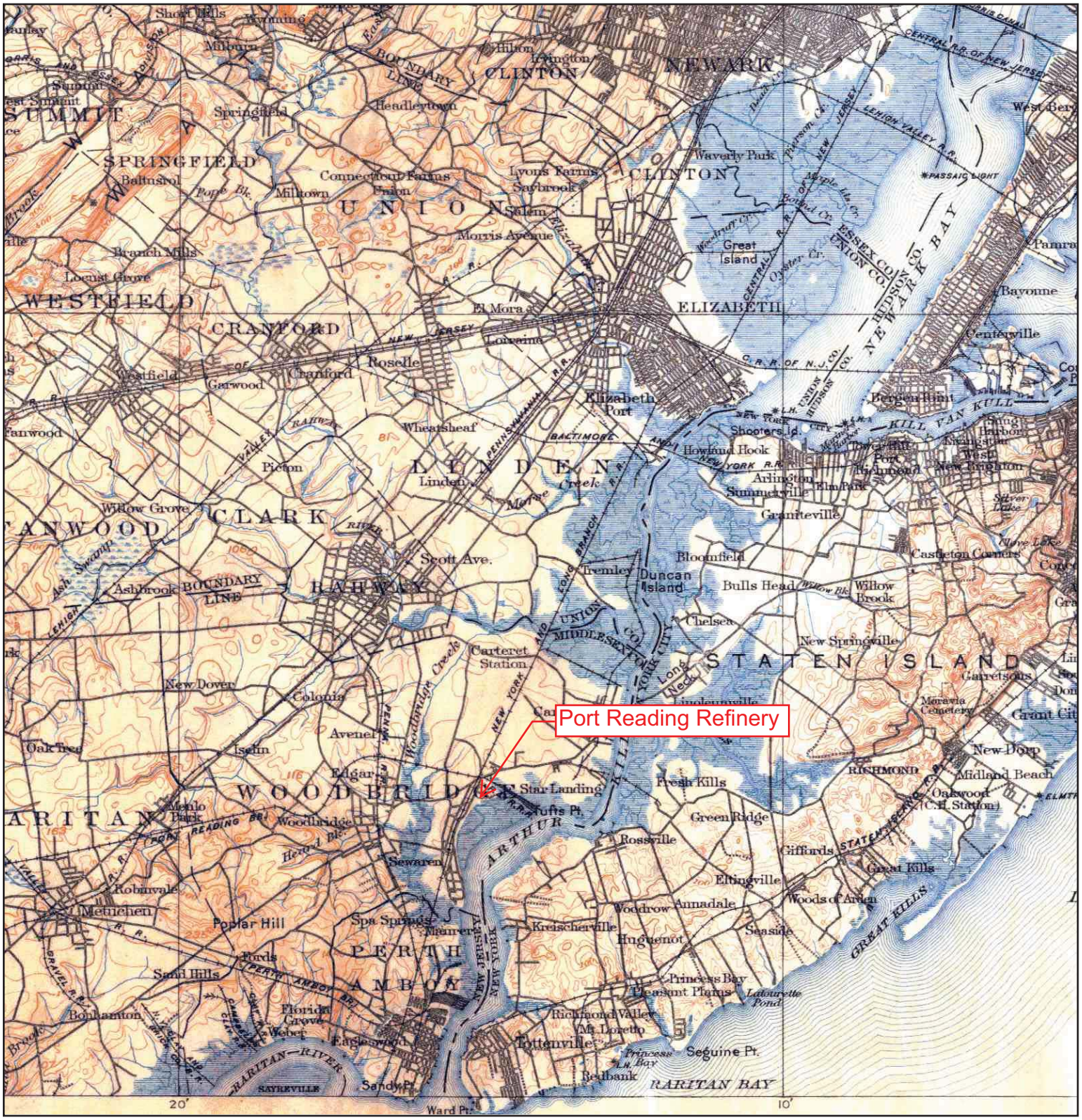
Historic Topographic Maps (1891-1981)

Historical Topographic Map



N	TARGET QUAD NAME: STATEN ISLAND MAP YEAR: 1891 SERIES: 15 SCALE: 1:62500	SITE NAME: Coal Dock Area ADDRESS: 1000 West Middlesex Avenue Woodbridge, NJ 07077 LAT/LONG: 40.5644 / 74.24	CLIENT: EnviroTrac Environmental Svcs. CONTACT: Dave Carlson INQUIRY#: 2445975.4 RESEARCH DATE: 03/19/2009

Historical Topographic Map

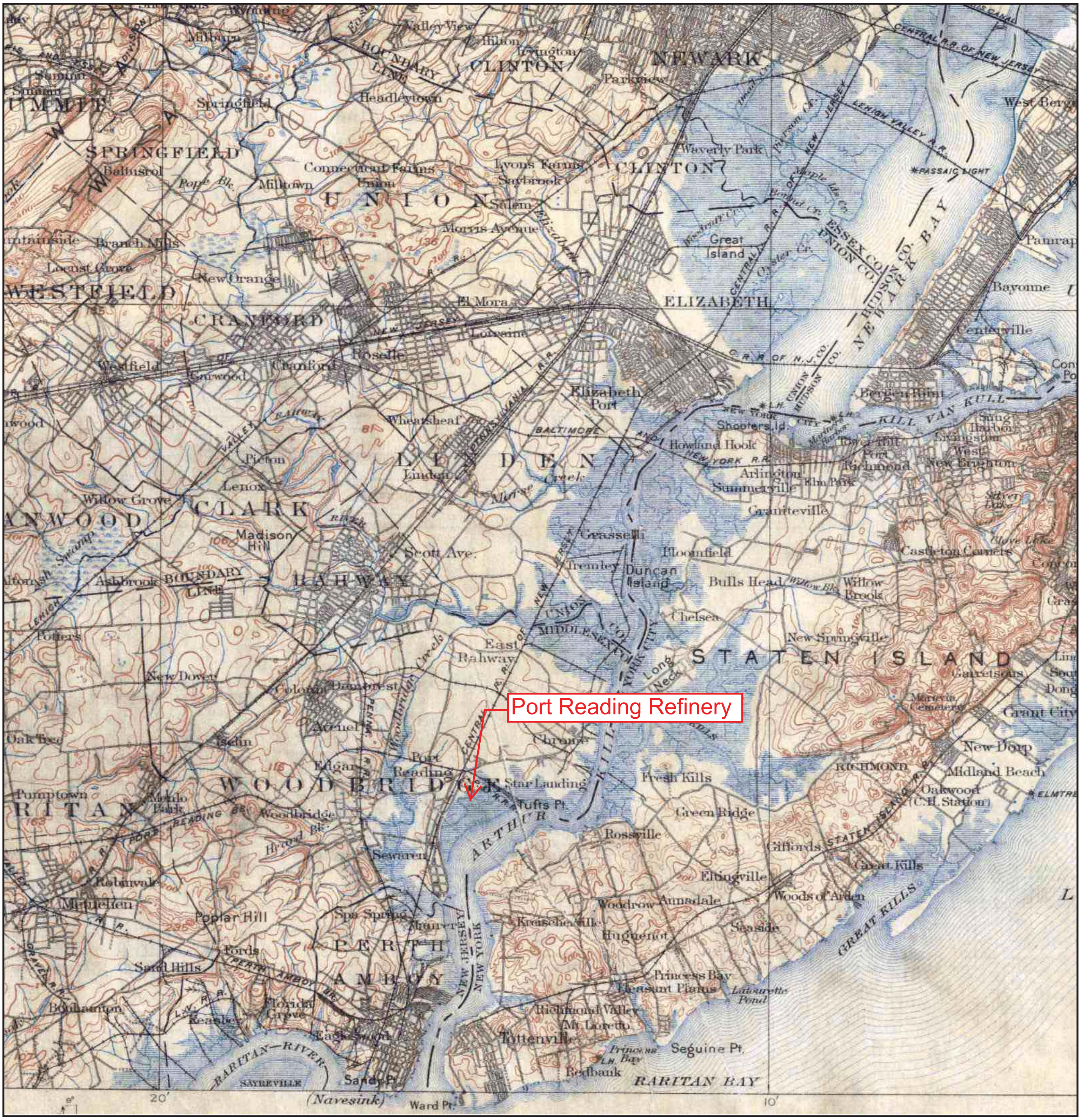


N	TARGET QUAD NAME: PASSAIC MAP YEAR: 1900 SERIES: 30 SCALE: 1:125000	SITE NAME: Coal Dock Area ADDRESS: 1000 West Middlesex Avenue Woodbridge, NJ 07077 LAT/LONG: 40.5644 / 74.24	CLIENT: EnviroTrac Environmental Svcs. CONTACT: Dave Carlson INQUIRY#: 2445975.4 RESEARCH DATE: 03/19/2009

Historical Topographic Map

N	TARGET QUAD NAME: STATEN ISLAND MAP YEAR: 1900 SERIES: 15 SCALE: 1:62500	SITE NAME: Coal Dock Area ADDRESS: 1000 West Middlesex Avenue Woodbridge, NJ 07077 LAT/LONG: 40.5644 / 74.24	CLIENT: EnviroTrac Environmental Svcs. CONTACT: Dave Carlson INQUIRY#: 2445975.4 RESEARCH DATE: 03/19/2009

Historical Topographic Map

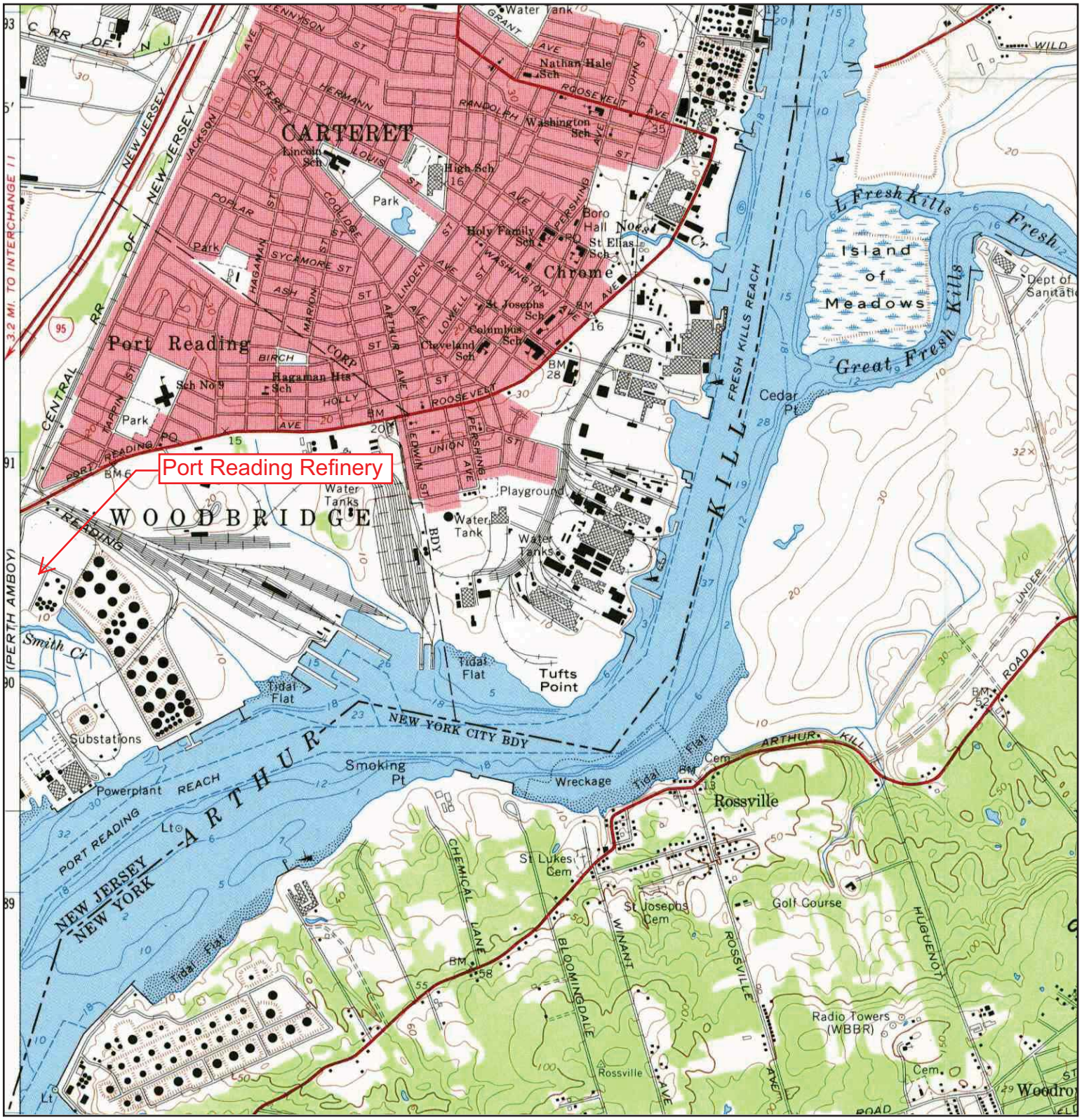


N	TARGET QUAD NAME: PASSAIC MAP YEAR: 1905 SERIES: 30 SCALE: 1:125000	SITE NAME: Coal Dock Area ADDRESS: 1000 West Middlesex Avenue Woodbridge, NJ 07077 LAT/LONG: 40.5644 / 74.24	CLIENT: EnviroTrac Environmental Svcs. CONTACT: Dave Carlson INQUIRY#: 2445975.4 RESEARCH DATE: 03/19/2009

Historical Topographic Map

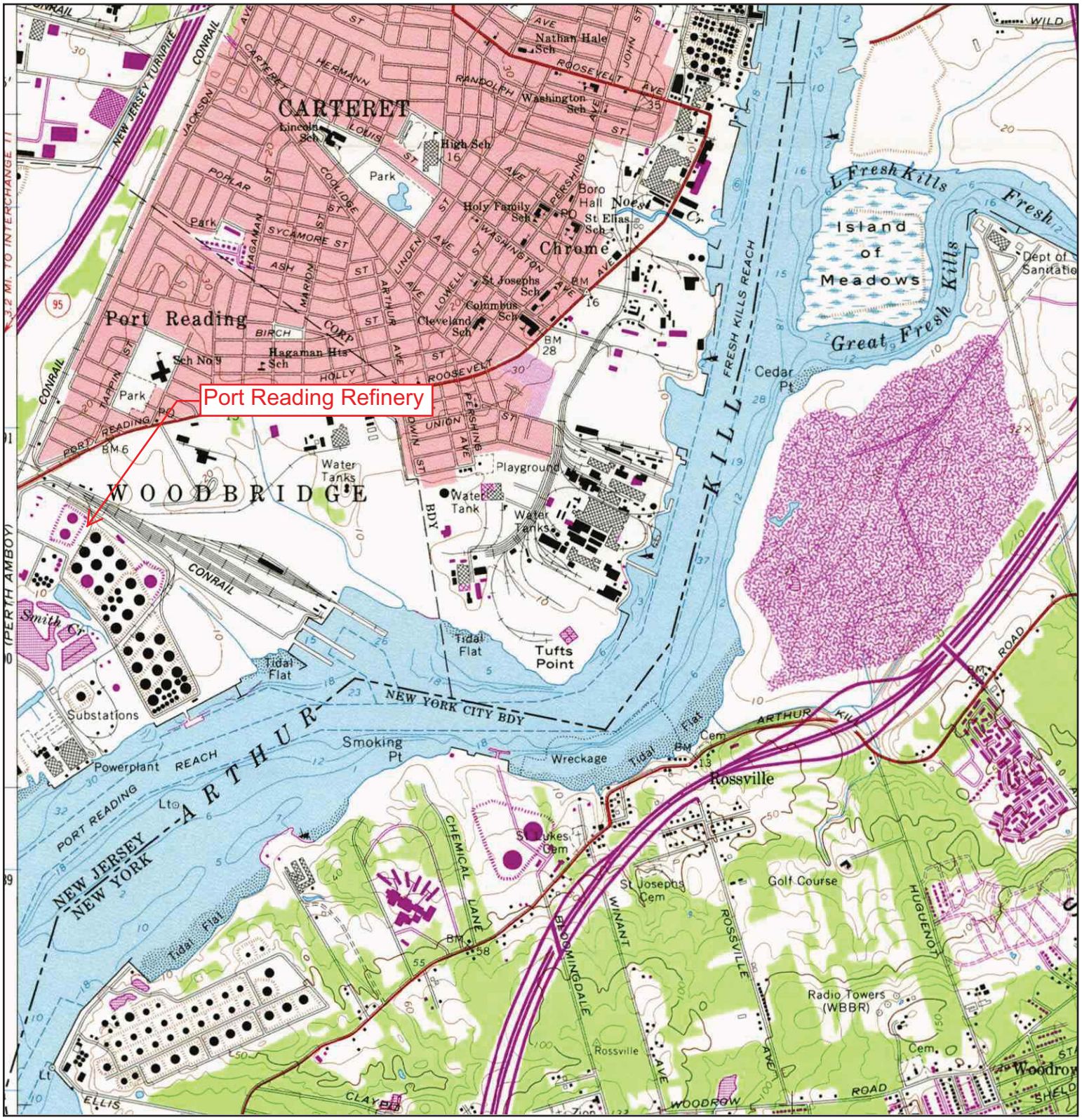
N	TARGET QUAD NAME: ARTHUR KILL MAP YEAR: 1947 SERIES: 7.5 SCALE: 1:25000	SITE NAME: Coal Dock Area ADDRESS: 1000 West Middlesex Avenue Woodbridge, NJ 07077 LAT/LONG: 40.5644 / 74.24	CLIENT: EnviroTrac Environmental Svcs. CONTACT: Dave Carlson INQUIRY#: 2445975.4 RESEARCH DATE: 03/19/2009

Historical Topographic Map



N	TARGET QUAD NAME: ARTHUR KILL MAP YEAR: 1966 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Coal Dock Area ADDRESS: 1000 West Middlesex Avenue Woodbridge, NJ 07077 LAT/LONG: 40.5644 / 74.24	CLIENT: EnviroTrac Environmental Svcs. CONTACT: Dave Carlson INQUIRY#: 2445975.4 RESEARCH DATE: 03/19/2009

Historical Topographic Map



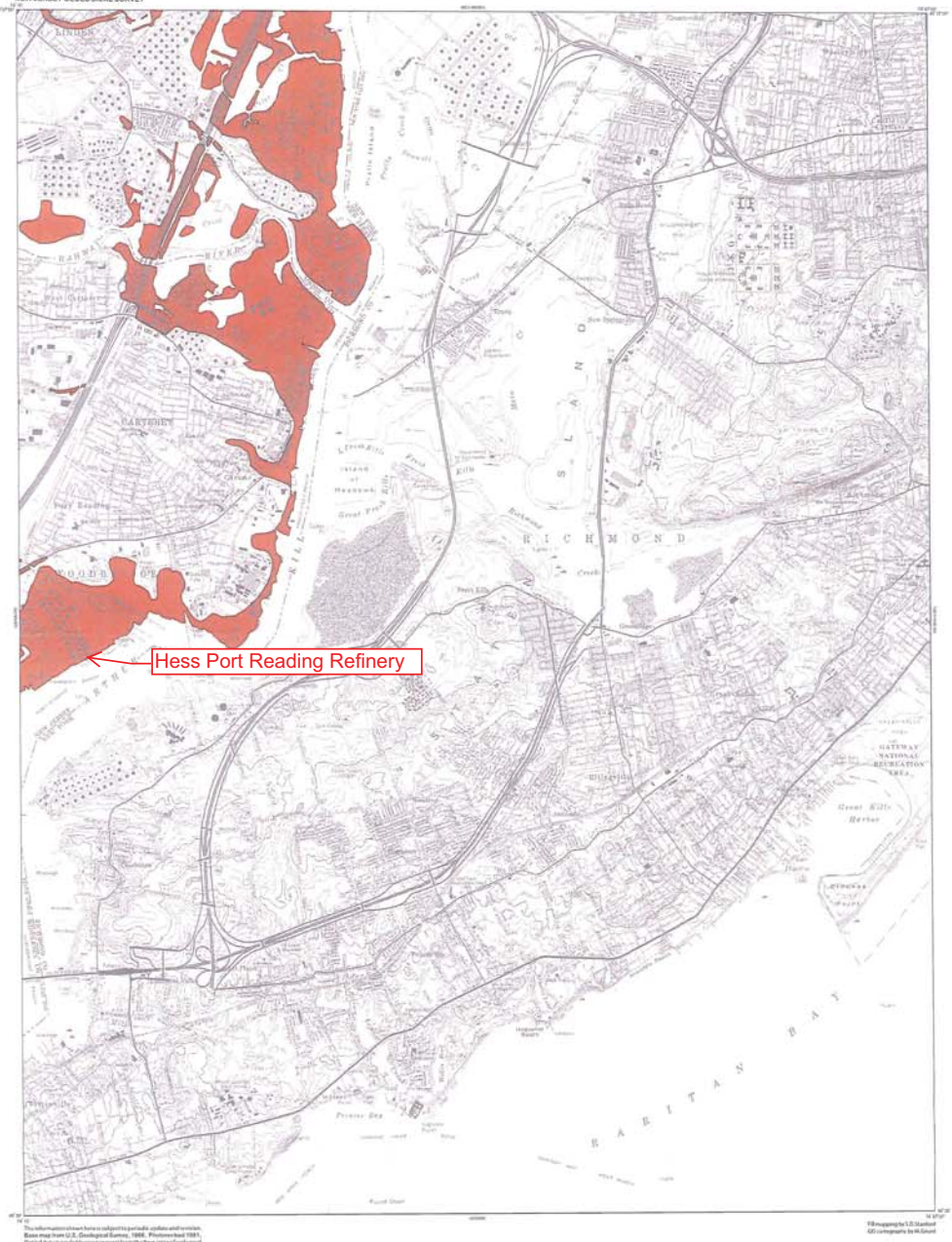
N	TARGET QUAD NAME: ARTHUR KILL MAP YEAR: 1981 PHOTOREVISED FROM:1966 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Coal Dock Area ADDRESS: 1000 West Middlesex Avenue Woodbridge, NJ 07077 LAT/LONG: 40.5644 / 74.24	CLIENT: EnviroTrac Environmental Svcs. CONTACT: Dave Carlson INQUIRY#: 2445975.4 RESEARCH DATE: 03/19/2009

Appendix III

Historic Fill Quadrangle Maps (Arthur Kill and Perth Amboy)

DEPARTMENT OF ENVIRONMENTAL PROTECTION
LAND USE MANAGEMENT
NEW JERSEY GEOLOGICAL SURVEY

HISTORIC FILL OF THE ARTHUR KILL QUADRANGLE
HISTORIC FILL MAP HFM-63



EXPLANATION

The "Brownfield and Contaminated Site Remediation Act" (N.J.S.A. 58:10B-1 et seq.) requires the Department of Environmental Protection to map regions of the state where large areas of historic fill exist and make this information available to the public. This map shows areas of historic fill covering more than approximately 5 acres. For the purposes of this map, historic fill is non-indigenous material placed on a site in order to raise the topographic elevation of the site. No representation is made as to the composition of the fill or presence of contamination in the fill. Some areas mapped as fill may contain chemical-production waste or ore-processing waste that exclude them from the legislative definition of historic fill.

Fill was mapped from stereo aerial photography taken in March 1979, supplemented in places by planimetric aerial photography taken in the spring of 1991 and 1992. Additional areas of fill were mapped by comparing areas of swamp, marsh, and floodplain shown on archival topographic and geologic maps on file at the N. J. Geological Survey, dated between 1840 and 1910, to their modern extent. In a few places, fill was mapped from field observations and from drillers' logs of wells and borings.

Most urban and suburban areas are underlain by a discontinuous layer of excavated indigenous soil mixed with varying amounts of non-indigenous material. This material generally does not meet the definition of historic fill and is not depicted on this map. Also, there may be historic fills that are not detectable on aerial photography or by archival map interpretation and so are not shown on this map, particularly along streams in urban and suburban areas.

Use of the maps related to the Technical Rules, N.J.A.C. 7:26E

This map is provided for informational purposes only. The use of this map as the only source of information regarding the presence of historic fill at a site does not fulfill the diligent inquiry requirements of the Preliminary Assessment set forth at, N.J.A.C. 7:26E-3.1(c). This map may be used as one source of information to fulfill the requirements of the Site Investigation at, N.J.A.C. 7:26E-3.12. **This map is not intended to fulfill the Remedial Investigation requirements associated with historic fill at, N.J.A.C. 7:26E-4.6(b).**

Historic Fill
Non-Fill Area

HISTORIC FILL OF THE ARTHUR KILL QUADRANGLE

2004

DEPARTMENT OF ENVIRONMENTAL PROTECTION
LAND USE MANAGEMENT
NEW JERSEY GEOLOGICAL SURVEY

HISTORIC FILL OF THE PERTH AMBOY QUADRANGLE
HISTORIC FILL MAP HFM-43

EXPLANATION

The "Brownfield and Contaminated Site Remediation Act" (N.J.S.A. 58:10B-1 et seq.) requires the Department of Environmental Protection to map regions of the state where large areas of historic fill exist and make this information available to the public. This map shows areas of historic fill covering more than approximately 5 acres. For the purposes of this map, historic fill is non-indigenous material placed on a site in order to raise the topographic elevation of the site. No representation is made as to the composition of the fill or presence of contamination in the fill. Some areas mapped as fill may contain chemical-production waste or ore-processing waste that exclude them from the legislative definition of historic fill.

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Use of the maps related to the Technical Rules, N.J.A.C. 7:26E

This map is provided for informational purposes only. The use of this map as the only source of information regarding the presence of historic fill at a site does not fulfill the diligent inquiry requirements of the Preliminary Assessment set forth at, N.J.A.C. 7:26E-3.1(c). This map may be used as one source of information to fulfill the requirements of the Site Investigation at, N.J.A.C. 7:26E-3.12. **This map is not intended to fulfill the Remedial Investigation requirements associated with historic fill at, N.J.A.C. 7:26E-4.6(b).**

Historic Fill
Non-Fill Area

HISTORIC FILL OF THE PERTH AMBOY QUADRANGLE

2004

Appendix IV

Confirmation Report

HESS CORPORATION
1 Hess Plaza
Woodbridge, NJ 07095

Howard S. Goldman
ENVIRONMENTAL MANAGER
(732) 750-7735/FAX (732) 636-0932
hgoldman@hess.com

REC'D JUN 22 2009

HSG/09/077
June 17, 2009
Certified Mail # 7007 1490 0000 2733 5800

Bureau of Release Prevention
New Jersey Department of Environmental Protection
P.O. Box 424
Trenton, NJ 08625-0424
Attention: Discharge Confirmation Report

SUBJECT: Discharge Confirmation Report – NJDEP Case #09-05-19-1218-35
Hess Corporation – Port Reading Refinery
DIFF # 122500068000

Dear Sir/Madam:

In accordance with N.J.A.C 7:1-E5.8, the following confirmation report is submitted for the above-referenced NJDEP Case Number.

1. Individual that reported the release:

   Mr. Howard Goldman
   Hess Corporation
   1 Hess Plaza
   Woodbridge, NJ 07095
   (732)750-6000

2. Individual submitting confirmation report:

   Mr. Howard Goldman
   Hess Corporation
   1 Hess Plaza
   Woodbridge, NJ 07095
   (732)750-6000

   Position in Organization: Environmental Manager

3. Owner/Operator of facility at which the release occurred:

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095
(732)750-6000

4. Name, address, and telephone number of each person in any way responsible for the discharge:

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095

5. Source of discharge:

A hole (approximately ¼" in diameter) was discovered in the water-draw sump of gasoline tank 7930 at the Hess Port Reading Refinery. During an internal inspection of the tank, water with a gasoline odor was detected in the sump.

6. Location of the discharge:

		LOT	BLOCK	LOT	BLOCK
Hess Corporation		1	757	1	760-B
750 Cliff Road		3	756	1	756-B
Port Reading, NJ 07064		6	760	2	756-B
Arthur Kill		2	760-B	3	756-B
NJ State Plane Coordinate Centroid:		2	760-A	4A	756-B
N-630-428-E-2115-390		3	760-A	4B	756-B
X-Coordinate: 2,118,094.21 feet		3	760-B	7	756-B
Y-Coordinate: 628,618.18 feet		6	1095		

Please refer to the attached plot plan.

7. Substance discharged:

Gasoline.

8. Discharge quantity:

A trace amount of gasoline was present in tank bottom water that was released. The precise quantity of gasoline released is unknown. Minor localized contaminated soil was detected beneath the sump in the location of the hole. Based upon the low quantity of impacted soil at the location of the leak, it is estimated that the quantity of gasoline released is less than 5 gallons.

The groundwater will be assessed in the location of the tank to further assess site conditions.

Date and time summary:

a. Date and time discharge began:	unknown	
b. Date and time discharge confirmation:	05/19/09	12:00
c. Date and time discharge ended:	unknown	
d. Date and time NJDEP was notified:	05/19/09	12:14

9. Description of measures taken to contain, cleanup and remove the discharge, including a summary of costs incurred:

The storage tank was taken out of service for an internal inspection. The metal sump, in which the hole was located, was cut out of the storage tank. A vacuum truck was used to remove water present in the sump area. Approximately 20 gallons of soil was removed for disposal. One post excavation sample was collected.

Approximate costs incurred: $4,000.

10. Preventive measures taken to minimize the possibility of recurrence:

The storage tank will inspected and repaired in accordance with API Standard 653 to prevent a reoccurrence. In addition, an assessment of ground water will be performed.

The name, addresses, and telephone numbers of all entities involved in containment, clean up or removal of the discharge:

Howard Goldman, EH&S	Hess Corporation 1 Hess Plaza Woodbridge, NJ 07095 732-750-6000
Bill O'Mahoney	Conam, c/o Hess Corp. Port Reading Refinery 1 Hess Plaza Woodbridge, NJ 07095 732-750-7885
Tim Smith	Chicago Bridge and Iron, c/o Hess Corp. Port Reading Refinery 1 Hess Plaza Woodbridge, NJ 07095 732-750-7791
Bill Groeling	Envirotrac 400E Corporate Ct. South Plainfield, NJ 07080 (908) 757-1900

11. A description of samples taken at or around the site of the discharge:

One post excavation sample was collected. The samples were in compliance with both NJ DEP Residential and Nonresidential soil remediation standards. Several parameters slightly exceeded the NJ DEP Impact to Ground Water soil remediation standards. Therefore, the groundwater will be assessed in the vicinity of the storage tank. The results of the investigation will be provided to the NJ DEP Bureau of Site Remediation and will be addressed with the ongoing groundwater investigation of the site.

12. Certification of financial responsibility:

Attached please find the current certification of financial responsibility pursuant to N.J.A.C. 7:1E-4.5.

13. Information supplementing any information previously provided to the Department:

N/A

14. Any other information concerning the discharge which the Department may request:

N/A

15. Certification:

"I certify under penalty of law that the information provided in this document is, to the best of my knowledge, true, accurate and complete. I am aware that there are significant civil and criminal penalties, including the possibility of fines or imprisonment or both, for submitting false, inaccurate or incomplete information."

H. S. Goldman
Environmental Manager

If you have any questions or require additional information, please call me at (732) 750-7735.

Sincerely,

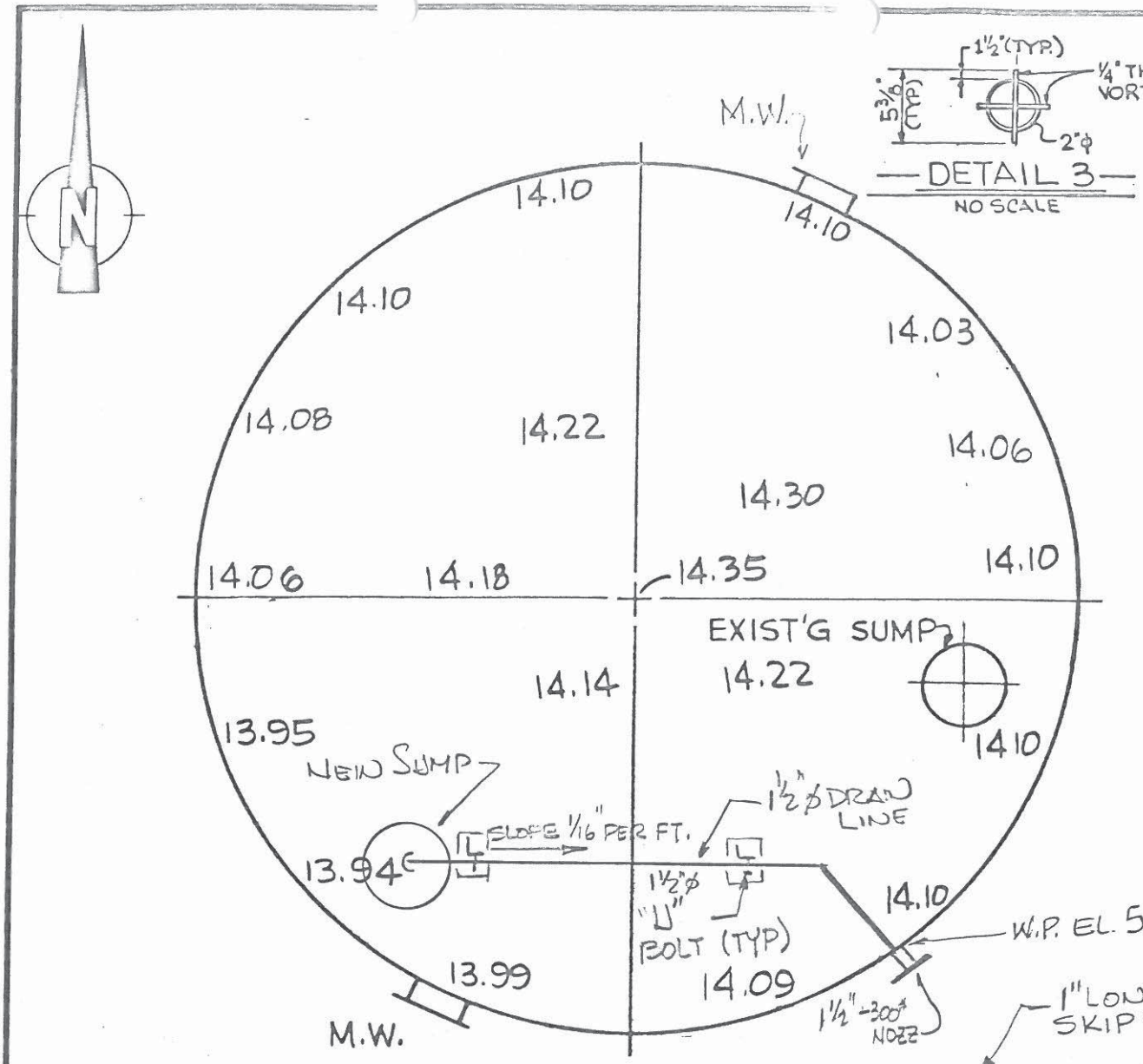
H. S. Goldman
Environmental Manager

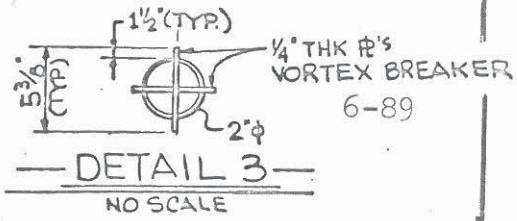
cc: P. Cole, NJ DEP
B. Howard
S. Freeman
B. Groeling, Envirotrac
Discharge Confirmation Report Binder

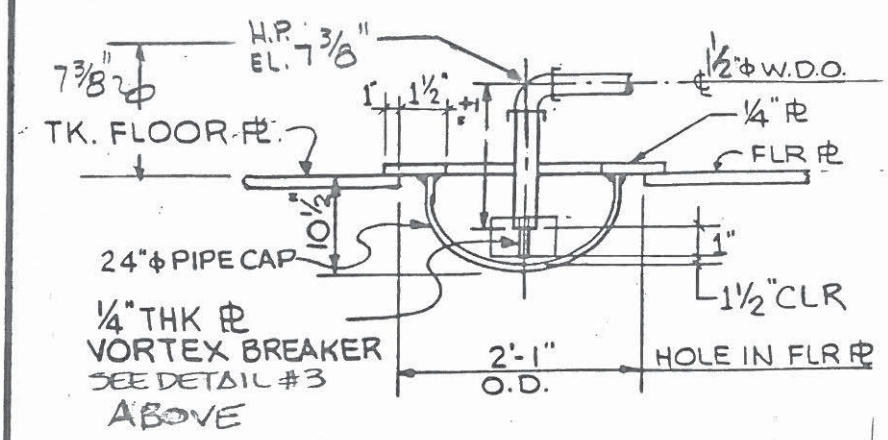
Appendix V

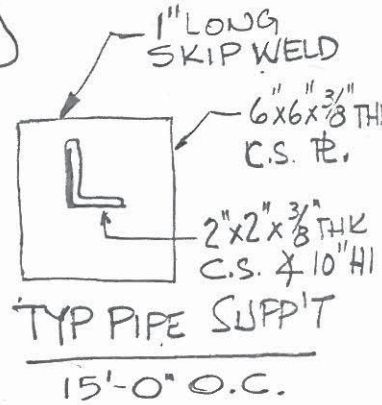
Schematic Diagram of Tank Sump

EnviroTrac









APPROVALS AND CHECKS	AMERADA HESS CORPORATION 1 HESS PLAZA, WOODBRIDGE, N.J.	PROJECT NO. 89-051	A.F.E. NO. 89023
DRAFTING CHECK		SCALE NONE	DRAWN BY IG / DATE 4-18-89
DESIGN APPROVAL	NEW SUMP & WATER DRAW OFF. FOR TK# 7930	LOCATION PORT READING REFINERY	
PROJ. ENG APPV'L		DRAWING NO. SK-4-18-89	REV. 0
FINAL APPROVAL	W/R# 89-051		

R.S. KNAPP CO

Appendix VI

NJDEP 2001 Geologic Survey Map

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF SCIENCE, RESEARCH AND TECHNOLOGY
NEW JERSEY GEOLOGICAL SURVEY

Prepared in cooperation with the
U. S. GEOLOGICAL SURVEY
NATIONAL GEOLOGIC MAPPING PROGRAM

INTRODUCTION

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DESCRIPTION OF MAP UNITS

[illegible]

MAP SYMBOLS

[illegible]

CORRELATION OF MAP UNITS

REFERENCES

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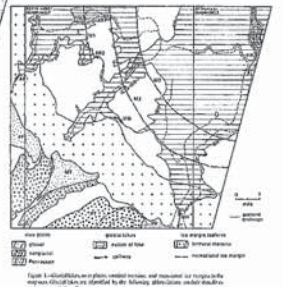
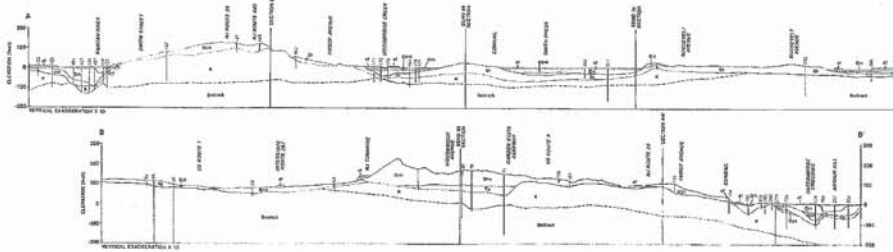
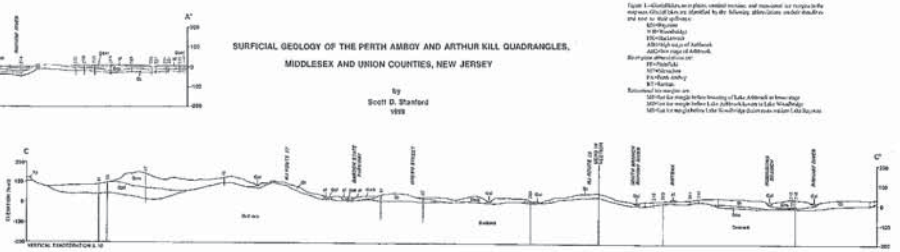






SURFICIAL GEOLOGY OF THE PERTH AMBOY AND ARTHUR KILL QUADRANGLES, MIDDLESEX AND UNION COUNTIES, NEW JERSEY

by
Scott D. Stanford
1999

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF SCIENCE, RESEARCH AND TECHNOLOGY
NEW JERSEY GEOLOGICAL SURVEY

Prepared in cooperation with the
U. S. GEOLOGICAL SURVEY
NATIONAL GEOLOGIC MAPPING PROGRAM

SURFICIAL GEOLOGY OF THE PERTH AMBOY AND ARTHUR KILL QUADRANGLES
MIDDLESEX AND UNION COUNTIES, NEW JERSEY
OPEN FILE MAP OFM 28

SHEET 2 OF 2

APPENDIX VII

Cross Section Boring Logs

EnviroTrac

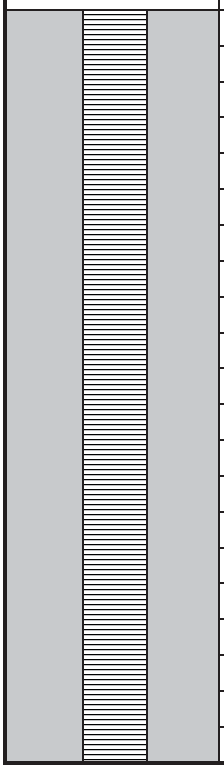
Boring Log of TK-7930-TW-1

Client: **Hess Corporation**	Incident #	Depth to Water (feet from surface)	Site Elevation Datum
Site Name: **Port Reading Refinery**	Address: **750 Cliff Road, Woodbridge, NJ**	Date: 10/26/2009 - / DTW: 3.5 -	Ground Elevation: **Not Surveyed**
Drilling Company: **Summit Drilling**			Measuring Point Elevation
Date Started: **10/29/09**	Date Completed: **10/29/09**	Well Diameter: **1-inch schedule 40 PVC**	
Completion Depth: **10'**	Hydrogeologist/Engineer: **Phil Allegro/EnviroTrac**	Permit #: n/a	

SOIL BORING TK-7930-TW-1 (Not To Scale)	DEPTH (ft. below grade)	SAMPLES: Sample ID	Collection Depth	OVM (ppm)	SOIL DESCRIPTION
	0				
	1			0	
	2			0	
	3			0	
	4			0	0-5' - Vacuum Excavation
	5			0	
	6			0	
	7			0	
	8			0	
	9			0	
	10			0	5'-10' - Red-brown sand, Trace Gravel and Silt

Boring Log of HS6-TW-1

Client: **Hess Corporation**	Incident #	Depth to Water (feet from surface)	Site Elevation Datum
Site Name: **Port Reading Refinery**	Address: **750 Cliff Road, Woodbridge, NJ**	Date: 9/21/2010	DTW: 3.6
Drilling Company: **Summit Drilling**		-	-
Date Started: **9/21/10**	Date Completed: **9/21/10**	Well Diameter **1-inch schedule 40 PVC**	Ground Elevation **Not Surveyed**
Completion Depth: **10'**	Hydrogeologist/Engineer **Phil Allegro/EnviroTrac**	Permit #: n/a	Measuring Point Elevation

SOIL BORING HS6-TW-1 (Not To Scale)	DEPTH (ft. below grade)	SAMPLES Sample ID	Collection Depth	OVM (ppm)	SOIL DESCRIPTION
	0				
	1				
	2				
	3				
	4				0-5' - Vacuum Excavation
	5				
	6				
	7				
	8				
	9				
	10				5'-10' - Red-brown sand, Trace Gravel and Silt

Boring Log of HS6-TW-2

Client: **Hess Corporation**	Incident #	Depth to Water (feet from surface)	Site Elevation Datum
Site Name: **Port Reading Refinery**	Address: **750 Cliff Road, Woodbridge, NJ**	Date: 9/21/2010	DTW: 3.4
Drilling Company: **Summit Drilling**		-	-
Date Started: **9/21/10**	Date Completed: **9/21/10**	Well Diameter **1-inch schedule 40 PVC**	Ground Elevation **Not Surveyed**
Completion Depth: **10'**	Hydrogeologist/Engineer **Phil Allegro/EnviroTrac**	Permit #: n/a	Measuring Point Elevation

SOIL BORING HS6-TW-2 (Not To Scale)	DEPTH (ft. below grade)	SAMPLES Sample ID	Collection Depth	OVM (ppm)	SOIL DESCRIPTION
	0				
	1				
	2				
	3				
	4				0-5' - Vacuum Excavation
	5				
	6				
	7				
	8				
	9				
	10				5'-10' - Red-brown sand, Trace Gravel and Silt

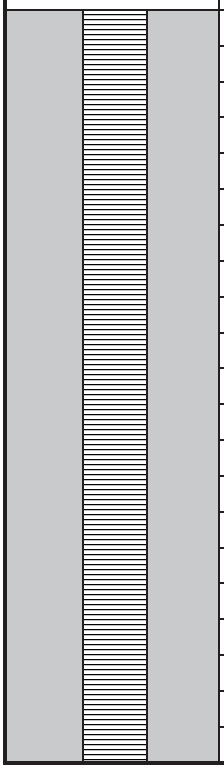
Boring Log of HS6-TW-4

Client: **Hess Corporation**	Incident #	Depth to Water (feet from surface)	Site Elevation Datum
Site Name: **Port Reading Refinery**	Address: **750 Cliff Road, Woodbridge, NJ**	Date: 9/21/2010	DTW: 3.4
Drilling Company: **Summit Drilling**		-	-
Date Started: **9/21/10**	Date Completed: **9/21/10**	Well Diameter **1-inch schedule 40 PVC**	Ground Elevation **Not Surveyed**
Completion Depth: **10'**	Hydrogeologist/Engineer **Phil Allegro/EnviroTrac**	Permit #: n/a	Measuring Point Elevation

SOIL BORING HS6-TW-4 (Not To Scale)	DEPTH (ft. below grade)	SAMPLES Sample ID	Collection Depth	OVM (ppm)	SOIL DESCRIPTION
	0				
	1				
	2				
	3				
	4				0-5' - Vacuum Excavation
	5				
	6				
	7				
	8				
	9				
	10				5'-10' - Red-brown sand, Trace Gravel and Silt

Boring Log of HS6-TW-5

Client: **Hess Corporation**	Incident #	Depth to Water (feet from surface)	Site Elevation Datum
Site Name: **Port Reading Refinery**	Address: **750 Cliff Road, Woodbridge, NJ**	Date: 9/21/2010	DTW: 3.4
Drilling Company: **Summit Drilling**		-	-
Date Started: **9/21/10**	Date Completed: **9/21/10**	Well Diameter **1-inch schedule 40 PVC**	Ground Elevation **Not Surveyed**
Completion Depth: **10'**	Hydrogeologist/Engineer **Phil Allegro/EnviroTrac**	Permit #: n/a	Measuring Point Elevation

SOIL BORING HS6-TW-5 (Not To Scale)	DEPTH (ft. below grade)	SAMPLES Sample ID	Collection Depth	OVM (ppm)	SOIL DESCRIPTION
	0				
	1				
	2				
	3				
	4				0-5' - Vacuum Excavation
	5				
	6				
	7				
	8				
	9				
	10				5'-10' - Red-brown sand, Trace Gravel and Silt

SOIL BORING LOG

Boring Name: HS6-TW-6

Permit No: NA

Client: Hess	Site Name: Port Reading Refinery	Latitude: 40°33'48.489"
Site Address: 750 Cliff Road, Port Reading, New Jersey		Longitude: 74°14'55.835"
Drilling Company: Summit Drilling		Method: Direct Push

Start Date: 6/19/12 | Complete Date: 6/19/12 | Soil Logger/Company: SD/ET

Boring Diameter: 2" | Completion Depth: 12.0' | Depth to Water: 4.0'

Soil Boring Lithology	Depth (feet)	Samples ID	Samples Depth	Samples PID	SOIL DESCRIPTION
	0				0.0'-0.5' ASPHALT
		HS6-TW-1	0.5'-1.0'	0.0	0.5'-5.0' Light grayish brown SAND and Gravel
	1			0.0	
	2			0.0	
	3			0.0	
	4			0.0	
	5			0.0	5.0'-6.0' No recovery
				0.0	
	6			0.0	6.0'-8.0' Red Sandy CLAY with traces of light gray and black
				0.0	medium Sand
	7			0.0	
				0.0	
	8				8.0'-10.0' No recovery
	9				
	10			0.0	10.0'-12.0' Red Sandy CLAY with traces of light gray and black
				0.0	medium Sand
	11			0.0	
				0.0	
	12			0.0	

*Groundwater sample HS6-TW-6 collected from temporary well screened from 0.0'-12.0' below grade

SOIL BORING LOG

Boring Name: HS6-TW-7

Permit No: NA

Client: Hess	Site Name: Port Reading Refinery	Latitude: 40°33'47.990"
Site Address: 750 Cliff Road, Port Reading, New Jersey		Longitude: 74°14'55.671"
Drilling Company: Summit Drilling		Method: Hand Auger

Start Date: 6/20/12 | Complete Date: 6/20/12 | Soil Logger/Company: SD/ET

Boring Diameter: 2" | Completion Depth: 5.0' | Depth to Water: 3.0'

Soil Boring Lithology	Depth (feet)	Samples ID	Samples Depth	Samples PID	SOIL DESCRIPTION
	0				0.0'-0.5' STONE/Gravel
		HS6-TW-2	0.5'-1.0'	0.0	0.5'-5.0' Brown fine SAND and Gravel
	1			0.0	
	2			0.0	
	3			0.0	
	4			0.0	
	5			0.0	

*Groundwater sample HS6-TW-7 collected from temporary well screened from 0.0'-5.0' below grade

SOIL BORING LOG

Boring Name: HS6-TW-8

Permit No: NA

Client: Hess	Site Name: Port Reading Refinery	Latitude: 40°33'47.999"
Site Address: 750 Cliff Road, Port Reading, New Jersey		Longitude: 74°14'56.120"
Drilling Company: Summit Drilling		Method: Direct Push

Start Date: 6/19/12 | Complete Date: 6/19/12 | Soil Logger/Company: SD/ET

Boring Diameter: 2" | Completion Depth: 11.0' | Depth to Water: 4.0'

Soil Boring Lithology	Depth (feet)	Samples ID	Samples Depth	Samples PID	SOIL DESCRIPTION
	0				0.0'-0.5' ASPHALT
		HS6-TW-3	0.5'-1.0'	0.0	0.5'-4.5' Brown fine SAND
	1			0.0	
	2			0.0	
	3			0.0	
	4			0.0	
				0.0	4.5'-5.0' Red CLAY
	5			0.0	5.0'-5.5' Reddish brown fine SAND
				0.0	5.5'-6.0' Light gray and yellow fine SAND and Clay
	6			0.0	6.0'-7.0' Red CLAY, some Gravel
				0.0	
	7			0.0	7.0'-7.5' Yellow, brown, and red mottled CLAY
				0.0	7.5'-8.5' Red CLAY, some Gravel
	8			0.0	
				0.0	8.5'-9.5' Reddish brown fine Silty SAND
	9			0.0	
				0.0	9.5'-11.0' Red CLAY, some Gravel
	10			0.0	
				0.0	
	11			0.0	

*Groundwater sample HS6-TW-8 collected from temporary well screened from 0.0'-11.0' below grade

SOIL BORING LOG

Boring Name: HS6-TW-9

Permit No: NA

Client: Hess	Site Name: Port Reading Refinery	Latitude: 40°33'48.228"
Site Address: 750 Cliff Road, Port Reading, New Jersey		Longitude: 74°14'56.003"
Drilling Company: Summit Drilling		Method: Direct Push

Start Date: 6/19/12 | Complete Date: 6/19/12 | Soil Logger/Company: SD/ET

Boring Diameter: 2" | Completion Depth: 16.0' | Depth to Water: 4.0'

Soil Boring Lithology	Depth (feet)	Samples ID	Samples Depth	PID	SOIL DESCRIPTION
	0				0.0'-0.5' ASPHALT
		HS6-TW-4	0.5'-1.0'		0.5'-2.0' Brown fine SAND with Gravel
	1				
	2				2.0'-4.0' Brown-light gray fine SAND
	3				
	4			6.3	4.0'-5.0' Light gray-yellow fine SAND
				11.0	
	5			53.2	5.0'-9.0' Red CLAY with some angular Gravel
				266	
	6			25.4	
				47.0	
	7			317	
				205	
	8			239	
				2,410	
	9			44.0	9.0'-10.0' Red medium SAND
				500	
	10			12.1	10.0'-12.0' Red CLAY with angular Gravel
				14.7	
	11			2,088	
				82.0	
	12			5.5	12.0'-15.5' Red medium-fine Clayey SAND
	13			5.4	
				11.3	
	14			7.9	
				5.1	
	15			3.2	
				2.3	15.5' Refusal
	16				

*Groundwater sample HS6-TW-9 collected from temporary well screened from 0.0'-16.0' below grade

SOIL BORING LOG

Boring Name: HS6-TW-10

Permit No: NA

Client: Hess	Site Name: Port Reading Refinery	Latitude: 40°33'48.286"
Site Address: 750 Cliff Road, Port Reading, New Jersey		Longitude: 74°14'55.940"
Drilling Company: Summit Drilling		Method: Direct Push

Start Date: 6/19/12 | Complete Date: 6/19/12 | Soil Logger/Company: SD/ET

Boring Diameter: 2" | Completion Depth: 12.0' | Depth to Water: 4.0'

Soil Boring Lithology	Depth (feet)	Samples ID	Samples Depth	PID	SOIL DESCRIPTION
	0				0.0'-0.5' ASPHALT
				0.0	0.5'-1.5' Brown-black fine SAND with Stone
	1			0.0	
					1.5'-5.0' Light grayish brown SAND
	2			0.0	
	3			0.0	
	4			0.0	
	5			0.0	5.0'-6.0' Light grayish brown fine-medium SAND
				0.0	
	6			0.0	6.0'-8.0' Red CLAY, some Gravel
				0.0	
	7			0.0	
				0.0	
	8				8.0'-9.0' No recovery
	9			0.0	9.0'-11.0' Red Sandy CLAY with Gravel
				0.0	
	10			0.0	
				0.0	
	11			0.0.	11.0'-12.0' Red Sandy CLAY with Gravel
				0.0	
	12			0.0	

*Groundwater sample HS6-TW-10 collected from temporary well screened from 0.0'-12.0' below grade

DWR-133M (9/89) SERIAL # 05883

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N.J.

Mail to
Water Allocation
CN 029
Trenton, N.J. 08625

Permit No. 2619611-5 2619612-3 ~~2619613-1~~

PERMIT TO DRILL WELL

25

VALID ONLY AFTER APPROVAL BY THE D.E.P.

COORD #: 26.31.9.15

Owner: Amerada Hess Corp.
Address: 1 Hess Plaza
Woodbridge N.J. 07095

Driller: Warren George Inc.
Address: P.O. Box 473
Jersey City, N.J. 07303

Name of Facility: Port Reading Refinery
Address: 750 Cliff Road
Port Reading N.J. 07064

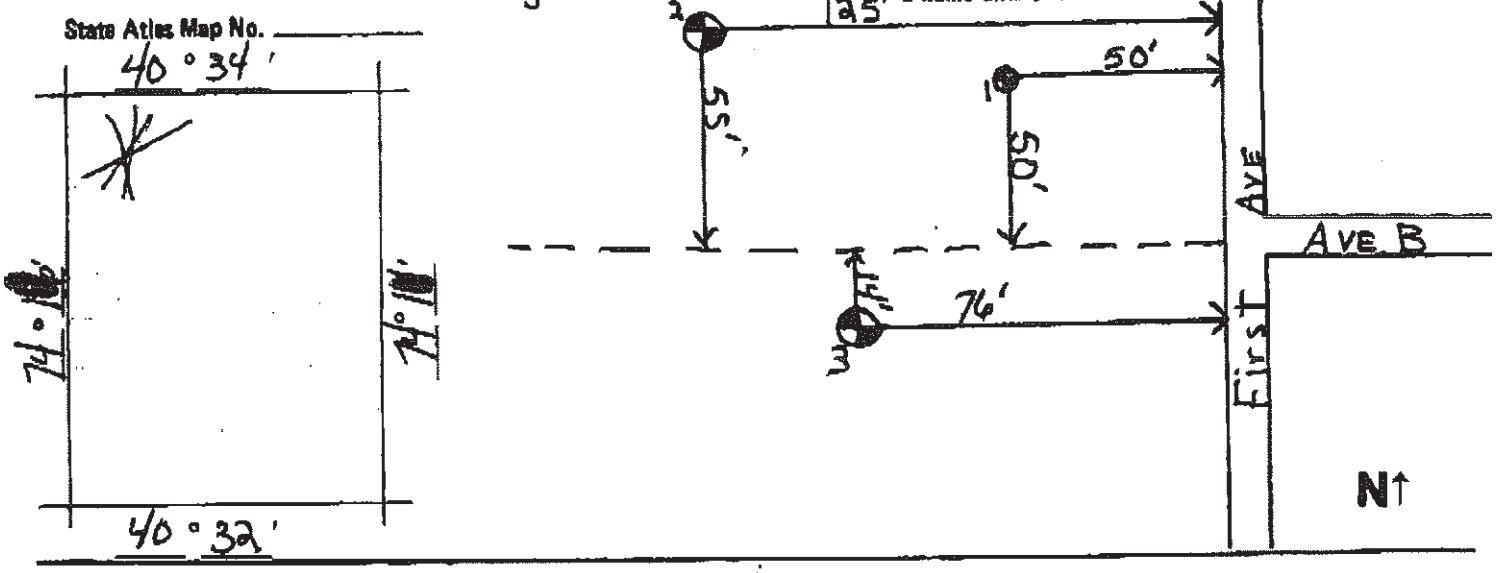
Diameter of Well(s)	4" Inches	Proposed Depth of Well(s)	60' Feet
# of Wells Applied for (max. 10)	3	Will pumping equipment be installed? YES ☐ NO ☒	
Type of Well (see reverse)	monitoring	If yes, give pump capacity	GPM

LOCATION OF WELL(S)

Lot #	Block #	Municipality	County
3	756	Woodbridge	Middlesex

State Atlas Map No. _____

Draw sketch of well(s) to nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.



☐ Issuance of this permit is subject to the conditions attached. (see next page)
☒ For monitoring purposes only
☐ Only pure bentonite drilling muds are to be used for installation

FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED

☐ Spill Fund Case
☐ ECRA Case
☐ CERCLA (Superfund) Site
☐ RCRA Site
☐ Underground Storage Tank
☐ NJPDES Municipal Discharge Permit
☐ NJPDES Industrial Discharge Permit
☐ Div. Hazardous Waste Mgmt. Enforcement Case
☐ Div. Water Resources Enforcement Case
☐ Aquifer Test Observation Well
☒ Other (explain) owners monitoring purposes

Case I.D. Number: _____

This Space for Approval Stamp

[illegible] 13 1990

SEE REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

Date 3-7-90

Signature of Driller Frank Gregory #0825
Signature of Owner Amerada Hess Corp. - (J.D.)

COPIES: Water Allocation—White and Pink Health Dept.—Yellow Owner—Blue Driller—White

WELPMT 069 1900

DWR-138 M
6/89

New Jersey Department of Environmental Protection
Division of Water Resources

MONITORING WELL RECORD

Well Permit No. 28 - 19611
Atlas Sheet Coordinates 28 : 31 : 915

OWNER IDENTIFICATION - Owner AMERADA HESS CORP.
Address 1 HESS PLAZA
City WOODBRIDGE State NJ Zip Code 07095

WELL LOCATION - If not the same as owner please give address. Owner's Well No. B-1
County Middlesex Municipality WOODBRIDGE TWP Lot No. 3 Block No. 758
Address

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 2/15/90
Regulatory Program Requiring Well Case I.D. #
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) N/A Tele. # N/A

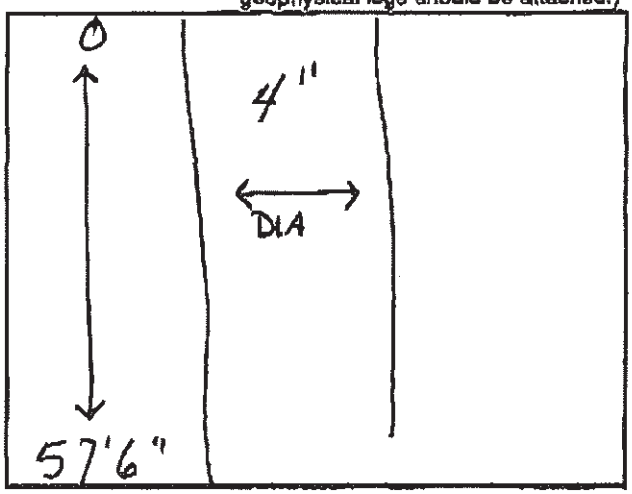
WELL CONSTRUCTION

Total depth drilled 57'6" ft.
Well finished to 57'6" ft.
Borehole diameter:
Top 8" in.
Bottom 8" in.
Well was finished: ☐ above grade ☑ flush mounted
If finished above grade, casing height (stick up) above land surface N/A ft.
Was steel protective casing installed? ☐ Yes ☑ No

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	57'6"	4"	Steel casing
Outer Casing (Not Protective Casing)				
Screen (Note slot size)				
Tail Piece				
Gravel Pack				
Annular Seal/Grout				
Method of Grouting	Tremie			

Static water level after drilling NONE ft.
Water level was measured using N/A
Well was developed for N/A hours at N/A gpm
Method of development N/A
Was permanent pumping equipment installed? ☐ Yes ☑ No
Pump capacity N/A gpm
Pump type: N/A
Drilling Method ROTARY
Drilling Fluid N/A Type of Rig Mobil 61
Name of Driller G. Marney
Health and Safety Plan submitted? ☐ Yes ☑ No
Level of Protection used on site (circle one) None (D) C B A
N.J. License No. 1218
Name of Drilling Company WARREN GEORGE INC.

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)



I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature G. Marney Date 4-4-90

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

WELREC 116 3037

N.Y. TEL. 267-3215

ermit # - 2619611-5

oord # - 2631915

WARREN GEORGE, INC.

FOOT OF JERSEY AVENUE
P. O. BOX 413
JERSEY CITY, N.J. 07303

N. J. TEL. (201) 433-9797

TEST BORINGS

Project Hess Plant - Port Reading N.J.

Boring No. B-1 Job No. _____ Rig No. CHE-75 Date February 15 19 90

BORING LOG		SPOON SAMPLE AND CORE DATA			
DEPTH FROM TO	DESCRIPTION OF MATERIAL	SAMPLE NUMBER	DEPTH FROM - TO	BLOWS PER FT. / CORE RECOV'D. INCHES	D=DRY U=UNDISTURBED T=TRAP W=WASH R=ROD C=CORE / CORE RECOV'D. NO. PGS. Remarks
0 / 4"	Concrete	1	6"-2'		4-2-2
		2	2'-4'		2-4-9-10
4" / 5'	Fill	3	4'-6'		11-14-16-13
		4	6'-8'		10-15-22-20
5' / 9'	Reddish, Clayey Gravel	5	8'-10'		12-52-48-23
		6	10'-12'		24-27-35-35
9' / 40'	FMC Sand w/Some Clay + gravel	7	15'-17'		17-27-35 30
		8	20'-22'		20-30-42-30
40' / 50'	Reddish Brown FMC Sand w/ Some Clay + gravel	9	25'-27'		18-27-34-35
		10	30'-32'		15-19-30-100
50' / 57'6"	Greyish Clay	11	35'-37'		18-30-38-30
		12	40'-42'		33-44-100
		13	45'-47'		65-100
		14	50'-52'		11-15-27-33
		15	55'-57'		38-38-100/3"
		16	57'6"		100/0"

BLOWS ON CASING			
0-1		59-60	
1-2		60-61	
2-3		61-62	
3-4		62-63	
4-5		63-64	
5-6		64-65	
6-7		65 66	
7-8		66-67	
8-9		67 68	
9-10		68-69	
10-11		69 70	
11-12		70 71	
12-13		71-72	
13-14		72-73	
14-15		73-74	
15-16		74-75	
16-17		75 76	
17-18		76-77	
18-19		77-78	
19-20		78-79	
20-21		79-80	
21-22		80-81	
22-23		81-82	
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25-26		84-85	
26-27		85-86	
27-28		86-87	
28-29		87-88	
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33-34		92-93	
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36-37		95 96	
37-38		96-97	
38-39		97-98	
39-40		98-99	
40 41		99-100	
41-42		100-101	
42-43		101-102	
43-44		102 103	
44-45		103-104	
45 46		104-105	
46 47		105 106	
47 48		106 107	
48 49		107 108	
49 50		108 109	
50-51		109 110	
51-52		110-111	

WELREC 116 3038

DWR-133 (5/85)

Mail to

Water Allocation
CN 029
Trenton, N.J. 08625

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N.J.

Permit No. 26-9325

PERMIT TO DRILL WELL 25

VALID ONLY AFTER APPROVAL BY THE D.E.P. 26 31 9 23

Owner AMERADA HESS
Address 1 HESS PLAZA
WOODBURY, N.J.

Name of Facility PORT READING REFINERY
Address STATE STREET
PORT READING, N.J.

Driller JOSEPH TABASCO
Address c/o LIPPINCOTT ENGINEERING
504 BURLINGTON AVE.
DELANCO, N.J. 08075

Diameter of Well	4 Inches	Proposed Depth of Well	25 to 30 Feet
Proposed Capacity of Pump	N.A. GPM	Method of Drilling (cable-tool, rotary, etc.)	ROTARY (AUGER)
Use of Well (See Reverse)	GROUND WATER MONITORING		

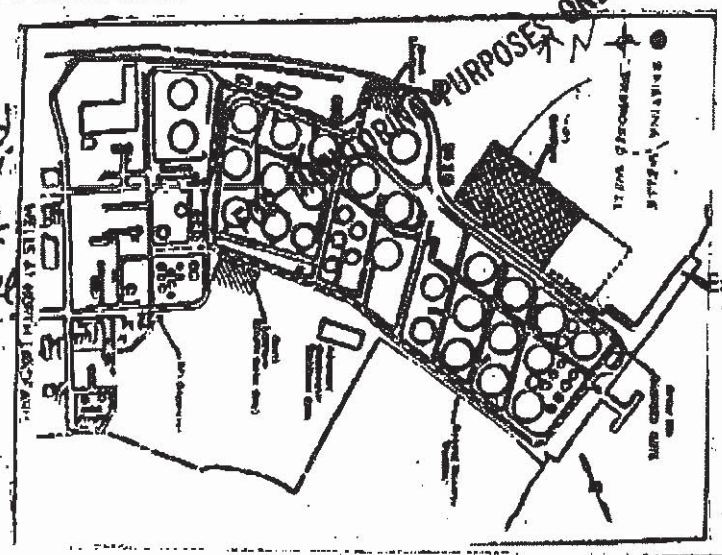
LEA 39298 1

LOCATION OF WELL

Lot #	Block #	Municipality	County
—	—	Woodbridge Twp. ~~Port Reading~~	Middlesex

State Atlas Map No. 26

Draw sketch showing distance and relations of well site to nearest public roads, streets, septic systems, etc.



No sewer or septics

SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pertaining to this permit. APPROVAL of this permit is made SUBJECT TO acceptance of and compliance with the following ADDITIONAL CONDITIONS.

- ☐ Pinelands - Well must be drilled over 100' deep or a clay layer at least 4' in thickness must be encountered.
- ☐ It is necessary that Geophysical Logs of this well be made. Permanent pumping equipment SHALL NOT be installed until such logs are made.
- ☐ Authorization by rule under N.J.A.C. 7:14A-1 et seq.
- ☐ Samples of cuttings required every _____ feet or change in material.
- ☐ The results of a volatile organic scan must be obtained prior to using the water and submitted to _____.
- ☐ **Domestic Potable Water Supply** - The service line for water from the public community water supply system shall be turned off at the curb cock, and the meter shall be removed by the water purveyor.
- ☐ **Domestic Irrigation Supply** - No piping from the well for which the permit applies shall enter any building.
- ☐ **Industrial/Commercial Supply** - A physical connection permit shall be obtained pursuant to the provisions of N.J.A.C. 7:10-10-1 et seq., and a vigorous cross connections control program shall be instituted and maintained within the premises.
- ☐ **Heat Pump Wells** - Wells must be 50 feet apart and the water must be returned to the same aquifer as the production well.
- ☐ _____

This Space for Approval Stamp

WELL PERMIT
APPROVED
JUN 25 1986
DEPT. ENV. PROTECTION
DIV. OF WATER RESOURCES
WATER ALLOCATION

WELL SEALED 1/4/91

In compliance with R.S. 58:4A-14, application is made for a permit to drill a well as described above.

Date _____ Signature of Owner _____

COPIES: Water Allocation — White *Health Dept. — Yellow* *Owner — Blue* *Driller — White*

WELPMT 068 1187

DNR-020
8/89

N

New Jersey Department of Environmental Protection
Division of Water Resources — Bureau of Water Allocation

WELL ABANDONMENT REPORT

WELL PERMIT # 26-9305 of well sealed

MAIL TO:

Bureau of Water Allocation
CN 029
Trenton, NJ 08625

DATE WELL SEALED 1/04/91

26 31 923

PROPERTY OWNER: Amerada Hess Coropration

ADDRESS: 250 Cliff Road, Port Reading, N.J.

WELL LOCATION: 250 Cliff Road, Port Reading, N.J. Middlesex
Street & No., Township, County

BG-1, L-3, BL-75674°15'W 40°34'N
Well No., Lot & Block No., Longitude & Latitude (N.J. Grid # may be substituted for longitude & latitude)

TYPE OF WELL ABANDONED: Monitoring

REASON FOR ABANDONMENT: Request of Client

WAS A NEW WELL DRILLED? ☐ YES ☒ NO PERMIT # OF NEW WELL:

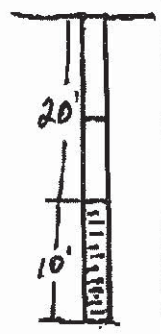
TOTAL DEPTH OF WELL: 30'
DIAMETER: 4"
CASING LENGTH: 20'
SCREEN LENGTH: 10'
NUMBER OF CASINGS: 1

MATERIAL USED TO SEAL WELL:

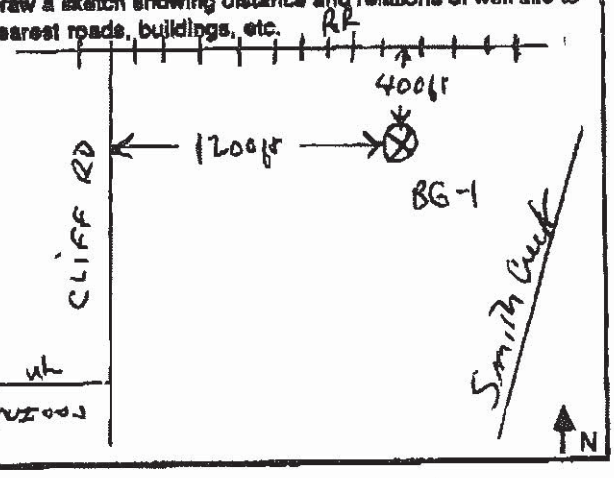
7 Gallons of Water
94 Lbs. of Cement
5 Lbs. of Bentonite
0 Lbs. of Sand/Gravel (none if well is contaminated)

FORMATION: ____ Consolidated
XX Unconsolidated

Cross-section of sealed well



Draw a sketch showing distance and relations of well site to nearest roads, buildings, etc.



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☒ YES ☐ NO CASING MATERIAL: PVC

WERE OTHER OBSTRUCTIONS REMOVED? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS:

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

Earl Hauge EDI 328 Stafford Forge Rd., West Creek, New Jersey 2/20/91
Name of Person Doing Sealing Work (Print or Type) — Address — Mailing Date

E. Hauge
Signature of Person Doing Sealing Work

1130
License #

COPIES White - Water Allocation Yellow - Owner Pink - Health Dept Goldenrod - Driller

26-31-926

26-31-926

26-9305

LIPPINCOTT ENGINEERING ASSOCIATES

501 BURLINGTON AVENUE DELANCO, N.J. 08075

PROJECT NO. 3929.B1

DATE 6/26/86

SHEET 1 OF 2

SURFACE ELEV 9.73

PROJECT MONITORING WELL INSTALLATION

CLIENT AMERADA HESS

LOCATION PORT READING, NJ

LOG OF BORING NO. BG-1 Deep Well

JJT/mk

DEPTH	SAMPLE NUMBER	TYPE*	SAMPLE DEPTH	NUMBER OF BLOWS PER 6"	CLASSIFICATION OF MATERIALS BASED ON SAMPLES RECOVERED PLUS OBSERVATION OF MATERIAL RETURNED BETWEEN SAMPLES	MOISTURE CONTENT
0	S-1	A	0/2	5-8-12-14	Reddish brown coarse SAND.	
	S-2	A	2/4	17-19-17-18	Same.	
5	S-3	A	4/6	1-1-1-8	Dark brown medium-coarse SAND.	
	S-4	A	6/8	10-17-17-16	Same.	
	S-5	A	8/10	8-3-3-2	PEAT.	
10						
15	S-6	A	14/16	1-1-1-1	Grey SILT & PEAT.	
20	S-7	A	19/21	2-2-2-3	Same.	
25	S-8	A	24/26	3-3-3-6	Grey SILT.	
30	S-9	A	29/31	6-12-15-23	Reddish brown medium-coarse SAND.	
35	S-10	A	34/36	1-3-6-10	Same.	
	S-11	A	38/40	1-3-8-9	Same.	
40						

R-106 Rev.

GROUND WATER DATA

DEPTH	HOUR	DATE
6'-2"		6/26/86

* A. STANDARD PENETRATION TEST (ASTM-D 1586)
B. STANDARD THIN-WALLED 3" TUBE (ASTM-D 1587)
C. CORE DRILLING

DRILLER E. DORON HELPER J. GRABITZ EQUIPMENT CME

WELREC 116 3047

26.31.926

26.31.926

26-9305

LIPPINCOTT ENGINEERING ASSOCIATES

501 BURLINGTON AVENUE DELANCO, N.J. 08075

PROJECT NO. 3929.B1

DATE 6/26/86

SHEET 2 OF 2

SURFACE ELEV 9.73

PROJECT MONITORING WELL INSTALLATION

CLIENT AMERADA HESS

LOCATION PORT READING, NJ

LOG OF BORING NO. BG-1 Deep Well

JJT/mk

DEPTH	SAMPLE NUMBER	TYPE*	SAMPLE DEPTH	NUMBER OF BLOWS PER 6"	CLASSIFICATION OF MATERIALS BASED ON SAMPLES RECOVERED PLUS OBSERVATION OF MATERIAL RETURNED BETWEEN SAMPLES	MOISTURE CONTENT
45	S-12	A	44/46	7-7-10-10	Reddish brown medium-coarse SAND.	
	S-13	A	48/50	12-18-12-23	Same.	
50					EOB 50'-0"	

R-106 Rev. 2/77

GROUND WATER DATA

DEPTH	HOUR	DATE
6'-2"		6/26/86

* A. STANDARD PENETRATION TEST (ASTM-D 1586)
B. STANDARD THIN-WALLED 3" TUBE (ASTM-D 1587)
C. CORE DRILLING

DRILLER E. DORON HELPER J. GRABITZ EQUIPMENT CME-55

THIS FORM [illegible]

26-31-926

GROUND WATER
MONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION 26-9305
(One form must be completed for each well)

Name of Permittee: AMERADA HESS
Name of Facility: PORT READING REFINERY
Location: State Street Port Reading, N.J.

NJPDES Permit No: NJ

ENGINEER'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section (609-984-6831): This number must be permanently affixed to the well casing. 26-9305

Owner's Well Number (As shown on the application or plans): BG-1 (DEEP WELL)
Well Completion Date: June 27, 1986
Distance from Top of Casing (cap off) to ground surface (one-hundredth of a foot): 1.26
Total Depth of Well (one-tenth of a foot): 45.29
Depth to Top of Screen From Top of Casing (one-tenth of a foot): 25.29
Screen Length (feet): 20'
Screen or Slot Size: .020 IN.
Screen Material: PVC
Casing Material: (PVC, Steel or Other-Specify): PVC
Casing Diameter (Inches): 4.0
Static Water Level From Top of Casing at The Time of Certification (one-hundredth of a foot): 6.17
Yield (Gallons per Minute): 15
Length of time Well Pumped or Bailed: 2 Hours 0 Minutes
Lithologic Log: ATTACH ON BACK

AUTHENTICATION:
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitted false information including the possibility of fine and imprisonment.

Mousta A. Gouda
Professional Engineer's Signature

Moustafa A. Gouda
Professional Engineer's Name
(Please type or print)

20848
Professional Engineer's License #

SEAL

26.31.926
26.9305

THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS/HER AGENT

GROUND WATER MONITORING WELL CERTIFICATION - FORM B - LOCATION CERTIFICATION

Name of Permittee: AMERADA HESS
Name of Facility: PORT READING REFINERY
Location: STATE STREET PORT READING N.J.

NJPDES Number: NJ

LAND SURVEYOR'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section, 609-984-6831): This number must be permanently affixed to the well casing. 26-9305 - -

Longitude (one-tenth of a second): West 74-14-31.85
Latitude (one-tenth of a second): North 40-33-43.32
Elevation of Top of Casing (cap off) (one-hundredth of a foot): 10.99
Owners Well Number (As shown on the application or plans): BG-1 (DEEP WELL)

AUTHENTICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Vincent Schulte
PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Vincent Schulte
PROFESSIONAL LAND SURVEYOR'S NAME
(Please print or type)

SEAL

7071
PROFESSIONAL LAND SURVEYOR'S LICENSE #

The Department reserves the right in cases of violation of permit specified ground water limits or Ground Water Quality Standards (N.J.A.C. 7:9-6.1 et seq.) to require that wells be surveyed to an accuracy of one-hundredth of a second latitude and longitude. This shall not be considered to require a major modification of the permit.

WELREC 116 3050

Coords 26.31.926

WELL SEALED 1/4/91

Form DWR-138
1/80 LEA# 3929B1

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

PERMIT NO. 26-9305

APPLICATION NO. _____

COUNTY Middlesex

FOR MONITORING PURPOSES ONLY

WELL RECORD

1. OWNER AMERADA HESS ADDRESS 1 HESS PLAZA, WOODBURY, N.J.
   Owner's Well No. MW-1, BG-1, DEEP WELL SURFACE ELEVATION 9.73 Feet (Above mean sea level)
2. LOCATION STATE STREET, PORT READING, N.J. (WOODBRIDGE TWP.)
3. DATE COMPLETED JUNE-27, 1986 DRILLER MR. ED DORON
4. DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 45' 3½" Feet
5. CASING: Type PVC Diameter 4 Inches Length 25' 3½" Feet
6. SCREEN: Type PVC Size of Opening .020" Diameter 4 Inches Length 20 Feet
   Range in Depth { Top _____ Feet, Bottom _____ Feet } Geologic Formation RARITAN - MAGOTHY
   Tail Piece: Diameter _____ Inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
   Water rises to _____ Feet above surface
8. RECORD OF TEST: Date JUNE-27, 1986 Yield 15 Gallons per minute
   Static water level before pumping 6' 2" Feet below surface
   Pumping level 6' 5" feet below surface after 2 hours pumping
   Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
   How pumped SHALLOW WELL JET How measured VOLUMETRICALLY
   Observed effect on nearby wells NONE
9. PERMANENT PUMPING EQUIPMENT:
   Type N/A Mfrs. Name _____
   Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
   Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
   Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ Inches
10. USED FOR GROUND WATER MONITORING AMOUNTS { Average _____ Gallons Daily, Maximum _____ Gallons Daily }
11. QUALITY OF WATER N/A Sample: Yes ____ No ____
    Taste _____ Odor _____ Color _____ Temp. _____ °F
    LOG SEE ATTACHED BORING LOG Are samples available? YES - COLLECTED BY ANNA CAPALUSKI & AMERADA HESS.
    (Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
    SOURCE OF DATA DRILLER'S OBSERVATIONS
    DATA OBTAINED BY MR. ED DORON Date JUNE 26, 1986

(NOTE: Use other side of this sheet for additional information such as log of materials ...)

WELREC 116 3046

TR4D

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-03 PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201207156

WELL PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: ROGER LOGEL, MASTER LICENSE # 0001590

Permit Issued to: SUMMIT DRILLING CO INC

Company Address: CENTRAL JERSEY INDUSTRIAL PARK 9W CHIMNEY ROCK RD BOUND BROOK, NJ 08805

PROPERTY OWNER

Name: N/A HESS CORPORATION

Organization: Hess Corporation

Address: One Hess Plaza

City: Woodbridge State: New Jersey Zip Code: 07095

PROPOSED WELL LOCATION

Facility Name: Hess Port Reading Refinery

Address: 750 Cliff Road

County: Middlesex Municipality: Woodbridge Twp Lot: 3 Block: 756

Easting (X): 561351 Northing (Y): 629752
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: TR-4D

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: MONITORING

Other Use(s):

Diameter (in.): 4

Regulatory Program Requiring Wells/Borings: Envirotrac

Depth (ft.): 25

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approval Date: May 14, 2012
Expiration Date: May 14, 2013

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201207156

WELL PERMIT

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

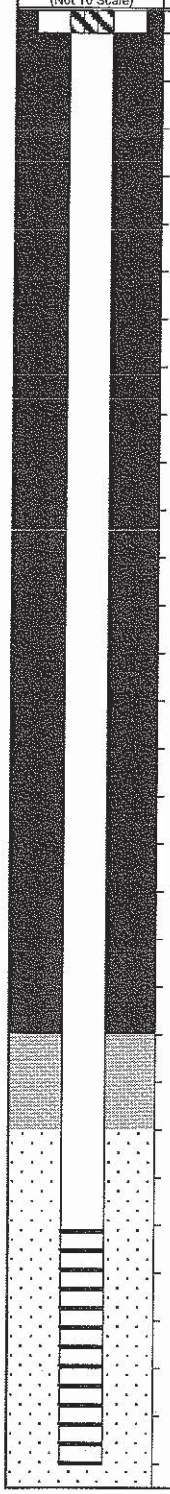
GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

TR4D

TR-4D

Client: Hess Corporation	Incident #	Depth to Water (ft. from measuring pt.)	Site Elevation Datum
Site Name: Port Reading	Address: 750 Cliff Rd., Port Reading, NJ	Date: 6/28/2012 — DTW: NA	Ground Elevation
Drilling Company: Summit Drilling			Measuring Point Elevation
Date Started: 6/28/2012	Date Completed: 6/28/2012 — Well Diameter: 4"		
Completion Depth: 30'	Hydrogeologist/Engineer: Sarah Dyson/EnviroTrac	Permit #: n/a	

SOIL BORING TM-4D (Not To Scale)



DEPTH (ft. below grade)	SAMPLES: Sample ID	Collection Depth	OVM (ppm)	SOIL DESCRIPTION
0				0.0'-0.5' CONCRETE with Rebar
			51.6	0.5'-1.0' Black Clay, white SAND, asphalt
1			15.2	1.0'-2.0' Dark brown fine Clayey SAND with Gravel and Stone fill
2			0	2.0'-3.0' Red CLAY with angular Gravel
3			0	3.0'-4.0' Dark brown fine Clayey SAND
4			0	4.0'-4.5' Brown fine SAND with organic material
			14.2	4.5'-5.0' Light brown Sandy CLAY
5			29.3	5.0'-6.5' No recovery
6			877	6.5'-10.0' Red CLAY, some Gravel (tight)
			505	
7			809	
			666	
8			244	
			501	
9			15.2	
			93.5	10.0'-12.0' Red CLAY
10			557	
			1,000	
11			4,266	
			1,888	12.0'-12.5' Red Silty SAND
12			44.8	12.5'-14.0' Red CLAY, some Gravel
			28.2	
13			388	
			808	14.0'-15.0' Red CLAY, some Gravel, traces of red and tan medium Sand
14			1,426	
			2,220	15.0'-16.0' No recovery
15			170	16.0'-17.0' Red fine SAND
16			131	
			142	17.0'-18.5 Red medium Silty SAND
17			1,238	
			547	
18			419	18.5'-19.0' Red fine Silty SAND (tight)
			252	19.0'-19.5' Light gray fine SAND
19			42.8	19.5'-20.0' Yellow fine SAND
			0.0	20.0'-22.0' Dark gray SILT
20			18.1	
			8.3	
21			6.2	
			47.8	22.0'-23.0' Dark gray fine Silty SAND
22			115	
			495	23.0'-24.5' Gray fine/medium Silty SAND, some black
23			53.2	
			29.7	
24			41.8	24.5'-25.0' Dark gray SILT
			83.4	25.0'-28.0' Gray Silty SAND
25			0.0	
			0.0	
26			0.0	
			0.0	
27			0.0	
			0.0	28.0'-29.0' Dark gray Sandy SILT
28			0.0	
			0.0	29.0'-30.0' Dark gray Silty SAND
29			0.0	
			0.0	
30				

Cement/Bentonite Slurry
Morie Sand
PVC Riser
PVC Screen
Bentonite Seal

MONITORING WELL CERTIFICATION FORM B - LOCATION CERTIFICATION

Name of Owner: Hess Corporation

Name of Facility: Hess Port Reading Refinery

Location: 750 Cliff Road, Woodbridge Township, NJ 07095

Case Number(s): 93-10-21-1435-21

LAND SURVEYOR'S CERTIFICATION

Well Permit Number: E201207156
(This number must be permanently affixed to the well casing.)

Owners Well Number (As shown on application or plans): TR-4D
Geographic Coordinate NAD 83 (to nearest 1/10 of second):

Longitude: West 74°15'02.9" Latitude: North 40°33'43.6"

New Jersey State Plane Coordinates NAD 83 to nearest 10 feet:

North 629770 East 561360

Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 12.37 ft.

Source of elevation datum (benchmark, number/description and elevation/datum. If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation.)
NAVD 88 by GPS

Significant observations and notes:

AUTHENTICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

SEAL

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

8/30/12
DATE

Donald L. MacKay 24GS03127100
PROFESSIONAL LAND SURVEYOR'S NAME AND LICENSE NUMBER
(Please print or type)

Taylor Wiseman & Taylor, 124 Gaither Drive, Suite 150, Mt. Laurel NJ, 08054 Phone 856-235-7200
PROFESSIONAL LAND SURVEYOR'S ADDRESS AND PHONE NUMBER

SOIL BORING LOG

Boring Name: DC-SS-4A

Permit No: NA

Client: Hess	Site Name: Port Reading Refinery	Latitude: 40°33'44.163"
Site Address: 750 Cliff Road, Port Reading, New Jersey		Longitude: 74°14'59.212"
Drilling Company: Summit Drilling		Method: Direct Push
Start Date: 6/22/12	Complete Date: 6/25/12	Soil Logger/Company: SD/ET
Boring Diameter: 2"	Completion Depth: 35.0'	Depth to Water: 8.0'

Soil Boring Lithology	Depth (feet)	Samples ID	Samples Depth	PID	SOIL DESCRIPTION
	0				0.0'-0.5' STONE/Gravel (packed)
					0.5'-5.0' Brown SAND some Stone
				0.0	
	1	DC-SS-4A	1.0'-1.5'	0.0	
	2			0.0	
				0.0	
	3				
				0.0	
	4				
	5				5.0'-7.5' No Recovery
	6				
	7				
				0.0	7.5-8.0 Red CLAY
	8			0.0	8.0'-8.5' Dark gray SILT
				0.0	8.5'-9.0' Brown CLAY
	9			0.0	9.0'-10.0' Gray-brown SILT (peat) some Organics
		DC-SS-4A	9.5'-10.0'	3.8	
	10			0.0	10.0'-11.0' No recovery
	11				11.0'-15.0' Red CLAY some Gravel trace gray Sand
				0.0	
	12			0.0	
				0.0	
	13			0.0	
				0.0	
	14			0.0	
				0.0	
	15				15.0'-16.0' No Recovery
	16			0.0	16.0'-17.0' Tanish orange some light gray medium Silty SAND
	17			0.0	17.0'-17.5' Gray SANDY silt
				0.0	17.5'-18.5' Gray fine SAND
	18			0.0	
				0.0	18.5'-20.0' Gray fine SAND
	19			0.0	
				0.0	
	20			0.0	20.0'-21.5' Tan medium SAND trace yellow
	21			0.0	
				0.0	21.5'-23.0' Tan medium SAND with orange striations
	22				
				0.0	
	23			0.0	23.0'-25.0' Orange/yellow fine to medium SAND
	24			0.0	
				0.0	
	25				25.0'-28.5' No recovery
	26				
	27				
	28				
				0.0	28.5'-29.0' Dark gray CLAY
	29			0.0	29.0'-30.0' Light gray, orange and tan medium SAND
	30			0.0	30.0'-32.0' No recovery
	31			0.0	
	32			0.0	32.0'-33.5' Tan and yellow medium to coarse SAND
	33			0.0	
				0.0	33.5'-35.0' Light gray coarse SAND, ribbons of Clayey SAND
	34			0.0	
	35				

SOIL BORING LOG
Boring Name: DU-SS-1
Permit No: NA

Client: Hess	Site Name: Port Reading Refinery	Latitude: 40°33'57.046"
Site Address: 750 Cliff Road, Port Reading, New Jersey		Longitude: 74°14'53.072"
Drilling Company: Summit Drilling		Method: Direct Push

Start Date: 6/14/12 Complete Date: 6/29/12 Soil Logger/Company: SD/ET

Boring Diameter: 2" Completion Depth: 24.0' Depth to Water: NA

Soil Boring Lithology	Depth (feet)	Samples ID	Samples Depth	PID	SOIL DESCRIPTION
	0				0.0'-0.5' GRAVEL/Stone
					0.5'-2.5' Brown medium SAND with some Gravel
	1				
				0.0	
	2	DU-SS-1	2.0'-2.5'		
				0.0	2.5'-5.5' Very dark gray-black CLAY
	3	DU-SS-1	3.0'-3.5'		
				0.0	
	4			0.0	
				0.0	
	5			0.0	
				0.0	5.5'-12.0' Red CLAY and angular Gravel
	6			0.0	
				0.0	
	7	DU-SS-1	7.0'-7.5'	0.0	
				0.0	
	8			0.0	
				0.0	
	9			0.0	
				0.0	
	10			0.0	
				0.0	
	11			0.0	
				0.0	
	12			0.0	12.0'-12.5' Granite GRAVEL
				0.0	12.5'-14.0' Red CLAY with angular Gravel
	13			0.0	
				0.0	
	14			0.0	14.0'-18.5' Reddish brown fine Clayey SAND
				0.0	
	15			0.0	
				0.0	
	16			0.0	
				0.0	
	17			0.0	
				0.0	
	18			0.0	
				0.0	18.5'-21.0' Red CLAY with angular Gravel
	19			0.0	
				0.0	
	20			0.0	
				0.0	
	21			0.0	21.0'-22.0' Red Clayey SAND
				0.0	
	22			0.0	22.0'-23.0'- Red CLAY with Gravel
				0.0	
	23			0.0	23.0'-23.5' Stone (Granite)
				0.0	
	24			0.0	24.0' Refusal

Appendix VIII

Permeability Testing NJPDES Permit NJ0028878
Submitted Sept. 15, 2011 to NJDEP, Bureau of Release Prevention

EnviroTrac

September 15, 2011

Mr. Chris Lucien
Bureau of Release Prevention
22 South Clinton Avenue, 3rd Floor
PO Box 424
Trenton, NJ 08625-0424

RE: Permeability Testing
NJPDES Permit NJ0028878
Hess Corporation – Port Reading Refinery
Port Reading, New Jersey

Dear Mr. Lucien:

The Hess Corporation – Port Reading Refinery (HC-PR) submits with this letter the permeability results for the secondary containment of Tankfields 7945, 1215, 7938, 7944, 7930, 7909, 1175. The study was completed between June 6 through 8, 2011.

Should you have any questions or comments regarding the information submitted in this report, please do not hesitate to contact me at 908-757-1900.

Sincerely,
EnviroTrac, Ltd.

William J. Groeling
Senior Project Manager
NJDEP Certification # 0022589

Enclosure: Permeability Study – Secondary Containment
Tankfields 7945, 1215, 7938, 7944, 7930, 7909, 1175

Cc: H. Goldman – Hess Corporation (electronic)
Project File

TANKFIELD SOIL PERMEABILITY RESULTS
HESS CORPORATION - PORT READING REFINERY
TANKFIELDS 7945, 1215, 7938, 7944, 7930, 7909, 1175

Hess Corporation – Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

September 15, 2011

Prepared for:

Mr. Howard Goldman
Environmental Manager
Hess Corporation
One Hess Plaza
Woodbridge, NJ 07095

Prepared by:

William J. Groeling
Senior Project Manager
NJDEP UST Certification # 0022589

EnviroTrac

TABLE OF CONTENTS

1.0 INTRODUCTION

2.0 TANKFIELD DESCRIPTIONS

3.0 PERMEABILITY TESTING

4.0 RESULTS

FIGURES

FIGURE 1 SITE LOCATION MAP

FIGURE 2 SITE PLAN

TABLES

TABLE 1 PERMEABILITY RESULTS AND CALCULATIONS

APPENDICES

APPENDIX A NJDEP PERMEABILITY APPROVAL - 2011

APPENDIX B F&P PERMEABILITY TESTING RESULTS - 2011

EnviroTrac

1.0 Introduction

Hess Corporation (HC) retained the services of EnviroTrac Ltd. (EnviroTrac) of South Plainfield, NJ and French & Parrello Associates (F&P) of Wall Township, NJ to continue the evaluation of the permeability rates of the floor and dike walls within the tankfields of the Hess Port Reading Refinery (HC-PR) located in Port Reading, NJ. In 2010, the first phase of the permeability study evaluated four tankfields: Tankfield 1211, Tankfield 1208, Tankfield 1205, and Tankfield 1201. This phase of the permeability study evaluated all remaining tankfields: Tankfield 7945, Tankfield 1215, Tankfield 7938, Tankfield 7944, Tankfield 7930, Tankfield 7909, and Tankfield 1175. The original permeability plan was proposed to the NJDEP on June 30, 2010. The NJDEP approved the second phase of the permeability plan on May 9, 2011. A copy of the NJDEP approval is attached in **Appendix A**. A site location map is included as **Figure 1**. A site plan is included as **Figure 2**.

2.0 Description of Tankfields 7945, 1215, 7938, 7944, 7930, 7909, 1175

The 7945 Tankfield contains one above-ground storage tank (AST). Tank (TK) 7945 stores gasoline. The tankfields utilize overflows for containment capacity. Therefore gasoline is utilized as the most permeable product for all adjoining tank fields.

The 1215 Tankfield contains nine ASTs; TK 1223 through TK 1215. TK 1220, TK 1216, and TK 1215 store low sulfur gas oils and residuals as feed to a Fluidized Catalytic Cracking Unit (FCCU Feed). The remaining six ASTs store gasoline. Therefore, gasoline is utilized as the most permeable product. In addition, this tankfield utilizes overflows into the 7945 Tankfield and the 7938 Tankfield.

The 7938 Tankfield contains nine ASTs; TK 7942 through TK 7934. All of these ASTs store gasoline. Therefore, gasoline is utilized as the most permeable product. In addition, this tankfield utilizes overflows into the 7938 Tankfield.

The 7944 Tankfield contains two ASTs; TK 7944 and TK 7943. Both ASTs store gasoline. Therefore, gasoline is utilized as the most permeable product.

The 7930 Tankfield contains two ASTs; TK 7930 and TK 7933. Both ASTs store gasoline. Therefore, gasoline is utilized as the most permeable product.

The 7909 Tankfield contains ten ASTs; TK 7903, TK 7904, TK 7905, TK 7906, TK 7908, TK 7909, TK 7914, TK 7915, TK 7916, and TK 7917. TK 7903 stores gasoline. TK 7904 and TK 7909 store sour water. TK 7914 stores slurry oil. TK 7916 and TK 7917 store Liquefied Petroleum Gas (LPG). TK 7905, TK 7906, TK 7908, and TK 7915 are out of service. Because TK 7903 stores gasoline, gasoline is utilized as the most permeable product.

The 1175 Tankfield contains eight ASTs; TK 1175 through TK 1182. TK 1175 and TK 1177 through TK 1182 store gasoline. Therefore, gasoline is utilized as the most permeable product. TK 1176 stores ethanol.

3.0 Permeability Testing

Between June 6-8, 2011, HC-PR conducted excavation of the tankfield soils to visually observe the soil types encountered, the pushing of thin walled Shelby tubes (ASTM D 1587), the measurement of in-situ density and moisture content (ASTM D 6938), and the taking of bulk representative soil samples. A total of twenty-four locations (Locations 14 – 37) were selected for analysis. Of the twenty-four locations, fifteen (15) were floor locations, and the remaining nine (9) were located on the dike walls. Although the tankfields are basically flat, every effort was made to collect the samples from the lowest points in each tankfield. Shelby Tubes were collected for all samples except in Locations 16, 20, 21, 22, 32, 36, and 37. In these seven locations, bulk samples were collected and analyzed because Shelby Tubes could not be collected due to poor recovery. Bulk sample collection in locations where Shelby Tubes could not be collected is consistent with the approved sampling plan. The sample locations have been depicted on **Figure 2**.

A backhoe was utilized at each location to remove the surficial protective sand and gravel and to expose the underlying soils for visual observation. Once a consistent stratum of material was reached, in-place density tests were performed using nuclear methods. Thin-walled Shelby Tubes were pushed in locations adjacent to the in-place density test locations and carefully removed, capped, and sealed for laboratory testing. The area was then excavated to obtain a representative bulk sample for grain size analysis, laboratory compaction and re-compacted permeability testing. Laboratory permeability tests were performed on the extruded samples from the Shelby Tubes. A copy of the F&P permeability testing results is included as **Appendix B**.

4.0 Results

The laboratory results are presented in centimeters per second (cm/sec) at 20° Celsius. To determine the soils permeability of gasoline, a viscosity factor was calculated into the initial permeability laboratory results. As cited in the API report *Evaluating Hydrocarbon Removal… and Magnitude* (September 2002), gasoline is half as viscous as water. Given this, a viscosity factor of 2 was used for gasoline

Because at least one AST in every tankfield contains gasoline, the Viscosity Factor for gasoline was used in all calculations.

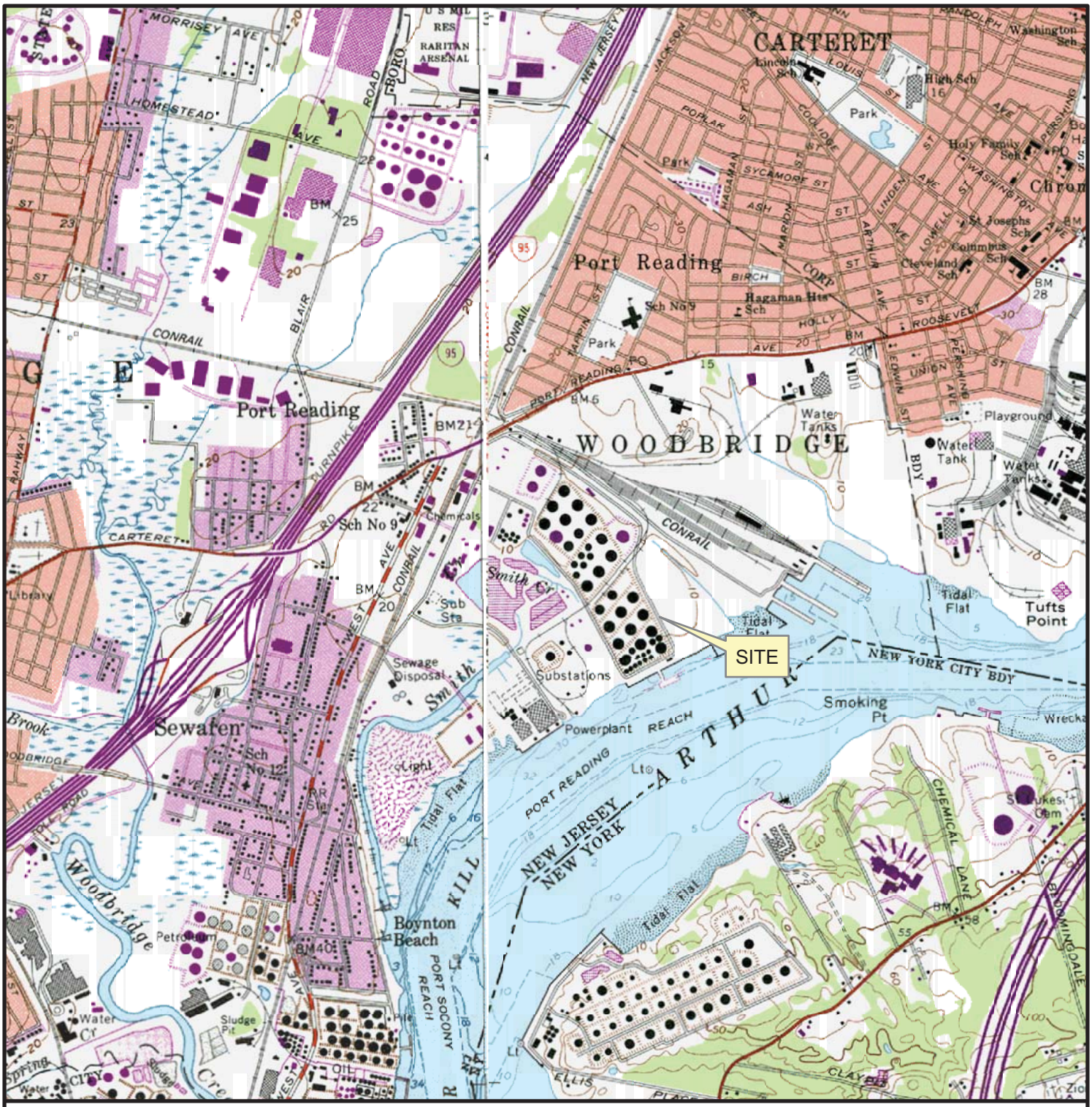
The adjusted permeability number for each location was converted from cm/sec to feet per hour (ft/hr). From this number, the approximate time to groundwater could be calculated. If the sample was collected from a dike wall, then the approximate time to penetrate through the wall was calculated. The June 6-8, 2011, permeability testing results have been summarized as follows:

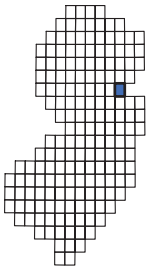
Dike Wall Samples					
Location	Approximate Dike Thickness	Primary Product in Test Area	Adjusted Permeability cm/sec	Adjusted Permeability ft/hr	Time to Penetrate Through Dike (hr)
17	10	Gasoline	3.4E-06	4.02E-04	24,901.96
20	10	Gasoline	1.1E-02	1.28E+00	7.84
22	10	Gasoline	7.0E-06	8.27E-04	12,095.24
24	10	Gasoline	6.8E-08	8.03E-06	1,245,098.00
27	10	Gasoline	8.2E-04	9.69E-02	103.25
29	10	Gasoline	1.2E-07	1.37E-05	729,885.03
31	10	Gasoline	4.8E-06	5.67E-04	17,638.89
33	10	Gasoline	1.2E-04	1.39E-02	717.51
35	10	Gasoline	4.0E-06	4.72E-04	21,166.67

Floor Samples					
Location	Approximate DTW	Primary Product in Test Area	Adjusted Permeability cm/sec	Adjusted Permeability ft/hr	time to GW (hr)
14	4.5	Gasoline	3.4E-03	4.02E-01	11.21
15	4.5	Gasoline	1.8E-03	2.17E-01	20.71
16	5	Gasoline	4.2E-05	4.96E-03	1,007.94
18	6	Gasoline	2.4E-03	2.83E-01	21.17
19	6	Gasoline	7.0E-05	8.27E-03	725.71
21	6.5	Gasoline	4.8E-06	5.67E-04	11,465.28
23	3	Gasoline	1.4E-04	1.61E-02	186.76
25	8	Gasoline	1.1E-06	1.32E-04	60,476.19
26	8	Gasoline	6.4E-06	7.56E-04	10,583.33
28	8	Gasoline	1.1E-05	1.35E-03	5,941.52
30	8	Gasoline	2.6E-06	3.07E-04	26,051.28
32	6.5	Gasoline	1.0E-05	1.23E-03	5,291.67
34	6.5	Gasoline	2.0E-06	2.36E-04	27,516.67
36	6.5	Gasoline	3.8E-04	4.49E-02	144.82
37	6.5	Gasoline	3.6E-06	4.25E-04	15,287.04

A table showing the permeability results and calculations has been included as **Table 1**.

The results indicate considerable variability across the locations in both materials and permeability results. The approximate time to groundwater varies greatly, from over 1.2 million hours in Location 24 to just over 7.8 hours in Location 20.





QUADRANGLE LOCATION:
ARTHUR KILL, NEW JERSEY

0 1,000 2,000 4,000 6,000 8,000 Feet

N W E S

FIGURE #	U.S.G.S. TOPOGRAPHIC MAP	DRAWN BY: B.J.S.	EnviroTrac ENVIRONMENTAL SERVICES
1	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	DATE: 7/15/10	400E CORPORATE COURT, So. PLAINFIELD NJ 07080 PHONE: (908)757-1900 FAX: (908)757-0017

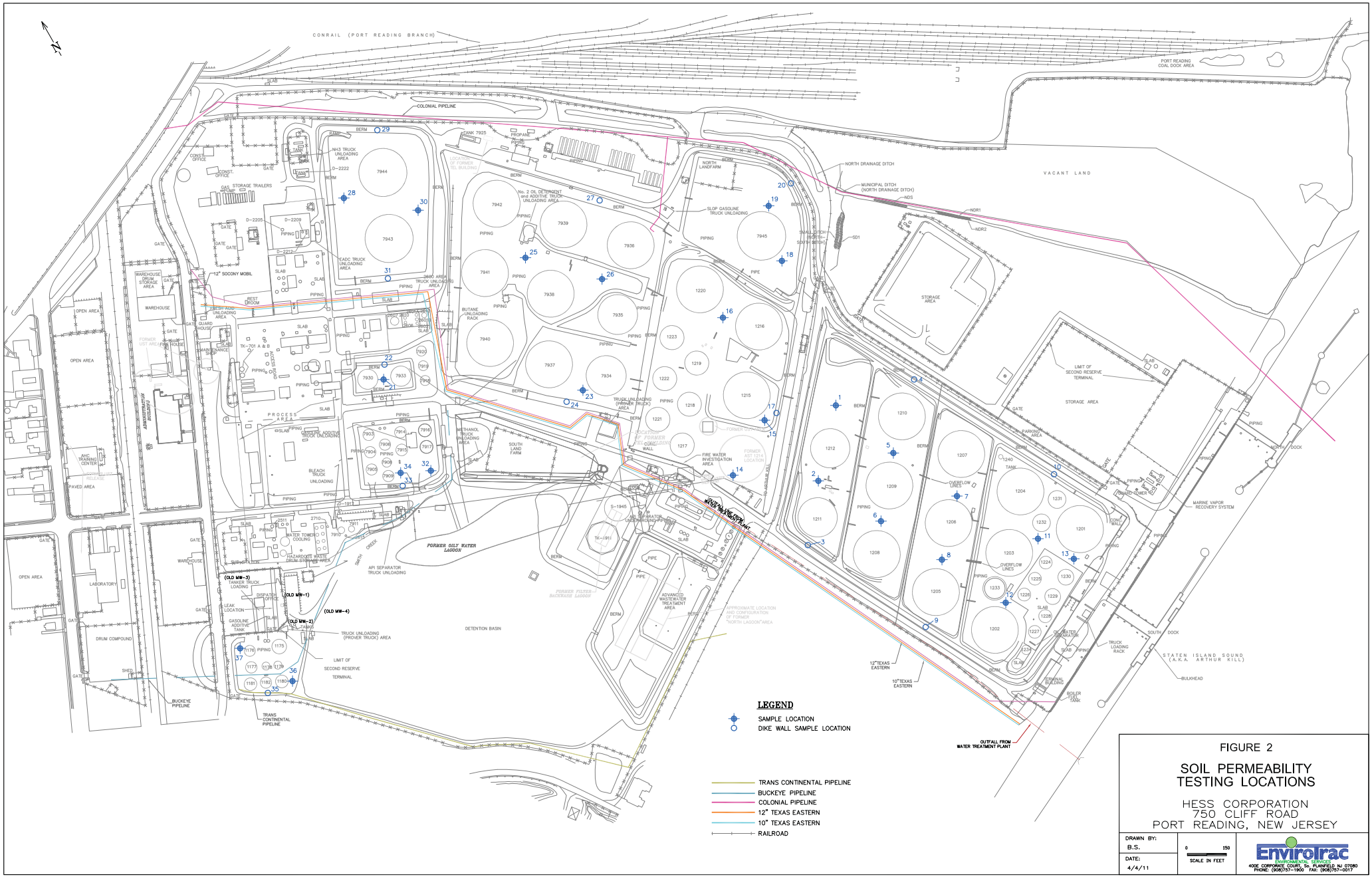


FIGURE 2

SOIL PERMEABILITY TESTING LOCATIONS

HESS CORPORATION
750 CLIFF ROAD
PORT READING, NEW JERSEY

DRAWN BY: B.S.	0 150 SCALE IN FEET
DATE: 4/4/11	

EnviroTrac ENVIRONMENTAL SERVICES
400E CORPORATE COURT, So. PLAINFIELD, NJ 07080
PHONE: (908)757-1900 FAX: (908)757-0017

Table 1
Permeability Results
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, NJ

Location	Permeability cm/sec @20 deg C	Viscosity Factor	Adjusted Permeability cm/sec	Adjusted Permeability ft/hr	Approximate DTW	time to GW (hr)	Approximate Dike Thickness	Time to Penetrate Through Dike (hr)
14	1.7E-03	2	3.4E-03	4.02E-01	4.5	11.21	NA	NA
15	9.2E-04	2	1.8E-03	2.17E-01	4.5	20.71	NA	NA
16	2.1E-05	2	4.2E-05	4.96E-03	5	1,007.94	NA	NA
17	1.7E-06	2	3.4E-06	4.02E-04	NA	NA	10	24,901.96
18	1.2E-03	2	2.4E-03	2.83E-01	6	21.17	NA	NA
19	3.5E-05	2	7.0E-05	8.27E-03	6	725.71	NA	NA
20	5.4E-03	2	1.1E-02	1.28E+00	NA	NA	10	7.84
21	2.4E-06	2	4.8E-06	5.67E-04	6.5	11,465.28	NA	NA
22	3.5E-06	2	7.0E-06	8.27E-04	NA	NA	10	12,095.24
23	6.8E-05	2	1.4E-04	1.61E-02	3	186.76	NA	NA
24	3.4E-08	2	6.8E-08	8.03E-06	NA	NA	10	1,245,098.00
25	5.6E-07	2	1.1E-06	1.32E-04	8	60,476.19	NA	NA
26	3.2E-06	2	6.4E-06	7.56E-04	8	10,583.33	NA	NA
27	4.1E-04	2	8.2E-04	9.69E-02	NA	NA	10	103.25
28	5.7E-06	2	1.1E-05	1.35E-03	8	5,941.52	NA	NA
29	5.8E-08	2	1.2E-07	1.37E-05	NA	NA	10	729,885.03
30	1.3E-06	2	2.6E-06	3.07E-04	8	26,051.28	NA	NA
31	2.4E-06	2	4.8E-06	5.67E-04	NA	NA	10	17,638.89
32	5.2E-06	2	1.0E-05	1.23E-03	6.5	5,291.67	NA	NA
33	5.9E-05	2	1.2E-04	1.39E-02	NA	NA	10	717.51
34	1.0E-06	2	2.0E-06	2.36E-04	6.5	27,516.67	NA	NA
35	2.0E-06	2	4.0E-06	4.72E-04	NA	NA	10	21,166.67
36	1.9E-04	2	3.8E-04	4.49E-02	6.5	144.82	NA	NA
37	1.8E-06	2	3.6E-06	4.25E-04	6.5	15,287.04	NA	NA

* - The Gasoline viscosity factor was used in all calculations.

Appendix A

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF RELEASE PREVENTION
P.O. Box 420, Mail Code 22-03D
22 South Clinton Avenue
Trenton, New Jersey 08625-0420
TELEPHONE (609) 633-0610 FAX (609) 633-7031

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

Certified Mail 7008 1140 0000 1429 7132

May 9, 2011

Howard Goldman
Environmental Manager
Hess Corp. - Port Reading Refinery
1 Hess Plaza
Woodbridge, NJ 07095

RE: Soil Permeability Testing Plan for the Remaining Tank Fields for Hess - Port Reading Refinery/2nd Reserve, Woodbridge Twp., Middlesex County DIFF# 122500068000

Dear Mr. Goldman:

Thank you for your soil permeability testing plan dated April 12, 2011, received by the Department on April 18, 2011. The proposal describes collecting Shelby tube field samples at specified locations and then testing the samples at a lab following the standards of ASTM D 2434, ASTM D 5084, ASTM D 422, and ASTM D 2216. Fieldwork for samples collected will be performed within 60 days of NJDEP approval of this plan with laboratory testing and data evaluation being completed within 30 days after the samples are collected. A report summarizing the results and conclusions will be submitted to the Department within 60 days after completion of laboratory testing.

In this final round of testing, the remaining tank fields will be completed and include the 1st Tank Field, 2nd Tank Field, 3rd Tank Field, 4th Tank Field, Second Reserve, Tk 7903 Tank Field, Tk 7930 Tank Field, and the Truck Loading Tank Field.

The Department approves this soil permeability testing plan. However, Hess must ensure that at least one sample is taken at the lowermost elevation of each containment area.

If you have any questions pertaining to this letter or for any aspect of your DPCC/DCR Plan, please contact Christopher Lucien, Project Manager, at (609) 292-1690.

Sincerely,

Iclal Atay, Ph.D., Manager
Bureau of Release Prevention

c: Beth Reddy, Chief, Engineering Review Section
Christopher Lucien, Principal Environmental Engineer

Appendix B

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

July 18, 2011

William Groeling
ENVIROTRAC LTD
400 E. Corporate Court
South Plainfield, NJ 07080

Re: Report, Field & Laboratory Testing
Hess – Port Reading Refinery
Woodbridge, NJ
FPA No. 2187.005

Gentlemen:

On June 6, 7, 8, 2011, representatives of our firm were on site to perform sampling and testing of the floor of the tank farm areas for an assessment of the secondary containment characteristics of the existing soil around the tanks. The main purpose of the testing program was to assess the permeability of the containment soils

The field work consisted of excavation of the soils to visually observe the soil types encountered, the pushing of thin-walled Shelby tubes (ASTM D 1587), the measurement of in-situ density and moisture content (ASTM D 6938), and the taking of bulk representative soil samples. Samples were returned to our laboratory for further testing and analysis.

The field work was performed at twenty-four locations selected by Hess and Envirotrac personnel. The approximate locations are shown on the attached plan provided by Envirotrac.

The work was performed at each location that had been laid out by Hess personnel. A backhoe was utilized to excavate to varied depths to remove the surficial protective sand and gravel and to expose the underlying soils for visual observation. Once a consistent stratum of material was reached, in-place density tests were performed using nuclear methods. Thin-walled Shelby Tubes were pushed in locations adjacent to the in-place density test locations and carefully removed, capped, and sealed for laboratory testing. At several locations, adequate Shelby Tube samples were not obtained due to poor recovery or gravel obstructions. The area was then excavated to obtain a representative bulk sample for grain size analysis, and re-compacted permeability testing. Laboratory permeability tests were performed on the extruded samples from the Shelby Tubes. For locations where the Shelby Tube sample was inadequate, permeability tests were performed on bulk samples which were moisture conditioned and re-compacted to approximately the same density as measured in the field at each location. The

Offices: Wall Township, NJ • Hackettstown, NJ • Mullica Hill, NJ • Bethlehem, PA
1800 Route 34, Suite 101 • Wall, NJ • 07719
T 732.312.9800 • F 732.312.9801
www.fpaengineers.com

results of the field and laboratory work are presented on the attached summary along with the plotted laboratory test curves.

The results indicate considerable variability across the locations of both materials and permeability results. The permeability ranged between 5.4 X 10^{-3} and 3.4 X 10^{-8} cm/sec. Consistent with a site that has been reworked for the construction of a facility of this nature, the materials appear to be primarily imported soils that have been placed, compacted, reworked and mechanically stabilized through many phases of site development.

Should you have any questions, please do not hesitate to contact us.

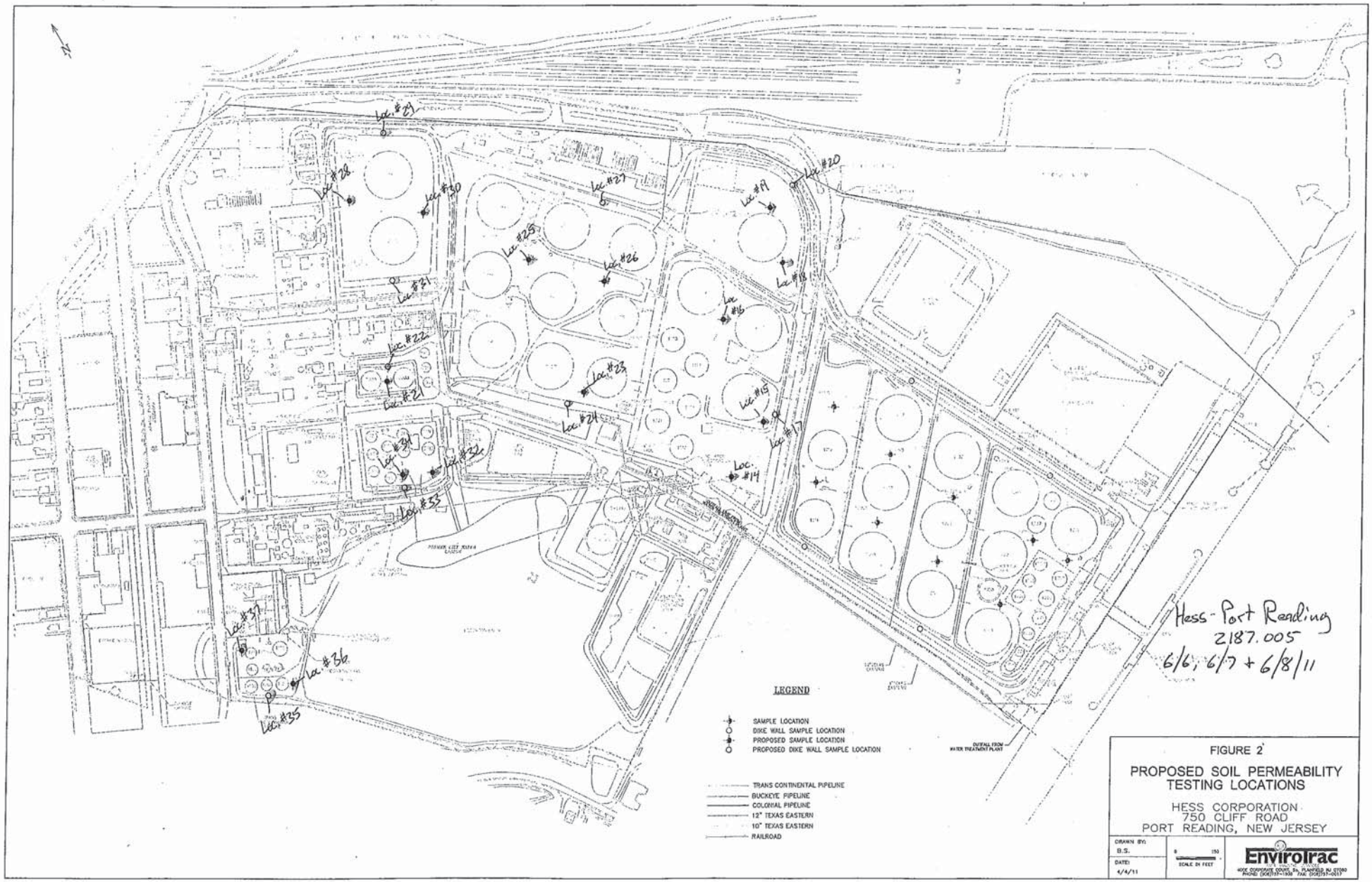
Very truly yours,

FRENCH & PARRELLO ASSOCIATES, PA

David I. Calnan, PE
Senior Vice President

DIC/jac
Attachments

C: Howard Goldman – Hess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Loc. #23
Loc. #21
Loc. #15
Loc. #24
Loc. #17
Loc. #34
Loc. #32
Loc. #14
Loc. #33
Loc. #37
Loc. #36
Loc. #35
LEGEND
SAMPLE LOCATION
DIKE WALL SAMPLE LOCATION
PROPOSED SAMPLE LOCATION
PROPOSED DIKE WALL SAMPLE LOCATION
TRANS CONTINENTAL PIPELINE
BUCKEYE PIPELINE
COLONIAL PIPELINE
12" TEXAS EASTERN
10" TEXAS EASTERN
RAILROAD
OUTFALL FROM WATER TREATMENT PLANT
Hess - Port Reading
2187.005
6/6, 6/7 + 6/8/11
FIGURE 2
PROPOSED SOIL PERMEABILITY TESTING LOCATIONS
HESS CORPORATION
750 CLIFF ROAD
PORT READING, NEW JERSEY
DRAWN BY: B.S.
DATE: 4/4/11
0 150
SCALE IN FEET
EnviroTrac

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

1800 Route 34, Suite 101
Wall, New Jersey 07719
Phone: (732) 312-9800

TO: _____

Date: 6/6/11	**Job No.:** 2187.005
Project: Hess – Port Reading Refinery	
Location: Port Reading, NJ	
Contractor: EnviroTrac	**Owner:** Hess Corp.
Weather: Sunny	**Temp:** 80's&90's
Present at Site: Adam French (FPA Writer),	
James Boudreau	
Phil Allegro	

FIELD REPORT

THE FOLLOWING WAS NOTED:

The writer and James Boudreau of French & Parrello Associates, P.A. (FPA) arrived at the Hess – Port Reading Refinery to observe the excavation of test pits, perform density testing and collect samples within the tank farm containment fields. The writer and Mr. Boudreau met with Phil Allegro of EnviroTrac and Howard Goldman of Hess Corp for a safety briefing. The writer and Mr. Boudreau were then escorted by Phil Allegro from EnviroTrac and a Back Hoe operator from Hess Corp. to the tank farm containment fields to begin the test pit operation.

On this day a total of nine test pits were excavated at nine locations that were previously marked out by Phil Allegro of EnviroTrac using a Case 580 M Back Hoe within the tank farm containment fields. The writer and Mr. Boudreau recorded the soil descriptions of the materials encountered, performed in place density testing by the nuclear method, recorded wet density, dry density and moisture content, collected bulk samples and pushed shelby tubes in the clay layer at each test pit location. These bulk samples and shelby tubes were delivered to FPA's soils lab for testing. See the attached test pit logs for the soil descriptions, the nuclear density test result sheet for test results and plan copy for the test pit locations.

Copies to: Field File

Signed Adam French

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

Nuclear Density Test Results

Project: Hess Port Reading **Sheet:** 2 **of** 12

Job Number: 2187.005 **Date:** 6/6/11 **Gauge:** 38931

Operator: Adam French, James Booudreau **MS:** 681 **DS:** 2359

Test Number	Probe Depth (In)	Wet Density (PCF)	Dry Density (PCF)	Percent Moisture	Proctor Value (PCF)	Percent Compaction
1	12	131.8	125.8	4.8		
2	12	127.5	122.4	4.1		
3	12	143.0	135.1	5.9		
4	12	110.8	92.5	19.8		
5	12	127.0	117.5	8.1		
6	12	129.1	113.6	13.7		
7	12	111.0	106.3	4.4		
8	12	137.1	125.7	9.1		
9	12	105.5	82.2	28.4		

Test Number	Test Locations and Remarks
1	Location 14- 4" below grade-see plan attached
2	Location 15- 4" below grade-see plan attached
3	Location 16- 9" below grade-see plan attached
4	Location 17- 8" below grade-see plan attached
5	Location 18- 4" below grade-see plan attached
6	Location 19- 4" below grade-see plan attached
7	Location 20- 5" below grade-see plan attached
8	Location 21- 9" below grade-see plan attached
9	Location 22- 8" below grade-see plan attached

FRENCH & PARRELLO
ASSOCIATES P.A., CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 3 **of** 12 **Date:** 6/6/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP-1; Loc.14 @ Tank #1217

Ground Elevation: - **Groundwater Elevation:** No Groundwater Encountered

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-4"	3/4" Stone
4"-7"	Red Brown course medium fine SAND, little+ silt, little course medium fine gravel.
	Shelby Tube UD-1 at 7" depth with 9" recovery.
	End of Test Pit at: 7"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 4 **of** 12 **Date:** 6/6/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP2; Loc.15 @ Tank #1215

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-4"	3/4" Stone
4"-8"	Red Brown course- medium fine SAND, little- silt, little- medium fine gravel.
	Shelby Tube UD-2 at 8" depth with 11" recovery.
	End of Test Pit at: 8"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES P.A. CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 5 **of** 12 **Date:** 6/6/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP3; Loc.16 @ Tank #1216

Ground Elevation: - **Groundwater Elevation:** No Groundwater Encountered

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-3"	3/4" Stone
3"-9"	Gray medium fine+ SAND, little+ course medium fine gravel, little silt.
9"-11"	Orange Brown medium fine SAND, little medium fine gravel, trace+ silt.
11"-14"	Dark Brown medium fine SAND, little- medium fine gravel, trace+ silt.
	No Shelby Tube pushed. Bulk sample taken for permeability testing.
	End of Test Pit at: 14"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 6 **of** 12 **Date:** 6/6/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP-4; Location 17

Ground Elevation: - **Groundwater Elevation:** No Groundwater Encountered

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-3"	1.5"-2" Stone
3"-8"	Gray Brown medium fine+ SAND, little silt, little- medium fine gravel.
8"-18"	Red Brown CLAY and SILT, some- medium fine sand, trace fine gravel.
	Shelby Tube UD-3 pushed at 18" depth with 10" recovery.
	End of Test Pit at: 18"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 7 **of** 12 **Date:** 6/6/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP5; Loc.18 @ Tank #7945

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-4"	Brown course- medium fine SAND, little- silt, trace+ medium fine gravel.
4"-15"	Brown medium fine SAND, little+ silt, trace medium fine gravel.
	Shelby Tube UD-4 taken at 15" depth with 11" recovery.
	End of Test Pit at: 15"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES P.A. CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 8 **of** 12 **Date:** 6/6/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP6; Loc.19 @ Tank #7945

Ground Elevation: - **Groundwater Elevation:** 3' below surface

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-2"	3/4" gravel.
2"-4"	Brown medium+ fine SAND, little+ silt, little- medium fine gravel.
4"-12"	Brown medium fine+ SAND, little+ silt and clay, trace medium fine gravel.
12"-36"	Brown medium fine+ SAND, little+ silt and clay, trace medium fine gravel. Groundwater table encountered at 36".
	Shelby Tube UD-5 pushed at 36" depth with 8" recovery.
	End of Test Pit at: 36"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES P.A. · CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 9 **of** 12 **Date:** 6/6/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP-7; Location 20

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-5"	2"-3" Stone.
5"-9"	Gray Brown course medium fine- SAND, little- silt, course medium+ fine gravel.
9"-18"	Brown course medium fine SAND, trace silt, trace medium fine gravel.
	No shelby tube pushed. Bulk sample taken for permeability testing.
	End of Test Pit at: 18"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 10 **of** 12 **Date:** 6/6/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP8; Loc.21 @ Tank 7930

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-9"	1" Stone.
9"-15"	Red brown course medium fine+ SAND, some- silt, little+ medium fine gravel.
	No Shelby Tube pushed. Bulk sample taken for permeability testing.
	End of Test Pit at: 15"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES, P.A. CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 11 **of** 12 **Date:** 6/6/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP9; Loc.22 @ Tank 7933

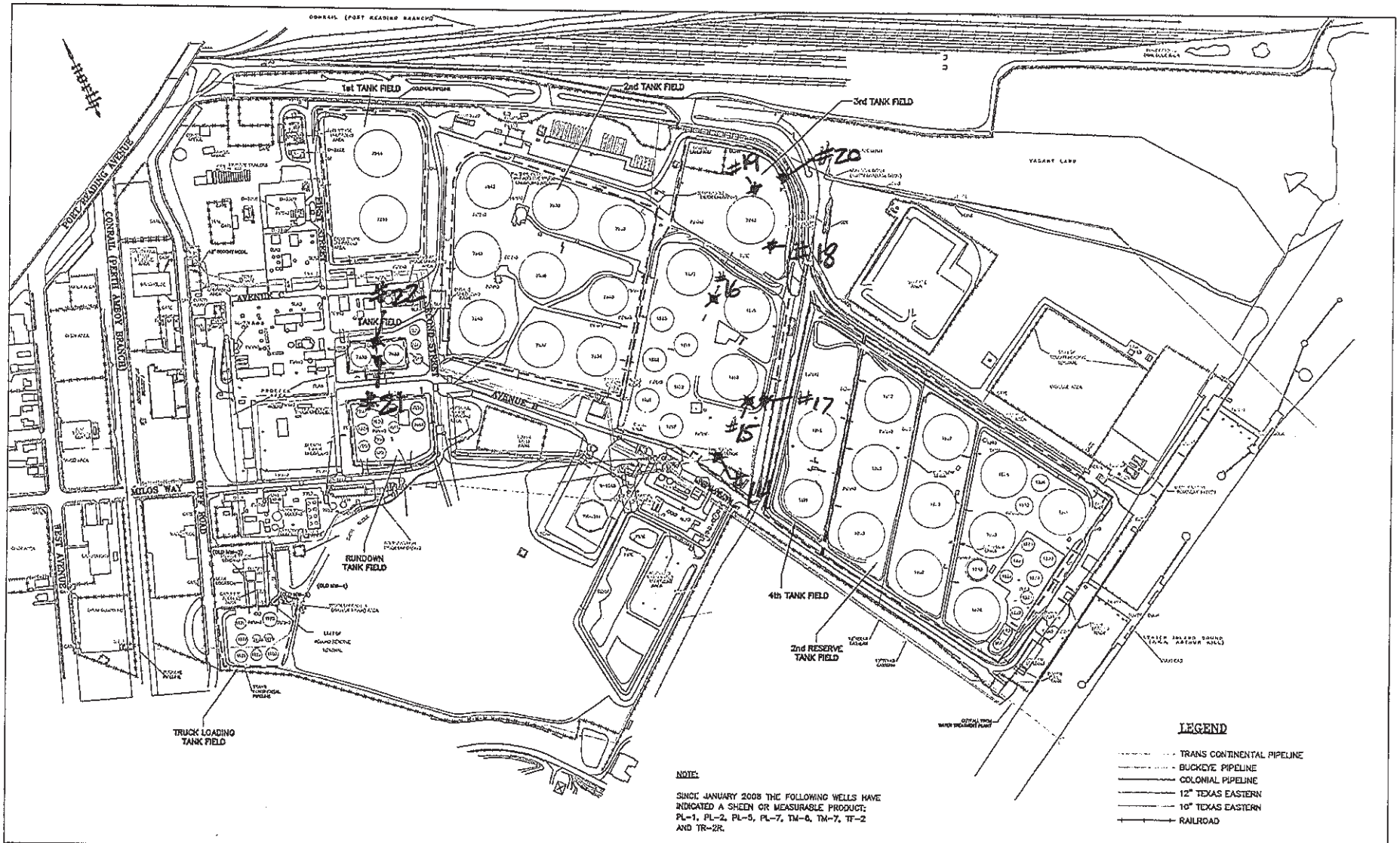
Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-8"	1" Stone.
8"-16"	Light brown gray CLAY and SILT, some medium fine sand, little+ medium fine gravel.
	No shelby tube pushed. Bulk sample taken for permeability testing.
	End of Test Pit at: 16"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.



NOTE:

SINCE JANUARY 2008 THE FOLLOWING WELLS HAVE INDICATED A SHEEN OR MEASURABLE PRODUCT: PL-1, PL-2, PL-5, PL-7, TM-6, TM-7, TF-2 AND TR-2R.

FIGURE #	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY		CONTAINMENT PLAN OVERVIEW	0 — 350 SCALE IN FEET	Envirotrac ENVIRONMENTAL SERVICES 400E CORPORATE COURT, So. PLAINFIELD NJ 07060 PHONE: (908)757-1900 FAX: (908)757-0017
1			DRAWN BY: B.J.S. / REVISION DATE: 6/22/10		

Hess- Port Reading
2187.005
6/6/11

page 12 of 12

x = Test Pit Location

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

1800 Route 34, Suite 101
Wall, New Jersey 07719
Phone: (732) 312-9800

TO: _____

Date: 6/7/11	**Job No.:** 2187.005
Project: Hess – Port Reading Refinery	
Location: Port Reading, NJ	
Contractor: EnviroTrac	**Owner:** Hess Corp.
Weather: Sunny	**Temp:** 80's&90's
Present at Site: Adam French (FPA Writer), James Boudreau, Phil Allegro	

FIELD REPORT

THE FOLLOWING WAS NOTED:

The writer and James Boudreau of French & Parrello Associates, P.A. (FPA) arrived at the Hess – Port Reading Refinery to observe the excavation of test pits, perform density testing and collect samples within the tank farm containment fields. The writer and Mr. Boudreau met with Phil Allegro of EnviroTrac and Howard Goldman of Hess Corp for a safety briefing. The writer and Mr. Boudreau were then escorted by Phil Allegro from EnviroTrac and a Back Hoe operator from Hess Corp. to the tank farm containment fields to begin the test pit operation.

On this day a total of nine test pits were excavated at nine locations that were previously marked out by Phil Allegro from EnviroTrac using a Case 580 M Back Hoe within the tank farm containment fields. The writer and Mr. Boudreau recorded the soil descriptions of the materials encountered, performed in place density testing by the nuclear method, recorded wet density, dry density and moisture content, collected bulk samples and pushed shelby tubes in the clay layer at each test pit location. These bulk samples and shelby tubes were delivered to FPA's soils lab for testing. See the attached test pit logs for the soil descriptions, the nuclear density test result sheet for test results and plan copy for the test pit locations.

Copies to: Field File

Signed _____

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

Nuclear Density Test Results

Project: Hess Port Reading **Sheet:** 2 **of** 12

Job Number: 2187.005 **Date:** 6/7/11 **Gauge:** 38931

Operator: Adam French, James Booudreau **MS:** 679 **DS:** 2386

Test Number	Probe Depth (In)	Wet Density (PCF)	Dry Density (PCF)	Percent Moisture	Proctor Value (PCF)	Percent Compaction
1	12	128.5	109.7	17.1		
2	12	133.1	115.9	14.9		
3	12	141.1	127.0	11.1		
4	12	137.4	126.8	8.3		
5	12	119.5	106.6	12.1		
6	12	134.4	121.4	10.7		
7	12	133.3	115.8	15.1		
8	12	139.0	125.8	10.5		
9	12	130.4	113.5	14.9		

Test Number	Test Locations and Remarks
1	Location 23- 30" below grade-see plan attached
2	Location 24- 12" below grade-see plan attached
3	Location 25- 17" below grade-see plan attached
4	Location 26- 12" below grade-see plan attached
5	Location 27- 16" below grade-see plan attached
6	Location 28- 6" below grade-see plan attached
7	Location 29- 12" below grade-see plan attached
8	Location 30- 10" below grade-see plan attached
9	Location 31- 11" below grade-see plan attached

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 3 **of** 12 **Date:** 6/7/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP10; Loc.23 @ Tank 7933

Ground Elevation: - **Groundwater Elevation:** 30" below surface

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-2"	3/4" Stone.
2"-6"	Gray brown course- medium fine SAND, little+ course medium fine gravel, little- silt.
6"-24"	Red brown course medium fine SAND, little- medium fine gravel, trace+ silt.
24"-30"	Dark red brown course medium fine+ SAND, little+ silt, little- medium fine gravel.
	Shelby Tube UD-6 pushed at 30" depth with a 10" recovery. Groundwater encountered 30" below surface,
	End of Test Pit at: 30"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES, P.A. CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 4 **of** 12 **Date:** 6/7/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP11; Loc.24 @ Tank 7934

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-5"	2"-3" Stone.
5"-12"	Red brown CLAY and SILT, little+ medium fine sand, little medium fine gravel.
	Shelby Tube UD-7 pushed at 12" depth with a 9.5" recovery.
	End of Test Pit at: 12"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES P.A. CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 5 **of** 12 **Date:** 6/7/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP12; Loc.25 @ Tank 7938

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-2"	3/4" Stone.
2"-4"	Yellow brown medium fine SAND, trace+ silt.
4"-11"	Red brown course medium fine SAND, little silt, little- medium fine gravel.
11"-17"	Red brown CLAY and SILT, some- medium fine sand, little medium fine gravel.
	Shelby Tube UD-8 pushed at 17" depth with an 8" recovery.
	End of Test Pit at: 17"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES, P.A. | CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 6 **of** 12 **Date:** 6/7/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP13; Loc.26 @ Tank 7935

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-2"	3/4" Stone.
2"-11"	Red brown course medium fine SAND, little medium fine gravel, little- silt.
11"-12"	Red brown medium fine+ SAND, some+ clay and silt, little- medium fine gravel.
	Shelby Tube UD-9 pushed at 12" depth with 11" recovery.
	End of Test Pit at: 12"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES, P.A. CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 7 **of** 12 **Date:** 6/7/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP14; Loc.27 @ Tank 7936

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-9"	2"-3" Stone.
9"-14"	Brown course medium fine+ SAND, little medium fine gravel, trace silt.
14"-16"	Red Brown medium fine+ SAND, some clay and silt, little medium fine gravel.
	Shelby Tube UD-10 pushed at 16" depth with 10" recovery.
	End of Test Pit at: 16"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 8 **of** 12 **Date:** 6/7/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP15; Loc.28 @ Tank 7944

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-2"	1.5" Stone
2"-4"	Brown medium fine SAND, some clay and silt, trace medium fine+ gravel.
4"-6"	Brown CLAY and SILT, some medium fine+ sand, trace medium fine gravel.
	Shelby Tube UD-11 pushed at 6" depth with 11.5" recovery.
	End of Test Pit at: 6"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES PA, CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 9 **of** 12 **Date:** 6/7/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP16; Loc.29 @ Tank 7944

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-10"	2"-3" Stone
10"-12"	Red Brown CLAY and SILT, little- medium fine+ sand, trace medium fine+ gravel.
	Shelby Tube UD-12 pushed at 12" depth with 11" recovery.
	End of Test Pit at: 12"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES P.A. CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 10 **of** 12 **Date:** 6/7/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP17; Loc.30 @ Tank 7943

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-2"	1" Stone.
2"-8"	Brown medium fine SAND, some- silt, trace medium fine+ gravel.
8"-10"	Red brown CLAY and SILT, some medium fine sand, trace- medium fine+ gravel.
	Shelby Tube UD-13 pushed at 10" depth with 10" recovery.
	End of Test Pit at: 10"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES, P.A. CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 11 **of** 12 **Date:** 6/7/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP18; Loc.31 @ Tank 7943

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-7"	2" Stone.
7"-11"	Brown CLAY and SILT, some- medium fine sand, little- medium fine+ gravel.
	Shelby Tube UD-14 pushed at depth 11" with 8" recovery.
	End of Test Pit at: 11"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

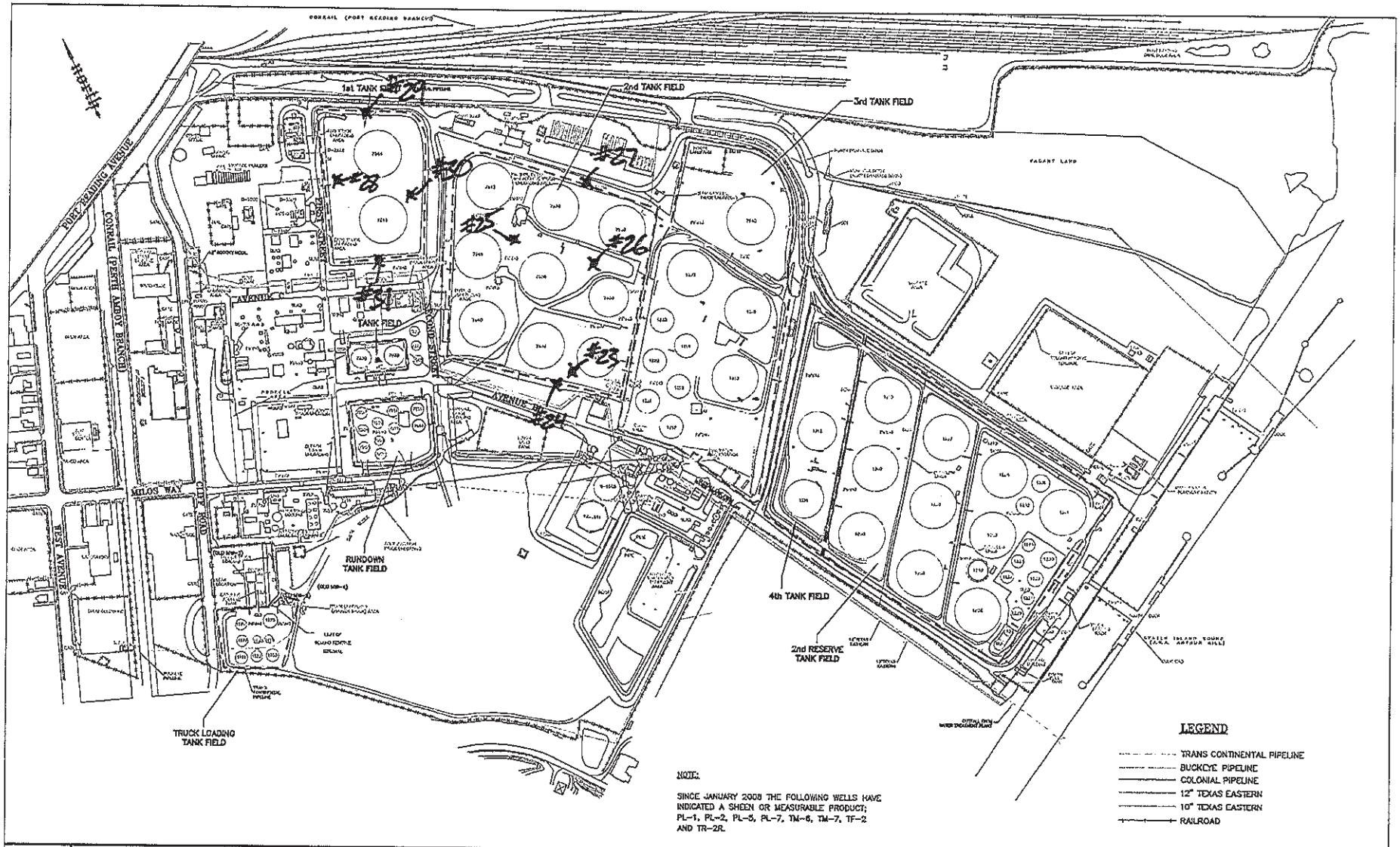


FIGURE #	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	HESS	CONTAINMENT PLAN OVERVIEW	0 350 SCALE IN FEET	EnviroTrac ENVIRONMENTAL SERVICES 400E CORPORATE COURT, So. PLAINFIELD NJ 07080 PHONE: (908)757-1900 FAX: (908)757-0017
1			DRAWN BY: B.J.S. / REVISION DATE: 6/22/10		

Hess - Port Reading
2187.005
6/7/11

page 12 of 12

X = Test Pit Location

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

1800 Route 34, Suite 101
Wall, New Jersey 07719
Phone: (732) 312-9800

Date: 6/8/11	**Job No.:** 2187.005
Project: Hess – Port Reading Refinery	
Location: Port Reading, NJ	
Contractor: EnviroTrac	**Owner:** Hess Corp.
Weather: Sunny	**Temp:** 80's&90's
Present at Site: Adam French (FPA Writer),	
James Boudreau	
Phil Allegro	

TO: _____

_____

_____

_____

FIELD REPORT

THE FOLLOWING WAS NOTED:

The writer and James Boudreau of French & Parrello Associates, P.A. (FPA) arrived at the Hess – Port Reading Refinery to observe the excavation of test pits, perform density testing and collect samples within the tank farm containment fields. The writer and Mr. Boudreau met with Phil Allegro of EnviroTrac and Howard Goldman of Hess Corp for a safety briefing. The writer and Mr. Boudreau were then escorted by Phil Allegro from EnviroTrac and a Back Hoe operator from Hess Corp. to the tank farm containment fields to begin the test pit operation.

On this day a total of six test pits were excavated at six locations that were previously marked out by Phil Allegro from EnviroTrac using a Case 580 M Back Hoe within the tank farm containment fields. The writer and Mr. Boudreau recorded the soil descriptions of the materials encountered, performed in place density testing by the nuclear method, recorded wet density, dry density and moisture content, collected bulk samples and pushed shelby tubes in the clay layer at each test pit location. These bulk samples and shelby tubes were delivered to FPA's soils lab for testing. See the attached test pit logs for the soil descriptions, the nuclear density test result sheet for test results and plan copy for the test pit locations.

Copies to: Field File

Signed Adam French

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

Nuclear Density Test Results

Project: Hess Port Reading **Sheet:** 2 **of** 9

Job Number: 2187.005 **Date:** 6/8/11 **Gauge:** 38931

Operator: Adam French, James Booudreau **MS:** 680 **DS:** 2389

Test Number	Probe Depth (In)	Wet Density (PCF)	Dry Density (PCF)	Percent Moisture	Proctor Value (PCF)	Percent Compaction
1	12	139.3	131.8	5.7		
2	12	114.3	93.5	22.3		
3	12	141.8	130.5	8.7		
4	12	131.0	120.4	8.8		
5	12	130.8	121.2	7.9		
6	12	116.2	105.7	10.0		

Test Number	Test Locations and Remarks
1	Location 32- 5" below grade-see plan attached
2	Location 33- 18" below grade-see plan attached
3	Location 34- 10" below grade-see plan attached
4	Location 35- 10" below grade-see plan attached
5	Location 36- 15" below grade-see plan attached
6	Location 37- 16" below grade-see plan attached

FRENCH & PARRELLO
ASSOCIATES P.A. CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 3 **of** 9 **Date:** 6/8/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP19; Loc.32 @ Tank 7915

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-5"	1" Stone.
5"-12"	Red brown CLAY and SILT, some+ medium fine sand, some course medium fine gravel.
	Bulk Sample taken for permeability testing.
	End of Test Pit at: 12"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 4 **of** 9 **Date:** 6/8/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP20; Loc.33 @ Tank 7909

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-6"	2" Stone.
6"-16"	Brown medium fine SAND, little- silt, little- medium fine+ gravel.
16"-18"	Red brown CLAY and SILT, little medium fine sand, little- medium fine+ gravel.
	Shelby tube UD-15 pushed at 18" with 9.5" recovery.
	End of Test Pit at: 18"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES P.A. CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 5 **of** 9 **Date:** 6/8/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP21; Loc.34 @ Tank 7909

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-2"	3/4" Stone.
2"-8"	Brown course medium fine GRAVEL, some medium+ fine sand, trace- silt.
8"-10"	Red brown, Silt and CLAY some- medium fine sand, little medium fine gravel.
	Shelby tube UD-16 pushed at 10" depth with a 6" recovery.
	End of Test Pit at: 10"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES, P.A. CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 6 **of** 9 **Date:** 6/8/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP22; Loc.35 @ Tank 1182

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-1"	1" Stone.
1"-7"	Brown medium fine SAND, little- silt, little- medium fine gravel.
7"-10"	Brown CLAY and SILT, some- medium fine sand, little- medium fine gravel.
	Shelby tube UD-17 pushed at 10" depth with a 10.5" recovery.
	End of Test Pit at: 10"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 7 **of** 9 **Date:** 6/8/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP23; Loc.36 @ Tank 1180

Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-3"	1" Stone.
3"-6"	Brown course medium fine SAND, little- silt, little- medium+ fine gravel.
6"-11"	Orange brown medium fine+ SAND, little silt, trace+ medium fine gravel.
	Bulk sample taken for permeability testing.
	End of Test Pit at: 11"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.

FRENCH & PARRELLO
ASSOCIATES, P.A. CONSULTING ENGINEERS

Test Pit Log

Project: Port Reading Refinery

Job Number: 2187.005 **Sheet:** 8 **of** 9 **Date:** 6/8/11

Contractor: EnviroTrac **Soils Engineer:** David Calnan, PE

Test Pit Observer: James Boudreau, EIT, FPA, Adam French, FPA **Test Pit No.:** TP24; Loc.37 @ Tank 1180

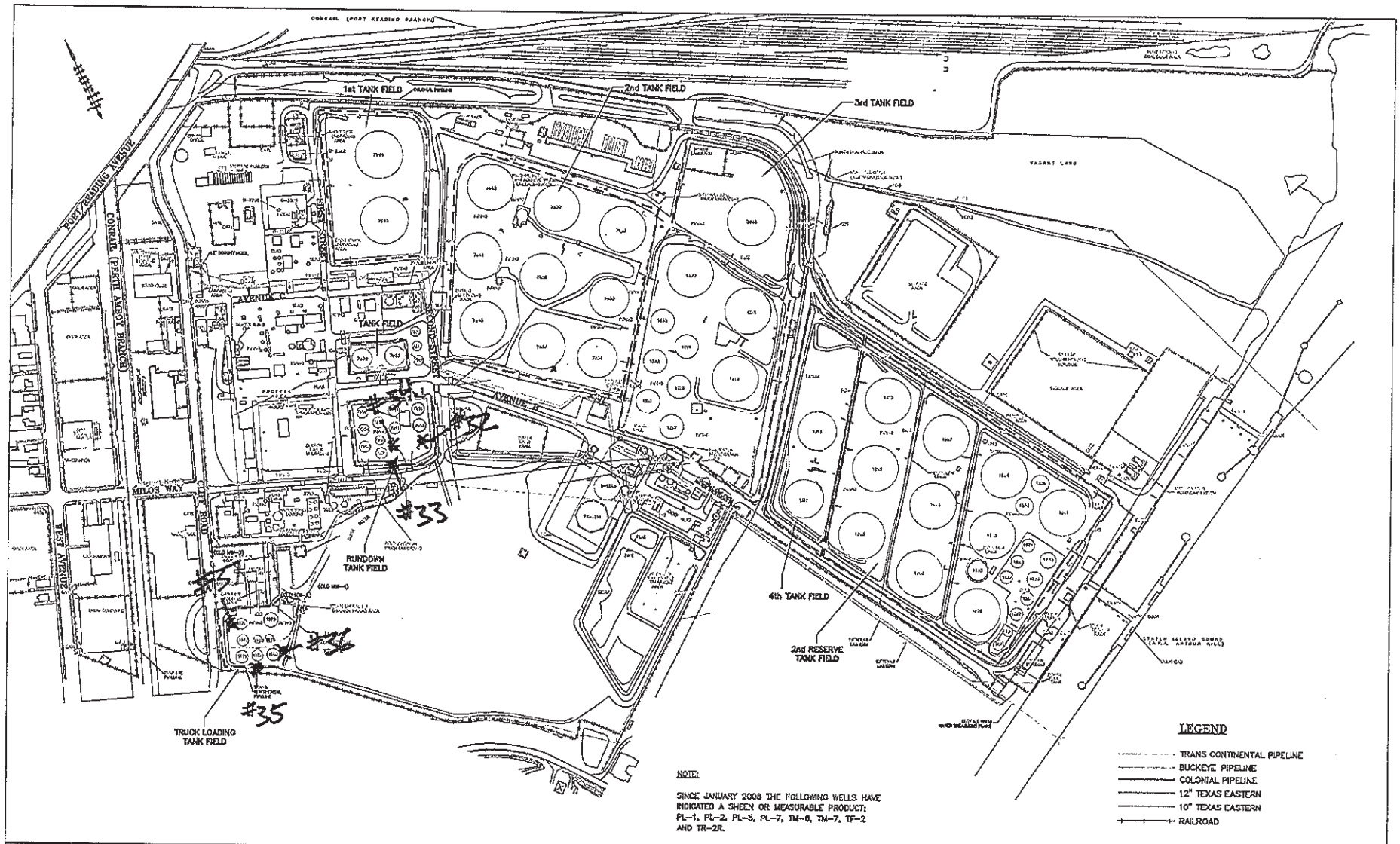
Ground Elevation: - **Groundwater Elevation:** -

Depth of Water: - **Depth to Seasonal High Water Mark:** -

Depth	Description
0"-2"	1" Stone.
2"-6"	Brown course medium fine GRAVEL, little- medium fine sand, trace+ silt.
6"-14"	Red brown CLAY and SILT, little+ medium fine sand, little+ course+ medium fine gravel.
	Bulk sample taken for permeability testing.
	End of Test Pit at: 14"

Notes:

The information shown hereon indicates the subsurface conditions encountered at the specific test pit location on the date(s) of excavation. Subsurface conditions are likely to vary across the project site. Interpretation of the subsurface data shall be at the discretion of the user.



NOTE:

SINCE JANUARY 2008 THE FOLLOWING WELLS HAVE INDICATED A SHEEN OR MEASURABLE PRODUCT; PL-1, PL-2, PL-5, PL-7, TM-6, TM-7, TF-2 AND TR-2R.

FIGURE #	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	HESS	CONTAINMENT PLAN OVERVIEW	0 350 SCALE IN FEET	EnviroTrac ENVIRONMENTAL SERVICES 400E CORPORATE COURT, So. PLAINFIELD NJ 07080 PHONE: (908)757-1900 FAX: (908)757-0017
1			DRAWN BY: B.J.S. / REVISION DATE: 6/22/10		

Hess- Port Reading
2187.005
6/8/11

Page 9 of 9

x = Test Pit Location

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

SUMMARY OF LABORATORY TESTING

AASHTO Accredited Laboratory

PROJECT: Hess - Port Reading **PROJECT #:** 2187.005 **DATE:** 7/11

Location & Sample Number	Depth (inches)	Classification	Natural Water Content %	Atterberg Limits		Unconfined Compression		Unit Dry Weight PCF	Specific Gravity	Permeability cm/sec @ 20 deg C	Compaction	Grain Size	Consolidation	Triaxial	% Passing #200	pH	Organic Content %
				Liquid Limit	Plastic Limit	Stress TSF	Strain %										
L-14 S-1	7 - 17	Red Brown cm+ SAND, some+ mf Gravel, trace Silt	4					125.5		1.7×10^{-3}		*					
L-15 S-2	8 - 19	Red Brown cm+ SAND, some mf Gravel, trace Silt	4					122.1		9.2×10^{-4}		*					
L-16 S-3	14 - 19	Brown cm+f GRAVEL, some+ cmf- Sand, trace Silt	6					134.3		2.1×10^{-5}		*					
L-17 S-4	18 - 28	Red Brown cmf Sand, and- Clay & Silt, some cmf Gravel	22					105.8		1.7×10^{-6}		*					
L-18 S-5	15 - 26	Brown cm+ SAND, some c-mf Gravel, trace+ Silt	6					117.4		1.2×10^{-3}		*					
L-19 S-6	12 - 20	Brown cm+f SAND, some- mf Gravel, little+ Silt & Clay	14					113.5		3.5×10^{-5}		*					
L-20 S-7	18 - 23	Brown cm SAND, and- c-mf Gravel, trace Silt	5					106.6		5.4×10^{-3}		*					
L-21 S-8	15 - 20	Red Brown cmf- Sand, and- c-mf Gravel, little Silt	9					126.4		2.4×10^{-6}		*					
L-22 S-9	16 - 21	Tan CLAY, little cmf Gravel, little- cmf Sand	28					82.8		3.5×10^{-6}		*					
L-23 S-10	30 - 40	Red Brown cm+ SAND, and cmf Gravel, trace+ Clayey Silt	18					109.8		6.8×10^{-5}		*					
L-24 S-11	12 - 21.5	Red Brown Clay & Silt, some+ cmf Sand, some+ cmf Gravel	14					122.7		3.4×10^{-8}		*					
L-25 S-12	17 - 25	Red Brown Clay & Silt, and- cmf Sand, little+ mf Gravel	13					121.4		5.6×10^{-7}		*					
L-26 S-13	12 - 23	Brown cm+f SAND, and- m+f Gravel, little- Silt	7					122.1		3.2×10^{-6}		*					
L-27 S-14	16 - 26	Brown cm+f SAND, some- cmf Gravel, little Silt	10					106.7		4.1×10^{-4}		*					
L-28 S-15	6 - 17.5	Red Brown cm+f Sand, some+ Silty Clay, little+ mf Gravel	12					109.9		5.7×10^{-6}		*					
L-29 S-16	12 - 23	Red Brown cm+f SAND, some Silty Clay, little+ cmf Gravel	23					106.6		5.8×10^{-8}		*					
L-30 S-17	10 - 20	Red Brown cmf Sand, and- Silty Clay, some- cmf Gravel	11					114.7		1.3×10^{-6}		*					
L-31 S-18	11 - 19	Red Brown Silty Clay, and cmf Gravel, little- mf+ Gravel	18					113.9		2.4×10^{-6}		*					
L-32 S-19	12 - 17	Red Brown c+mf GRAVEL, some cmf- Sand, little Silty Clay	3					132.4		5.2×10^{-6}		*					

* SEE TEST CURVES

FRENCH & PARRELLO
ASSOCIATES, P.A., CONSULTING ENGINEERS

SUMMARY OF LABORATORY TESTING

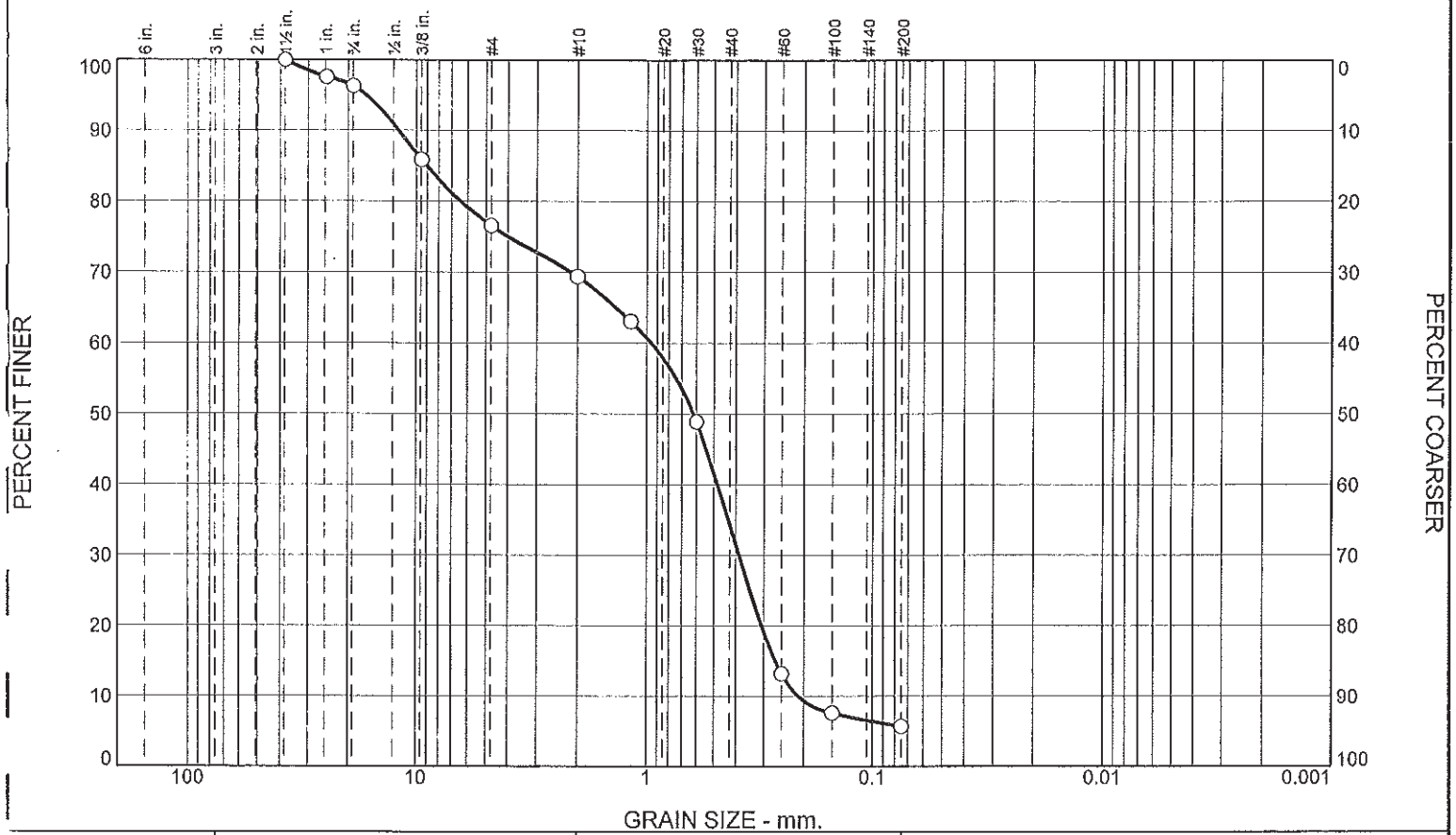
AASHTO Accredited Laboratory

PROJECT: Hess - Port Reading **PROJECT #:** 2187.005 **DATE:** 7/11

Location & Sample Number	Depth (ft)	Classification	Natural Water Content %	Atterberg Limits		Unconfined Compression		Unit Dry Weight PCF	Specific Gravity	Permeability cm/sec @ 20 deg C	Compaction	Grain Size	Consolidation	Triaxial	% Passing #200	pH	Organic Content %
				Liquid Limit	Plastic Limit	Stress TSF	Strain %										
L-33 S-20	18 - 27.5	Red Brown cmf- Sand, some+ Silt, little+ mf+ Gravel	19					93.4		5.9×10^{-5}		*					
L-34 S-21	10 - 16	Red Brown cm+f Sand, some+ mf Gravel, little+ Silt	7					121.0		1.0×10^{-6}		*					
L-35 S-22	10 - 20.5	Red Brown cm+f Sand, some+ cm+f Gravel, some- Silt	5					120.1		2.0×10^{-6}		*					
L-36 S-23	15 - 20	Yellow Brown m+f SAND, some- cmf Gravel, trace+ Silt	7					121.4		1.9×10^{-4}		*					
L-37 S-24	16 - 21	Red Brown Silt, and- cmf Sand, some- mf Gravel	12					105.0		1.8×10^{-6}		*					

* SEE TEST CURVES

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	2.3	11.8	16.5	20.5	35.7	7.5	5.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	97.6		
.75	96.3		
.375	85.9		
#4	76.6		
#10	69.4		
#16	63.1		
#30	48.9		
#60	13.2		
#100	7.6		
#200	5.7		

* (no specification provided)

Material Description

Red Brown cm+ SAND, some+ mf Gravel, trace Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 12.0210 D_{85}= 9.0160 D_{60}= 0.9533
D_{50}= 0.6199 D_{30}= 0.3874 D_{15}= 0.2665
D_{10}= 0.2114 C_u= 4.51 C_c= 0.74

Classification

USCS= AASHTO=

Remarks

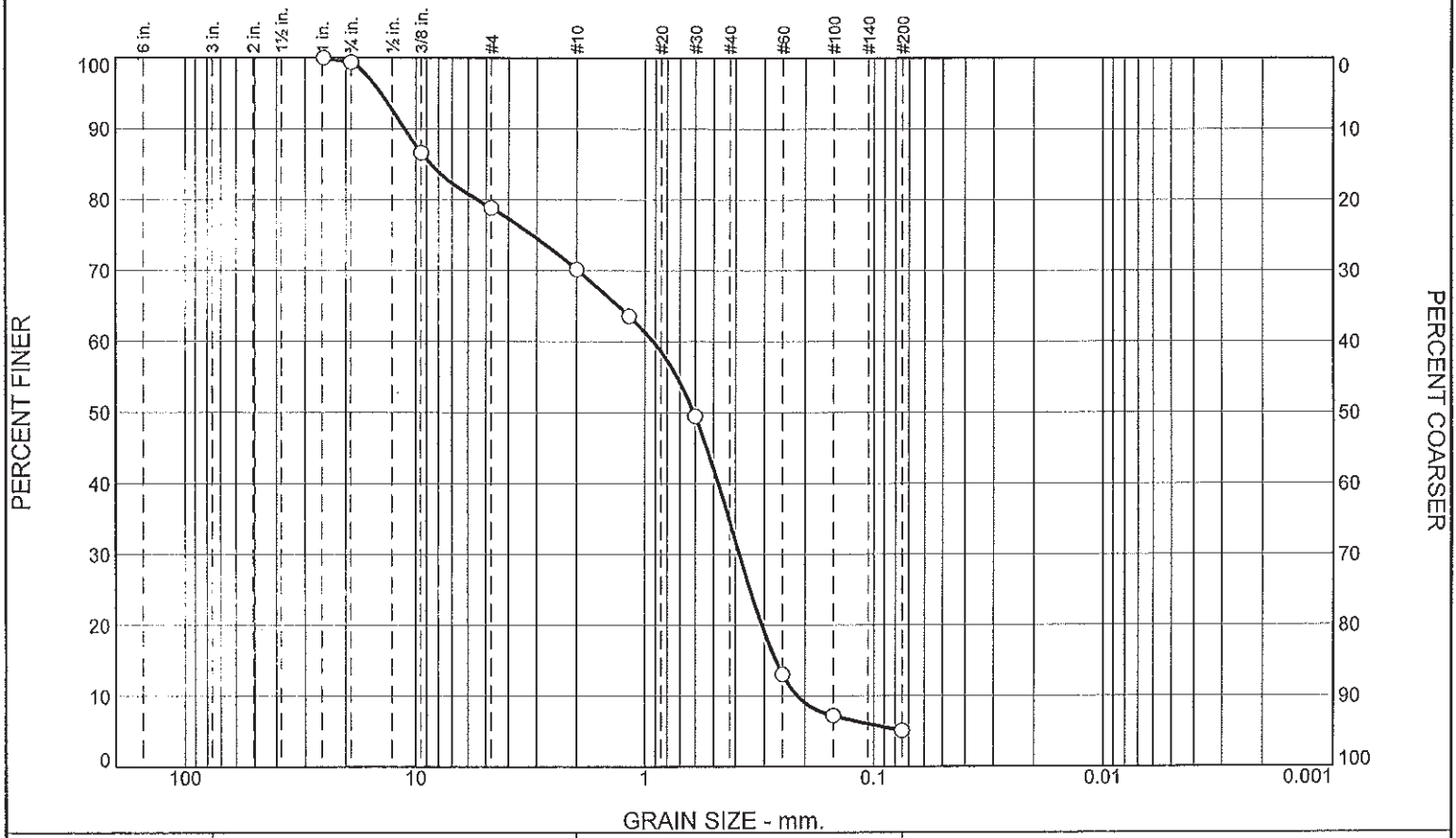
Location: #14
Sample Number: S-1 **Depth:** 7" - 17" **Date:** 6/13/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: JB **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	13.3	16.5	20.7	36.4	8.0	5.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	99.4		
.375	86.7		
#4	78.9		
#10	70.2		
#16	63.6		
#30	49.5		
#60	13.1		
#100	7.2		
#200	5.1		

* (no specification provided)

Material Description

Red Brown cm+ SAND, some mf Gravel, trace Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 11.2165 D_{85}= 8.6027 D_{60}= 0.9195
D_{50}= 0.6088 D_{30}= 0.3850 D_{15}= 0.2672
D_{10}= 0.2149 C_u= 4.28 C_c= 0.75

Classification

USCS= AASHTO=

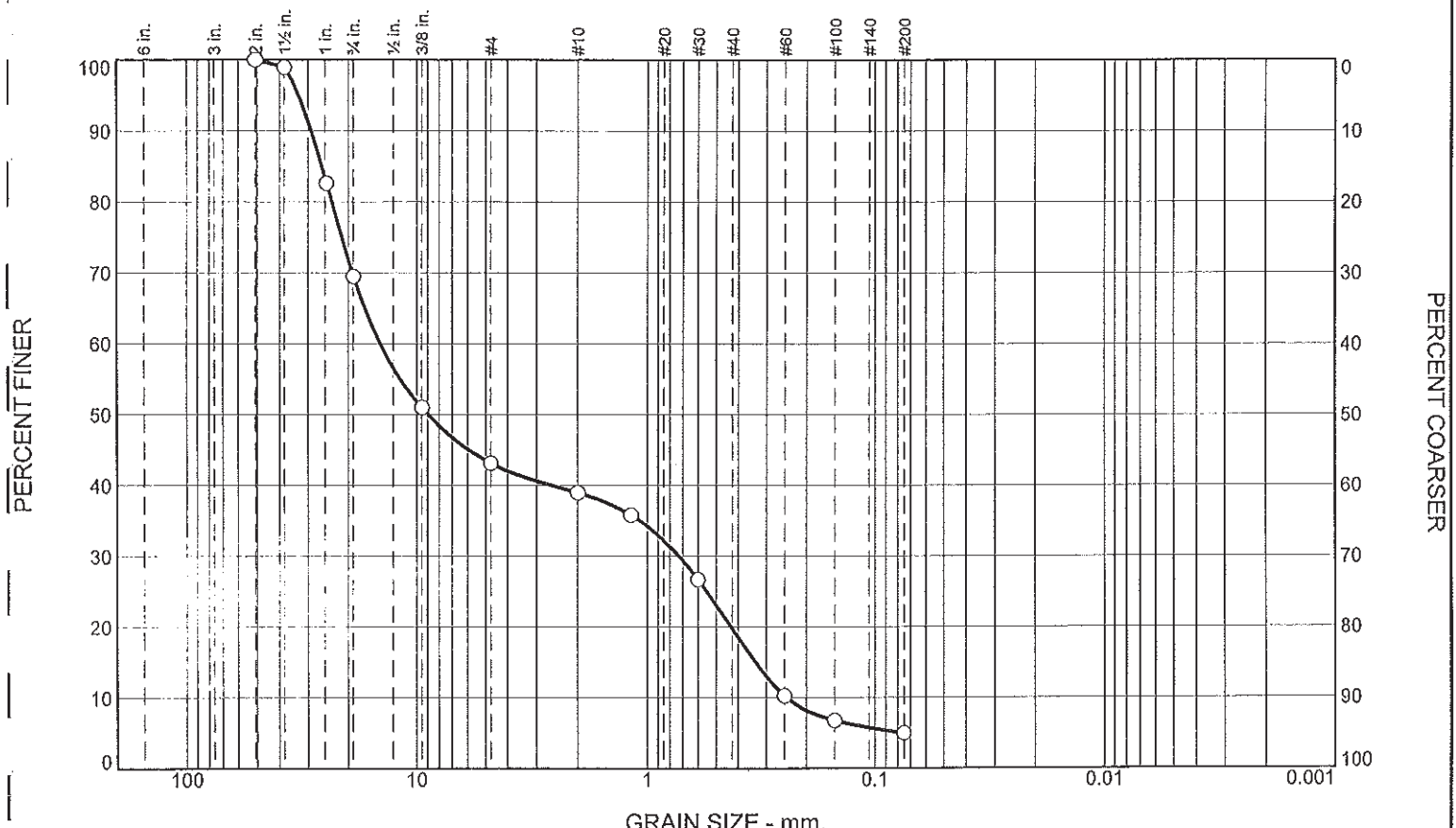
Remarks

Location: #15
Sample Number: S-2 **Depth:** 8" - 19" **Date:** 6/13/11

FRENCH & PARRELLO ASSOCIATES, P.A. CONSULTING ENGINEERS Wall, NJ	**Client:** EnviroTrac **Project:** Hess - Port Reading Refinery **Project No:** 2187.005 **Figure**

Tested By: JB **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	16.5	32.5	12.0	12.3	16.4	5.3	5.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2	100.0		
1.5	99.0		
1	82.7		
.75	69.5		
.375	51.0		
#4	43.1		
#10	39.0		
#16	35.8		
#30	26.7		
#60	10.3		
#100	6.8		
#200	5.0		

* (no specification provided)

Material Description

Brown cm+f GRAVEL, some+ cmf- Sand, trace Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 29.1121 D_{85}= 26.2041 D_{60}= 14.5006
D_{50}= 8.9139 D_{30}= 0.7266 D_{15}= 0.3357
D_{10}= 0.2443 C_u= 59.36 C_c= 0.15

Classification

USCS= AASHTO=

Remarks

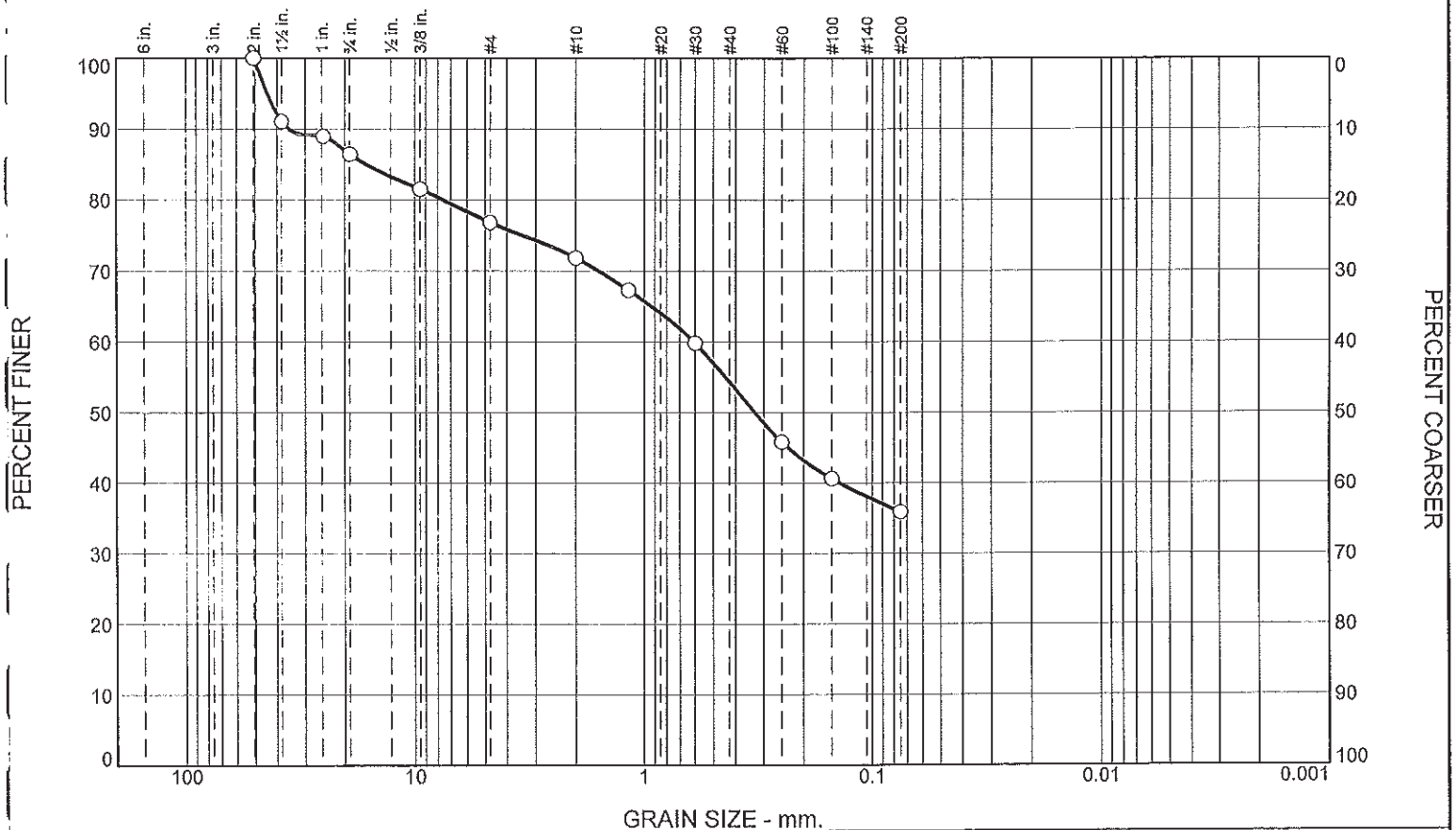
Location: #16
Sample Number: S-3 **Depth:** 14" - 19" **Date:** 6/13/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: JB **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	10.9	7.5	9.7	12.0	14.0	10.0	35.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2	100.0		
1.5	91.1		
1	89.0		
.75	86.5		
.375	81.6		
#4	76.9		
#10	71.9		
#16	67.3		
#30	59.9		
#60	45.9		
#100	40.6		
#200	35.9		

* (no specification provided)

Material Description

Red Brown cmf Sand, and- Clay & Silt, some cmf Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 35.3722 D_{85}= 16.1749 D_{60}= 0.6062
D_{50}= 0.3286 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

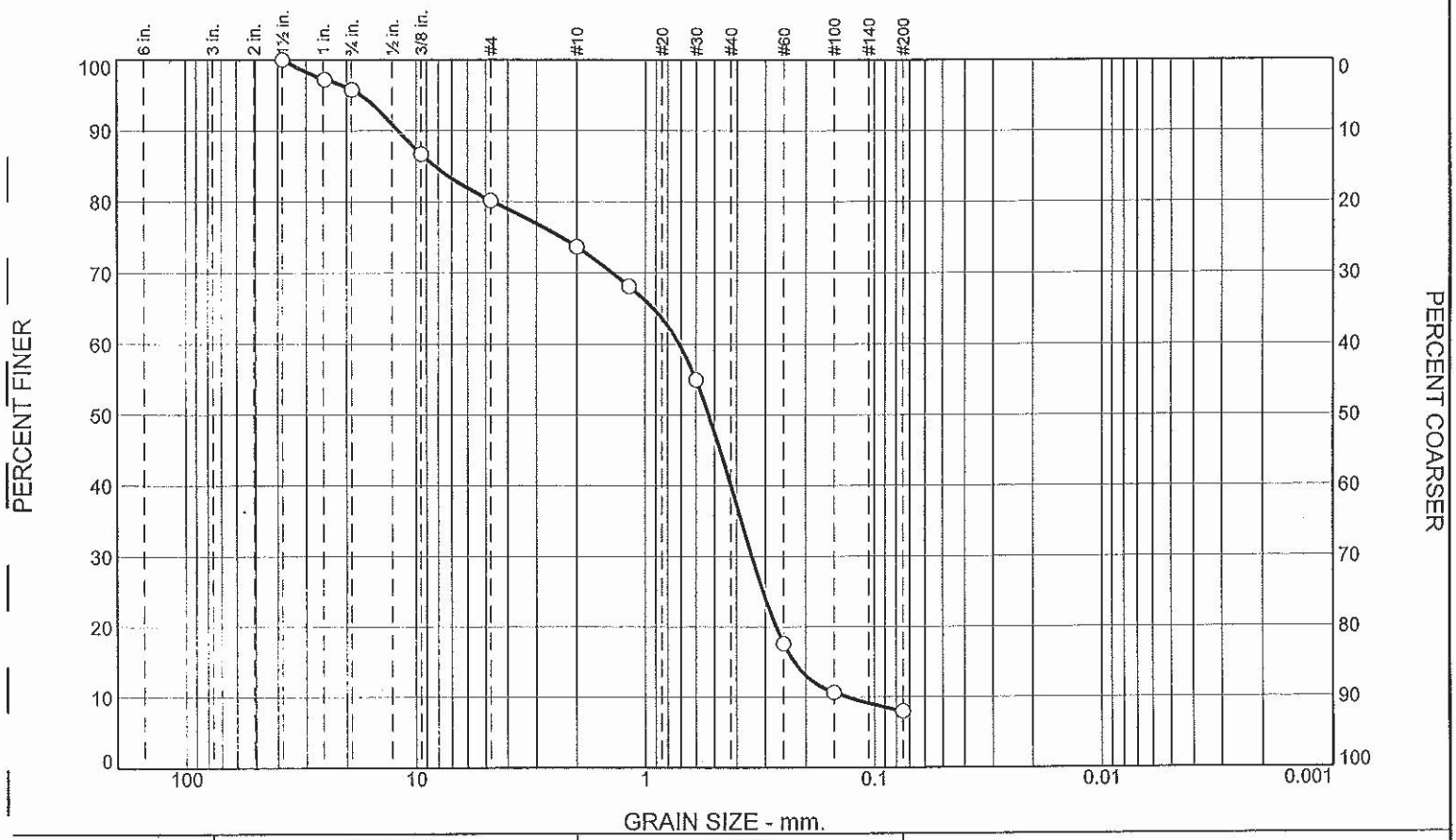
Remarks

Location: #17
Sample Number: S-4 **Depth:** 18" - 28" **Date:** 6/13/11

FRENCH & PARRELLO ASSOCIATES, P.A. CONSULTING ENGINEERS Wall, NJ	**Client:** EnviroTrac **Project:** Hess - Port Reading Refinery **Project No:** 2187.005 **Figure**

Tested By: JB **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	2.7	10.5	13.1	18.7	37.4	9.6	8.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	97.2		
.75	95.8		
.375	86.7		
#4	80.2		
#10	73.7		
#16	68.1		
#30	55.0		
#60	17.6		
#100	10.7		
#200	8.0		

* (no specification provided)

Material Description

Brown cm+ SAND, some c-mf Gravel, trace+ Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 11.9307 D_{85}= 8.2544 D_{60}= 0.7105
D_{50}= 0.5278 D_{30}= 0.3442 D_{15}= 0.2241
D_{10}= 0.1315 C_u= 5.40 C_c= 1.27

Classification

USCS= AASHTO=

Remarks

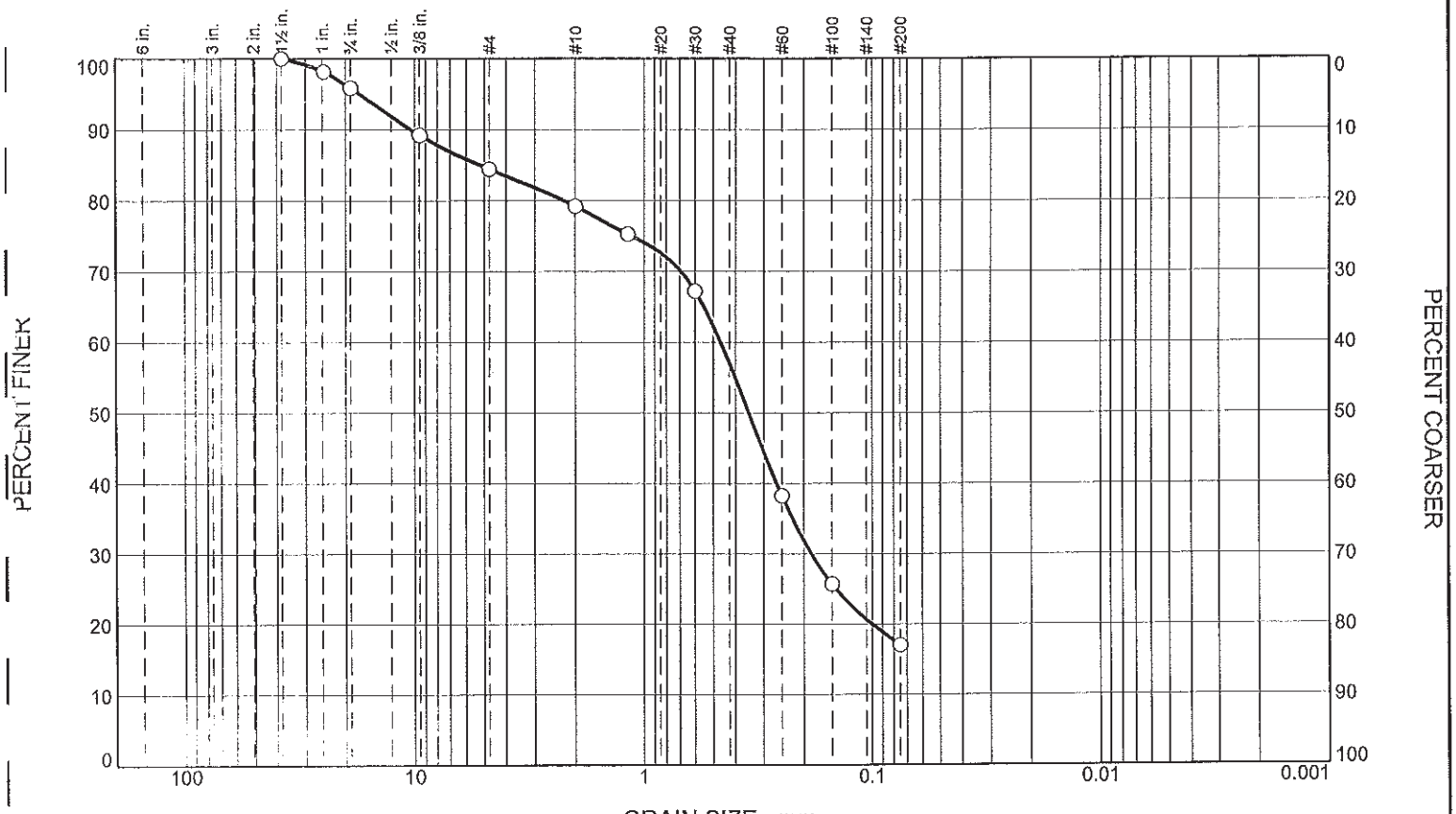
Location: #18
Sample Number: S-5 **Depth:** 15" - 26" **Date:** 6/13/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: JB **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	1.7	9.0	10.0	12.0	29.1	21.1	17.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	98.2		
.75	95.9		
.375	89.3		
#4	84.5		
#10	79.3		
#16	75.3		
#30	67.3		
#60	38.2		
#100	25.7		
#200	17.1		

* (no specification provided)

Material Description

Brown cm+f SAND, some- mf Gravel, little+ Silt & Clay

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 10.3394 D_{85}= 5.1896 D_{60}= 0.4642
D_{50}= 0.3497 D_{30}= 0.1849 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

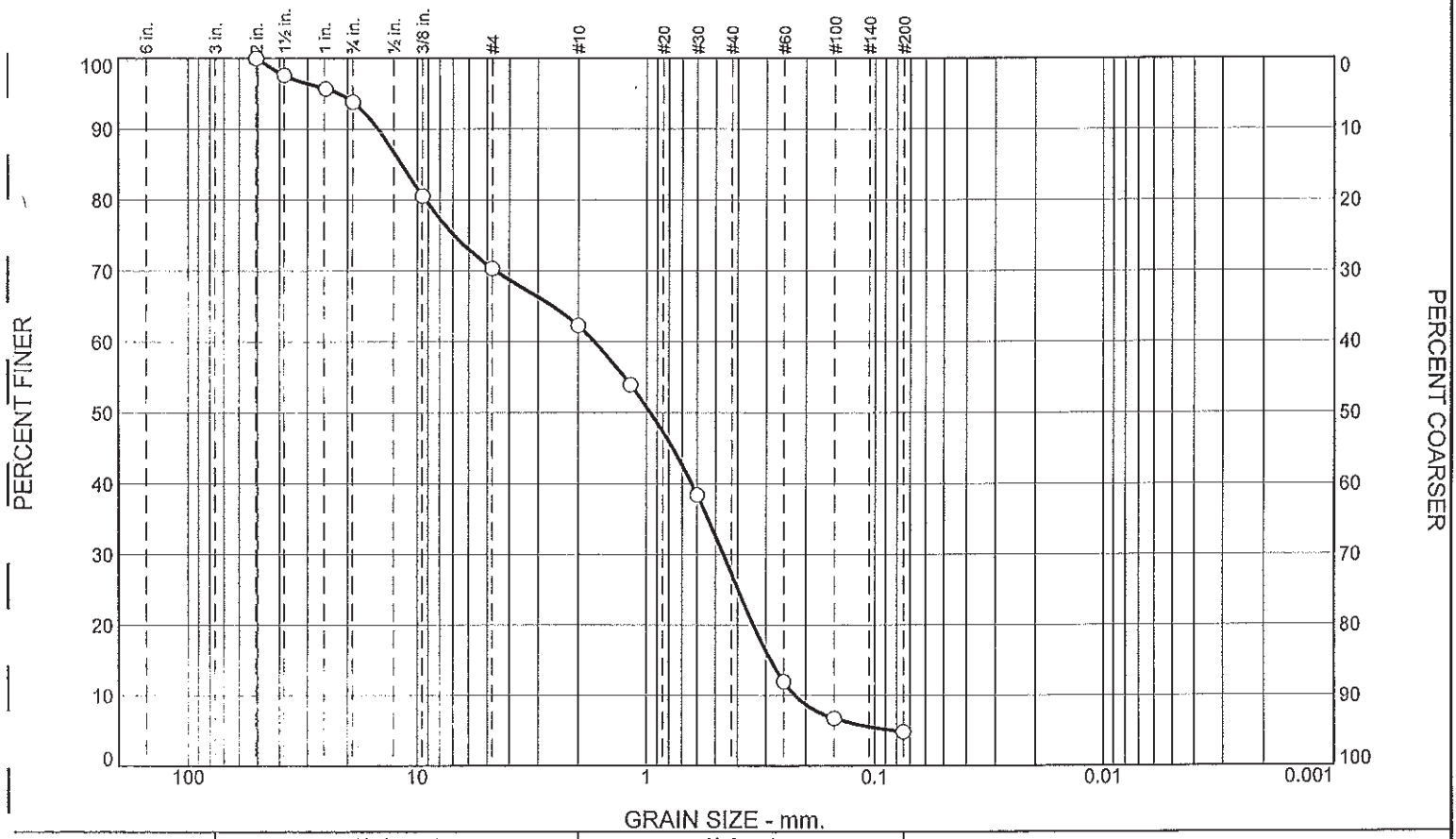
Remarks

Location: #19
Sample Number: S-6 Depth: 12" - 20" Date: 6/15/11

FRENCH & PARRELLO ASSOCIATES, P.A. CONSULTING ENGINEERS Wall, NJ	Client: EnviroTrac Project: Hess - Port Reading Refinery Project No: 2187.005 Figure

Tested By: JB Checked By: RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	4.2	15.2	18.3	23.8	26.5	7.1	4.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2	100.0		
1.5	97.6		
1	95.7		
.75	93.8		
.375	80.6		
#4	70.4		
#10	62.3		
#16	53.9		
#30	38.5		
#60	12.0		
#100	6.8		
#200	4.9		

* (no specification provided)

Material Description

Brown cm SAND, and- c-mf Gravel, trace Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 14.8674 D_{85}= 11.6992 D_{60}= 1.6938
D_{50}= 0.9617 D_{30}= 0.4617 D_{15}= 0.2858
D_{10}= 0.2220 C_u= 7.63 C_c= 0.57

Classification

USCS= SP AASHTO=

Remarks

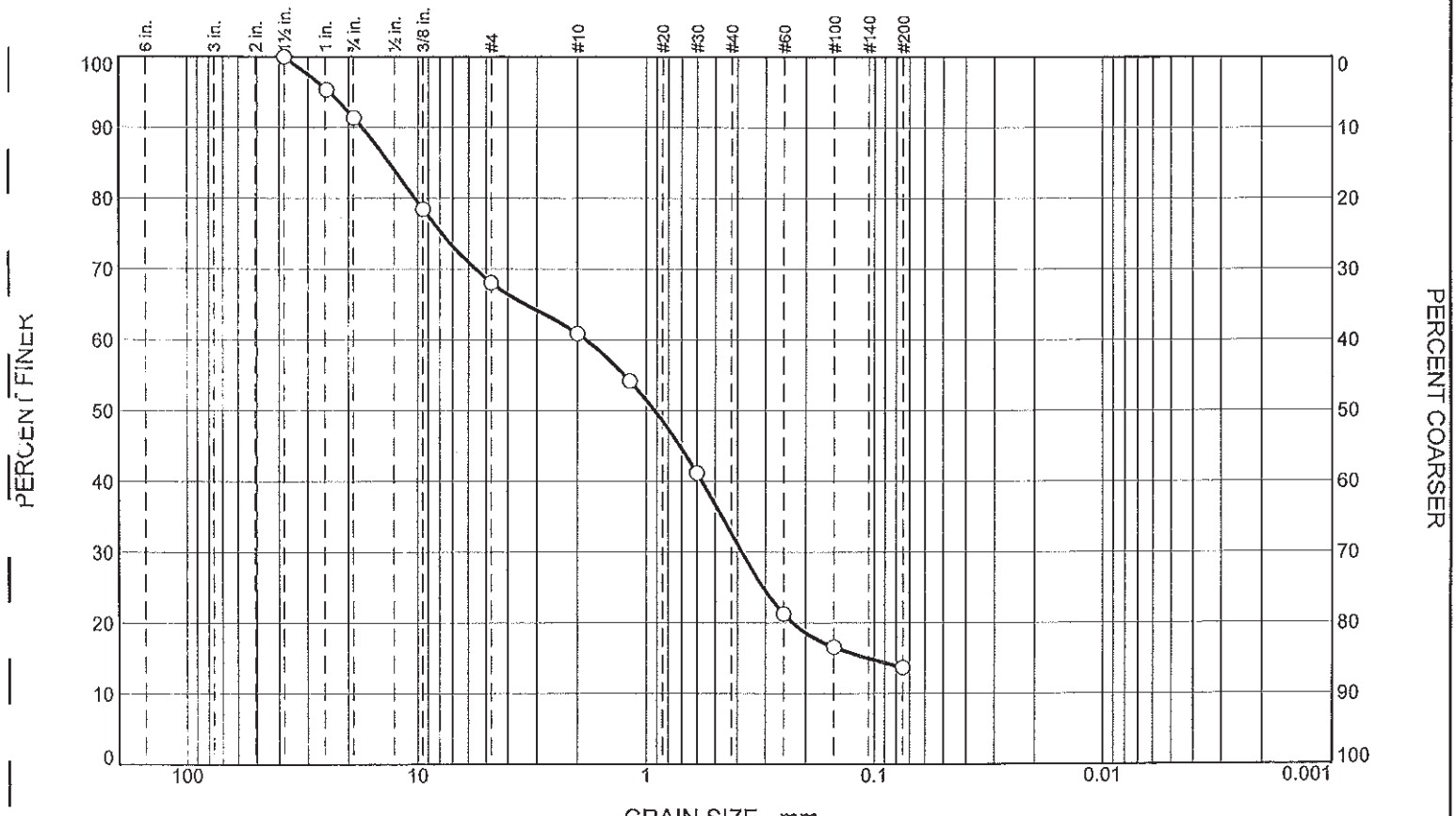
Location: #20
Sample Number: S-7 **Depth:** 18" - 23" **Date:** 6/15/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: JB **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	4.5	17.0	17.6	19.7	19.9	7.6	13.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	95.3		
.75	91.4		
.375	78.5		
#4	68.1		
#10	60.9		
#16	54.2		
#30	41.2		
#60	21.3		
#100	16.6		
#200	13.7		

* (no specification provided)

Material Description

Red Brown cmf- Sand, and- c-mf Gravel, little Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 17.4796 D_{85}= 13.3356 D_{60}= 1.8302
D_{50}= 0.9184 D_{30}= 0.3820 D_{15}= 0.1066
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

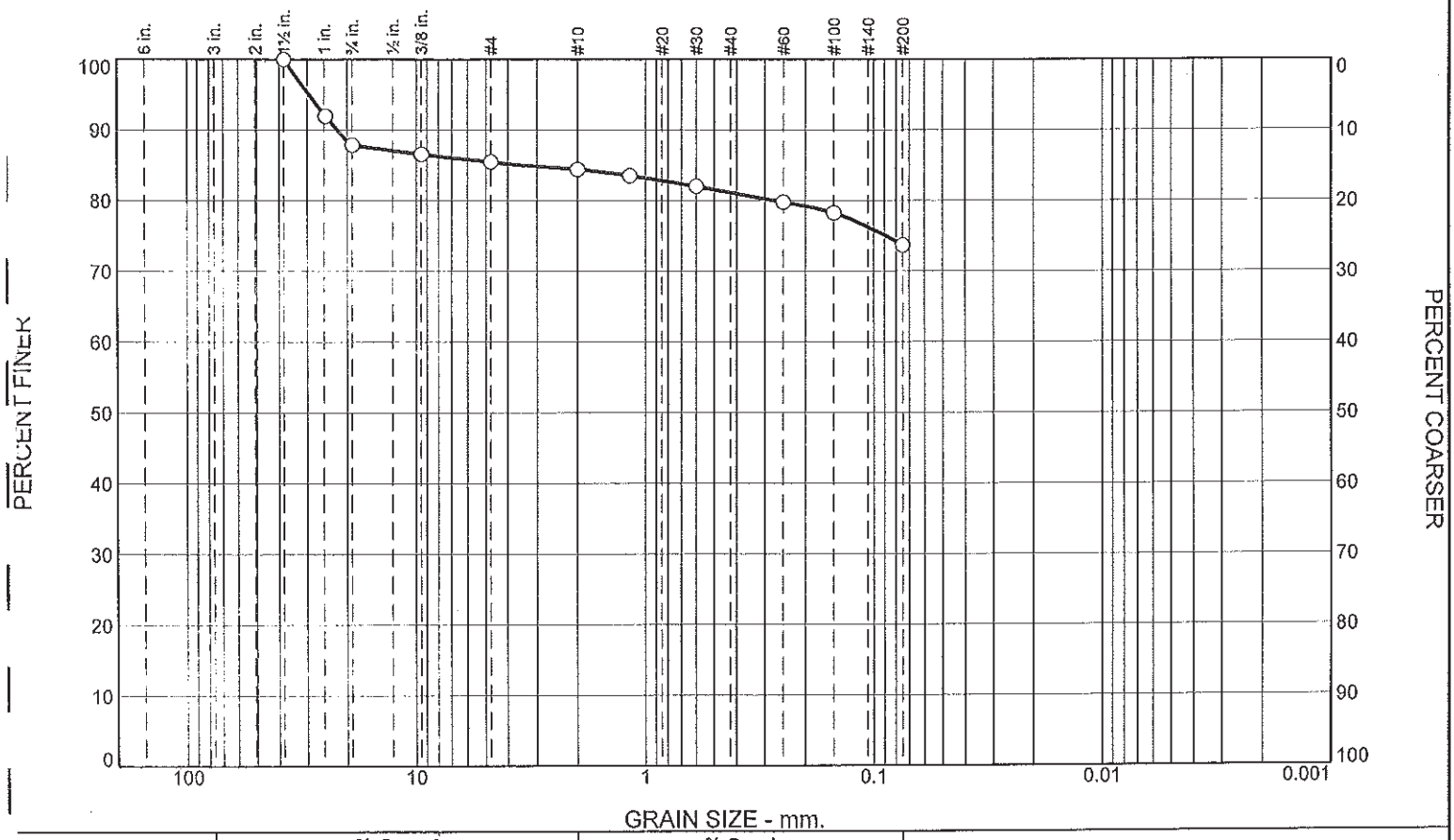
Location: #21
Sample Number: S-8 Depth: 15" - 20" Date: 6/21/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 Figure

Tested By: JB Checked By: RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	7.7	5.7	2.2	2.4	2.2	6.1	73.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	92.0		
.75	87.9		
.375	86.6		
#4	85.5		
#10	84.4		
#16	83.5		
#30	82.0		
#60	79.8		
#100	78.3		
#200	73.7		

* (no specification provided)

Material Description

Tan CLAY, little cmf Gravel, little- cmf Sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 22.2317 D_{85}= 3.4212 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

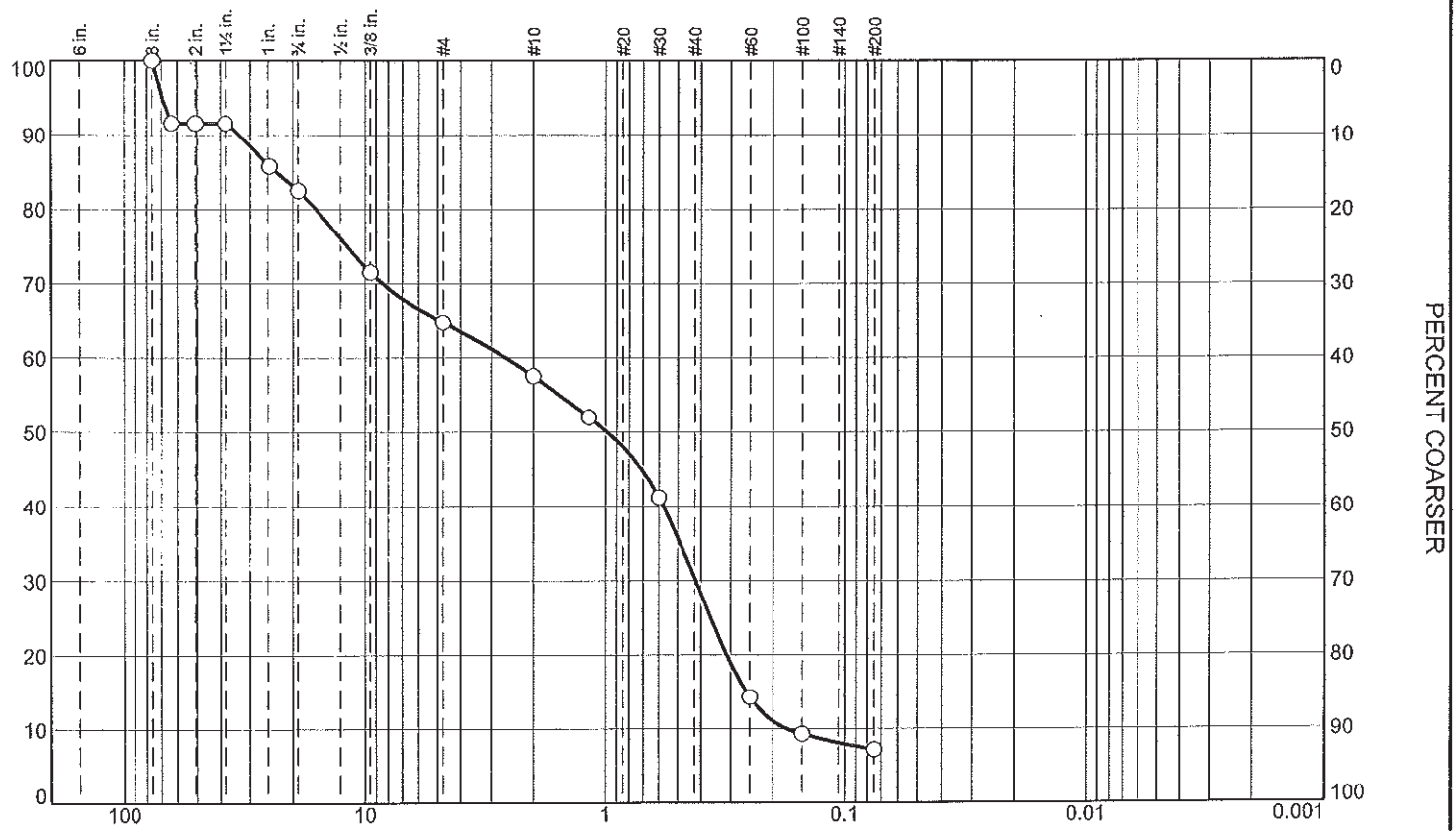
Remarks

Location: #22
Sample Number: S-9 **Depth:** 16" - 21" **Date:** 6/21/11

FRENCH & PARRELLO ASSOCIATES, P.A. CONSULTING ENGINEERS Wall, NJ	**Client:** EnviroTrac **Project:** Hess - Port Reading Refinery **Project No:** 2187.005 **Figure**

Tested By: JB **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	13.9	14.5	14.0	16.4	26.9	7.1	7.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2.5	91.6		
2	91.6		
1.5	91.6		
1	85.8		
.75	82.5		
.375	71.5		
#4	64.8		
#10	57.6		
#16	52.0		
#30	41.2		
#60	14.3		
#100	9.3		
#200	7.2		

* (no specification provided)

Material Description

Red Brown cm+ SAND, and cmf Gravel, trace+ Clayey Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 33.0318 D_{85}= 23.4250 D_{60}= 2.6053
D_{50}= 0.9849 D_{30}= 0.4210 D_{15}= 0.2583
D_{10}= 0.1734 C_u= 15.02 C_c= 0.39

Classification

USCS= AASHTO=

Remarks

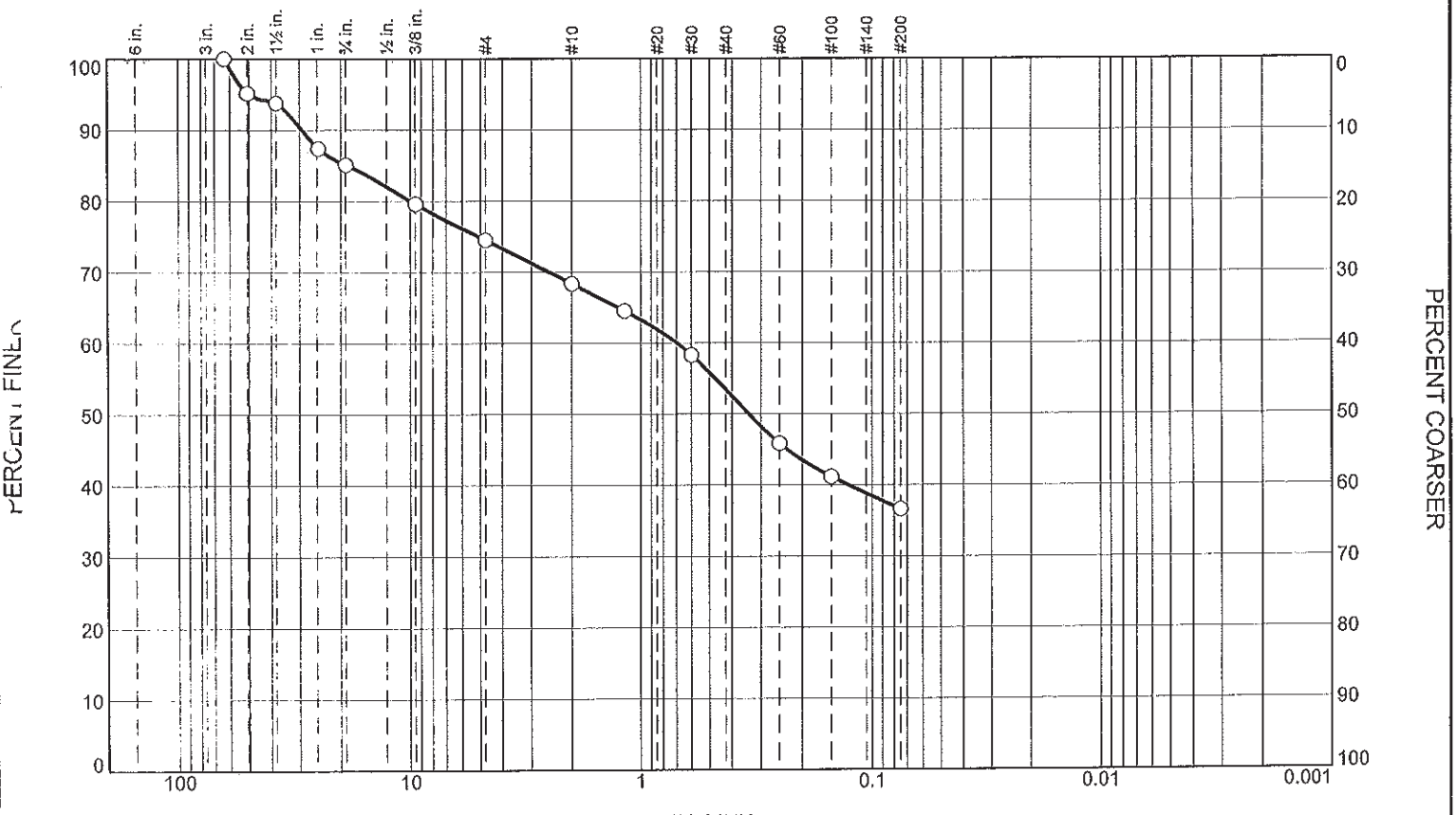
Location: #23
Sample Number: S-10 **Depth:** 30" - 40" **Date:** 6/22/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: JB **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	12.4	8.0	11.2	10.1	12.5	9.2	36.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2	95.2		
1.5	93.8		
1	87.4		
.75	85.1		
.375	79.6		
#4	74.6		
#10	68.4		
#16	64.6		
#30	58.3		
#60	45.8		
#100	41.2		
#200	36.6		

* (no specification provided)

Material Description

Red Brown Clay & Silt, some+ cmf Sand, some+ cmf Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 29.2937 D_{85}= 18.6450 D_{60}= 0.6947
D_{50}= 0.3387 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

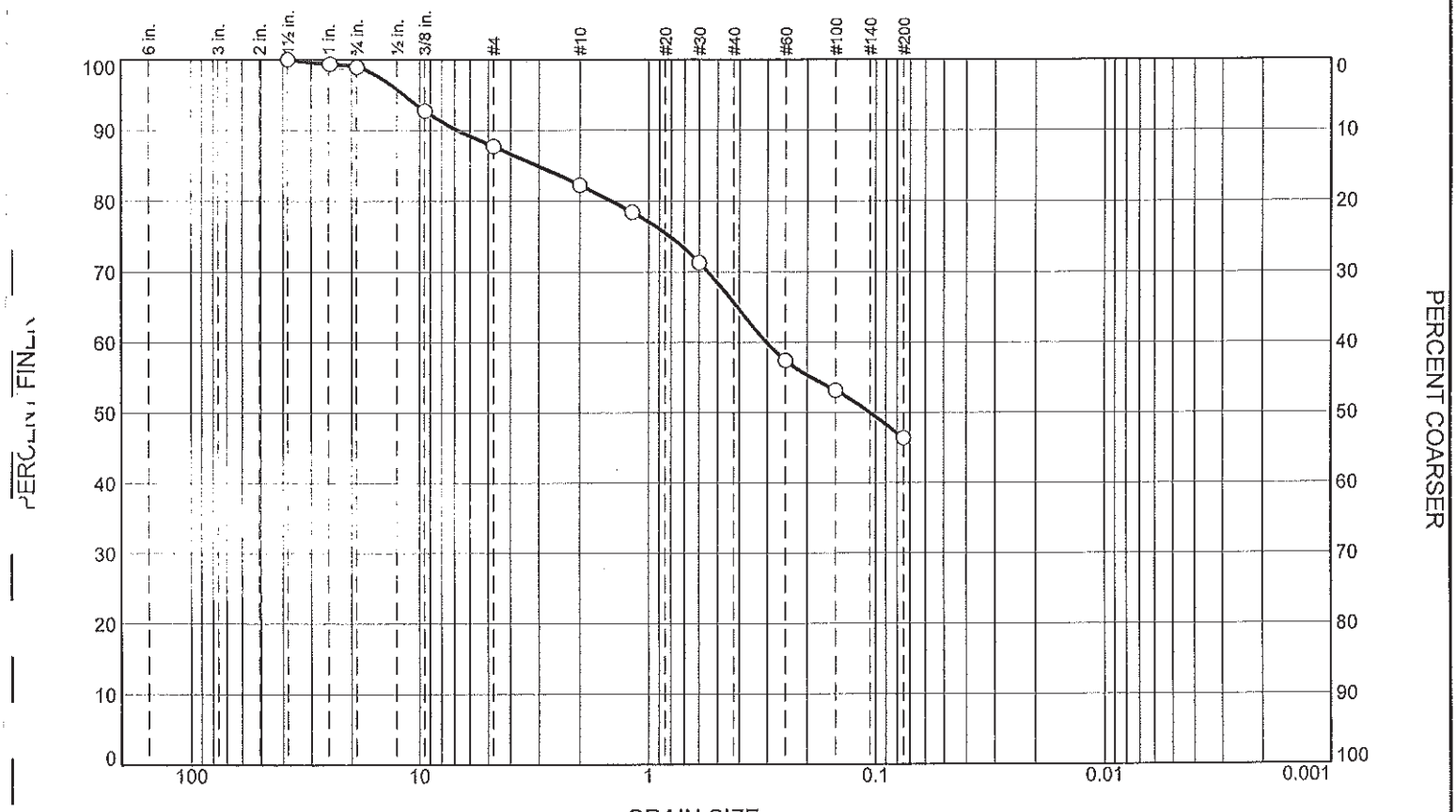
Location: #24
Sample Number: S-11 **Depth:** 12" - 21.5" **Date:** 6/22/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: JB **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.6	6.6	10.5	10.9	13.9	11.1	46.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	99.4		
.75	99.0		
.375	92.8		
#4	87.7		
#10	82.3		
#16	78.5		
#30	71.4		
#60	57.5		
#100	53.2		
#200	46.4		

* (no specification provided)

Material Description

Red Brown Clay & Silt, and- cmf Sand, little+ mf Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 6.7768 D_{85}= 3.0388 D_{60}= 0.3020
D_{50}= 0.1058 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

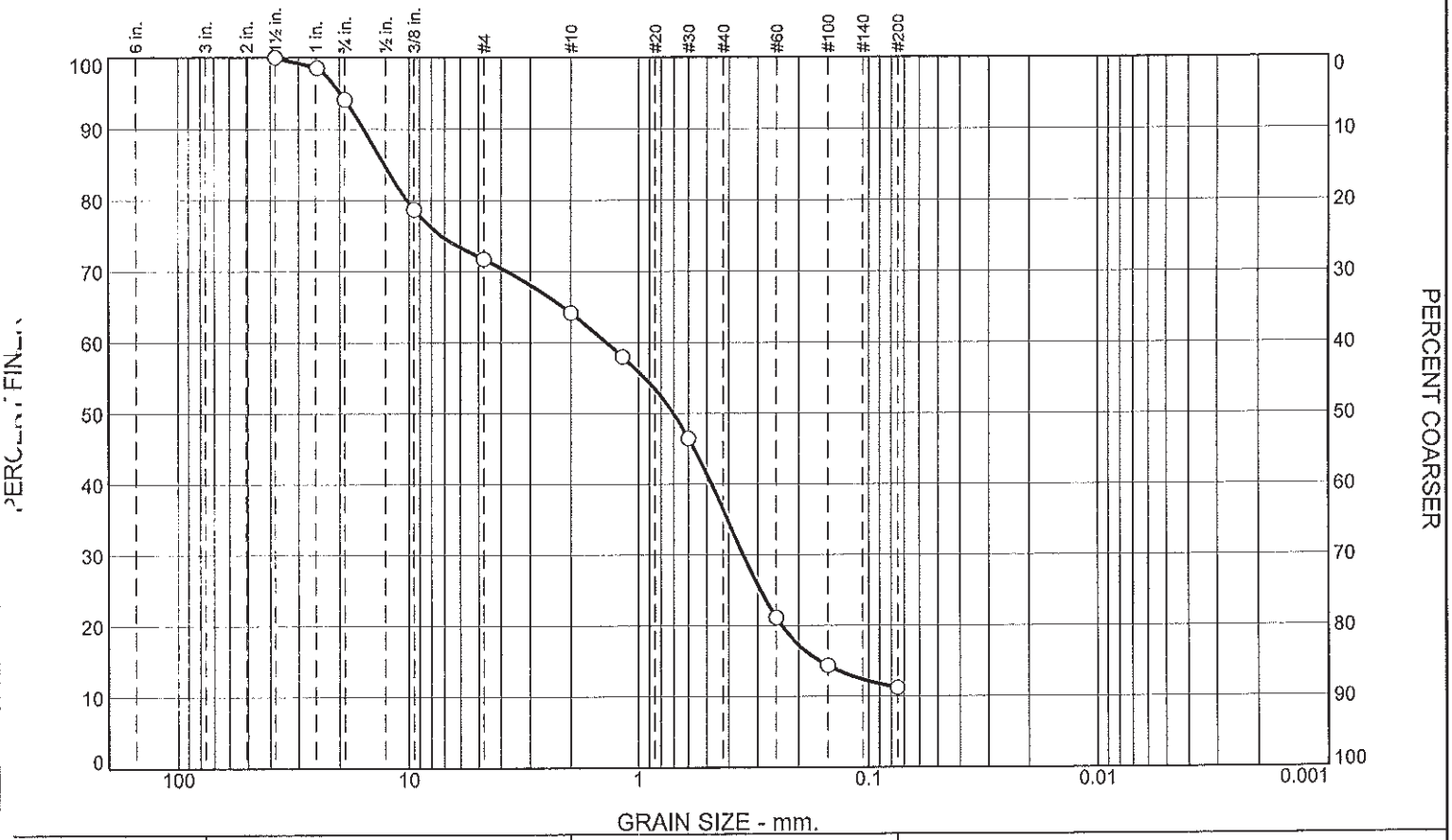
Location: #25
Sample Number: S-12 **Depth:** 17" - 25" **Date:** 6/23/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: JB Checked By: RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	1.4	19.8	14.6	17.7	25.3	10.0	11.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	98.6		
.75	94.1		
.375	78.7		
#4	71.8		
#10	64.2		
#16	58.0		
#30	46.5		
#60	21.2		
#100	14.4		
#200	11.2		

* (no specification provided)

Material Description

Brown cm+f SAND, and- m+f Gravel, little- Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 15.8007 D_{85}= 12.8128 D_{60}= 1.3860
D_{50}= 0.7011 D_{30}= 0.3469 D_{15}= 0.1625
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

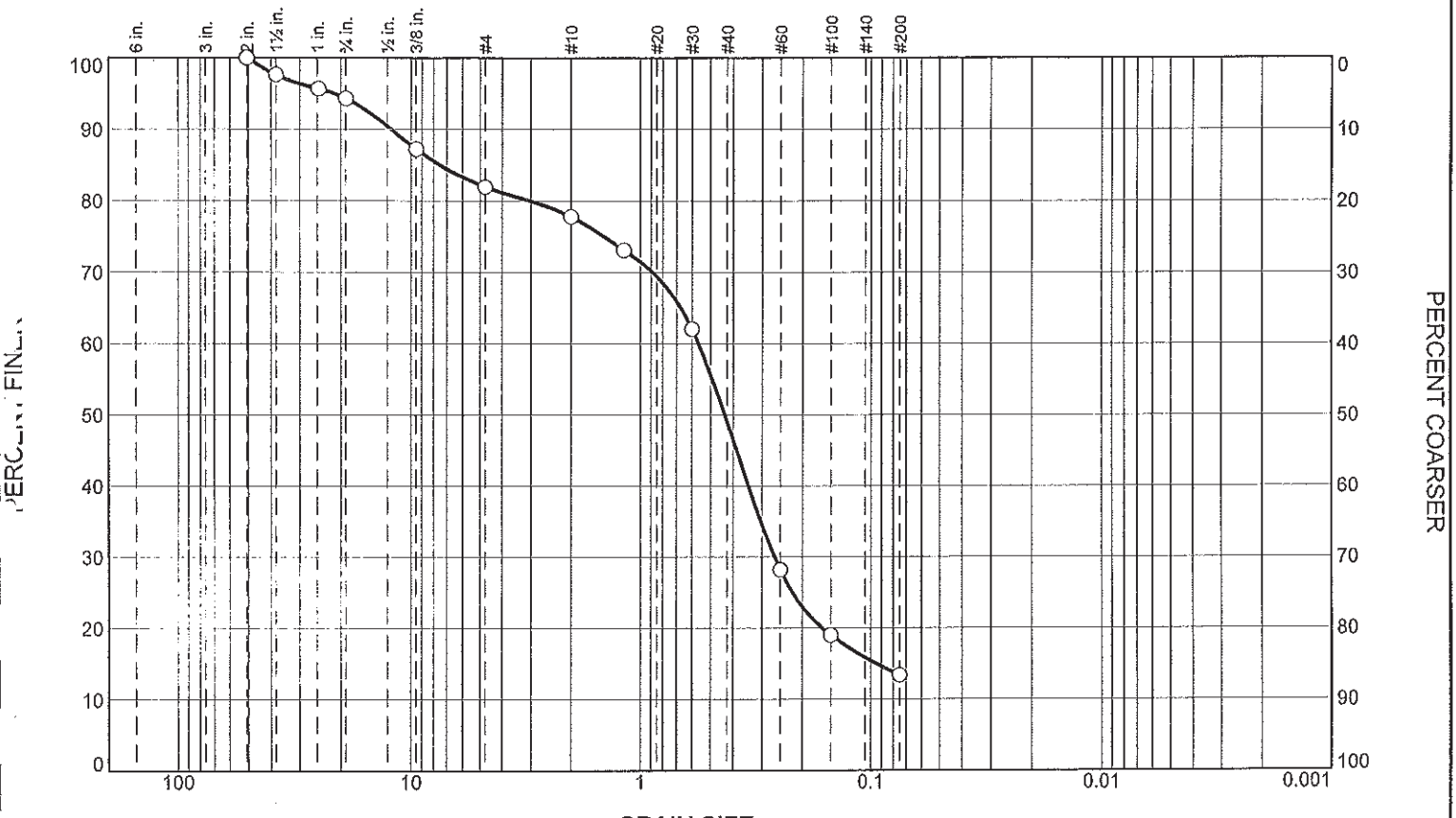
Location: #26
Sample Number: S-13 **Depth:** 12" - 23" **Date:** 6/24/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

'ested By: ML Checked By: RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	4.3	8.4	9.5	15.7	33.9	14.8	13.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2	100.0		
1.5	97.7		
1	95.7		
.75	94.3		
.375	87.3		
#4	82.0		
#10	77.8		
#16	73.2		
#30	62.1		
#60	28.2		
#100	19.0		
#200	13.4		

* (no specification provided)

Material Description

Brown cm+f SAND, some- cmf Gravel, little Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 12.1571 D_{85}= 7.4462 D_{60}= 0.5621
D_{50}= 0.4343 D_{30}= 0.2649 D_{15}= 0.0946
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

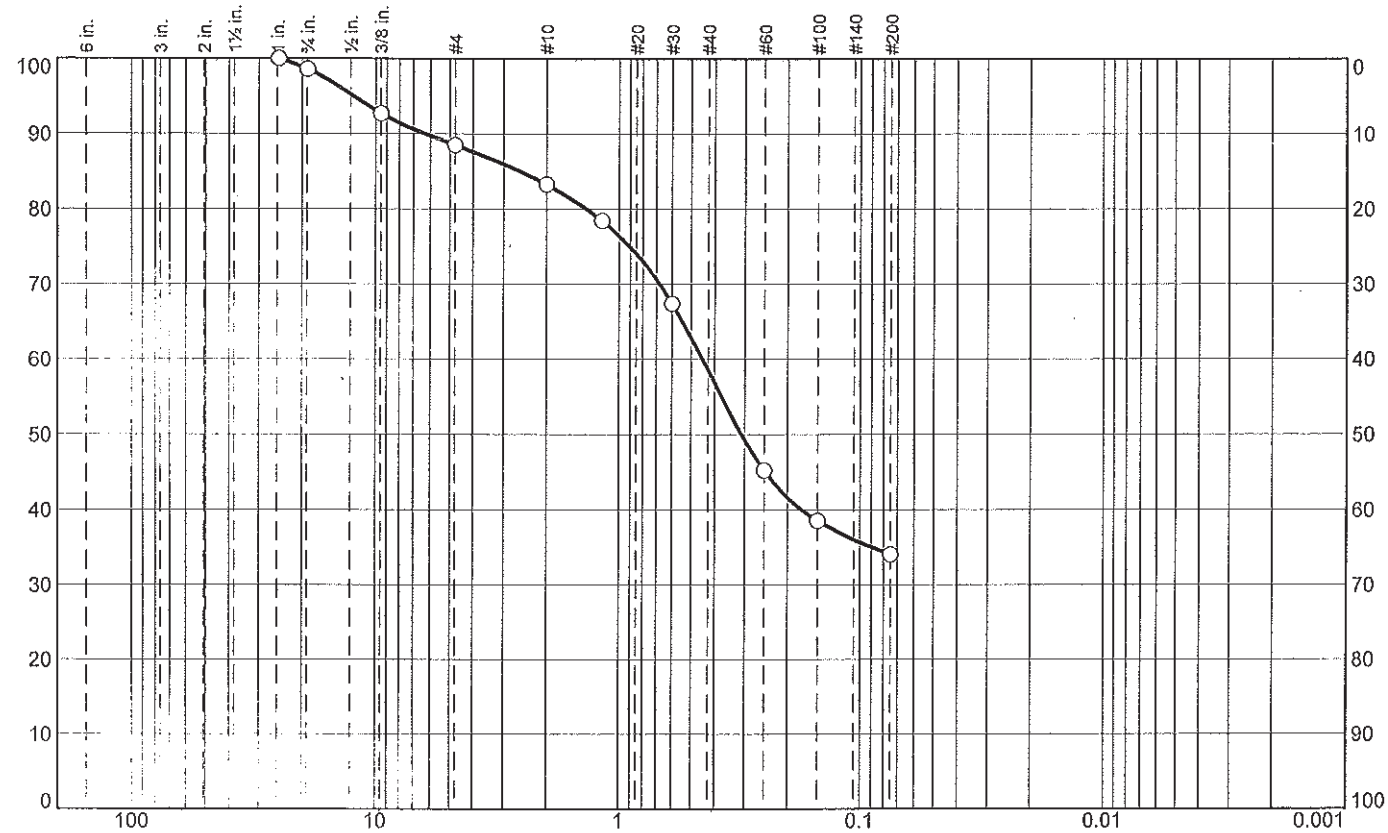
Location: #27
Sample Number: S-14 **Depth:** 16" - 26" **Date:** 6/24/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

ested By: ML Checked By: RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	7.2	9.5	15.9	22.1	11.2	34.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	98.6		
.375	92.7		
#4	88.5		
#10	83.3		
#16	78.5		
#30	67.4		
#60	45.3		
#100	38.6		
#200	34.1		

* (no specification provided)

Material Description

Red Brown cm+f Sand, some+ Silty Clay, little+ mf Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 6.2806 D_{85}= 2.5581 D_{60}= 0.4490
D_{50}= 0.3090 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

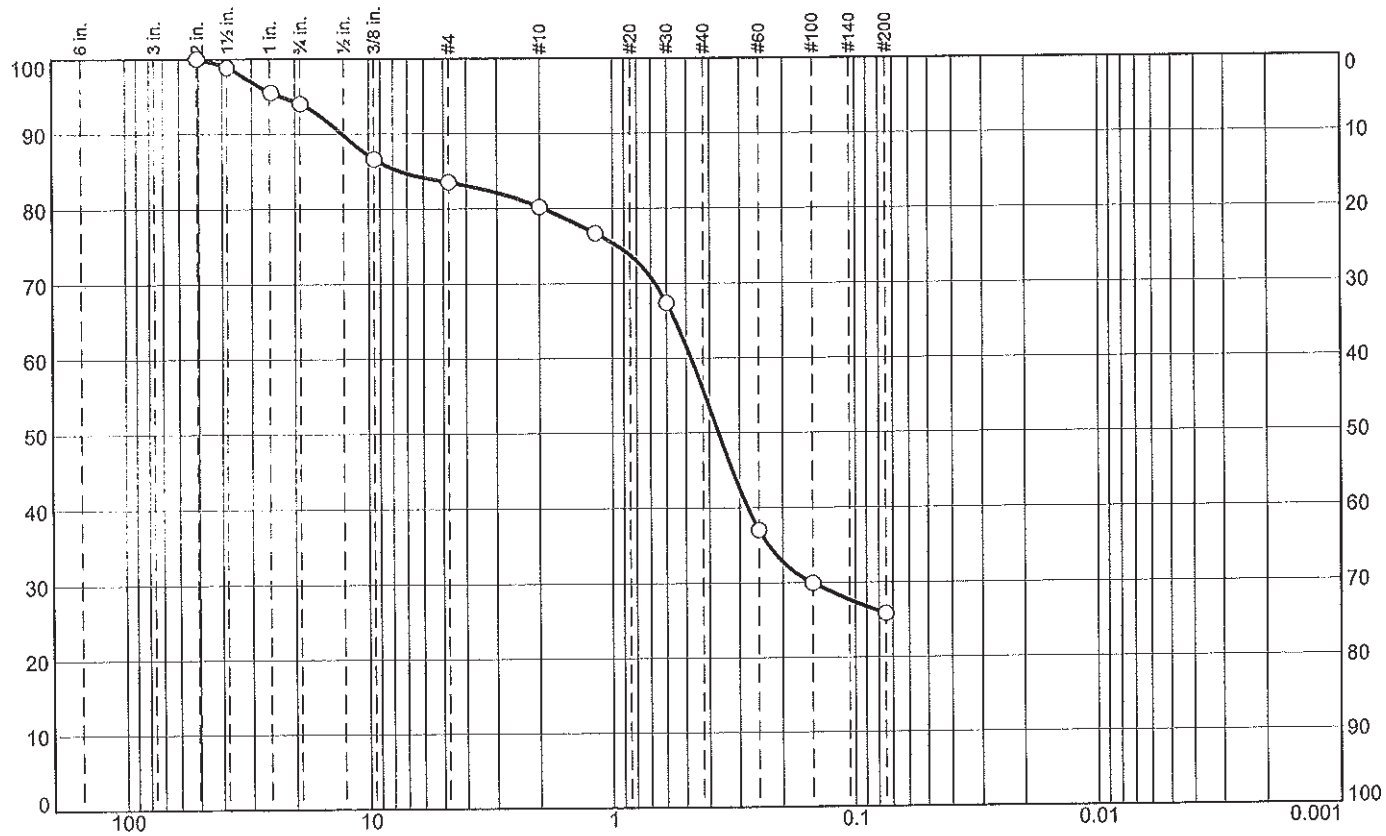
Location: #28
Sample Number: S-15 **Depth:** 6" - 17.5" **Date:** 6/24/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: ML Checked By: RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	4.4	8.9	6.5	12.8	30.3	11.3	25.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2	100.0		
1.5	98.9		
1	95.5		
.75	94.0		
.375	86.6		
#4	83.6		
#10	80.2		
#16	76.7		
#30	67.4		
#60	37.1		
#100	30.0		
#200	25.8		

* (no specification provided)

Material Description

Red Brown cm+f SAND, some Silty Clay, little+ cmf Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 12.8640 D_{85}= 7.4587 D_{60}= 0.4767
D_{50}= 0.3674 D_{30}= 0.1505 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Location: #29
Sample Number: S-16 **Depth:** 12" - 23"

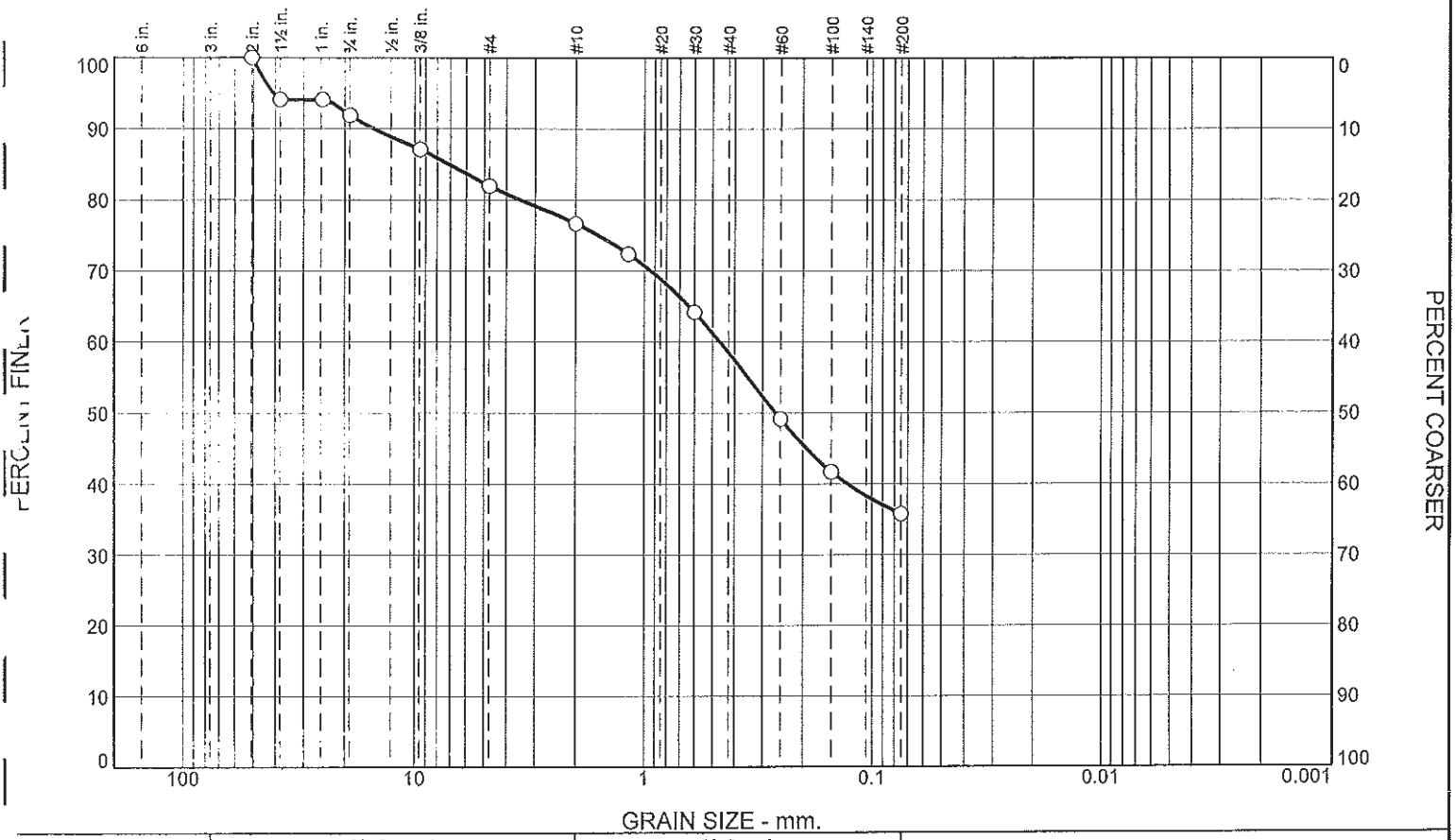
Date: 6/24/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: JRB **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	5.9	7.0	10.4	12.5	15.0	13.4	35.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2	100.0		
1.5	94.1		
1	94.1		
.75	91.9		
.375	87.1		
#4	82.0		
#10	76.7		
#16	72.4		
#30	64.2		
#60	49.2		
#100	41.7		
#200	35.8		

* (no specification provided)

Material Description

Red Brown cmf Sand, and- Silty Clay, some- cmf Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 15.0766 D_{85}= 7.0796 D_{60}= 0.4631
D_{50}= 0.2623 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

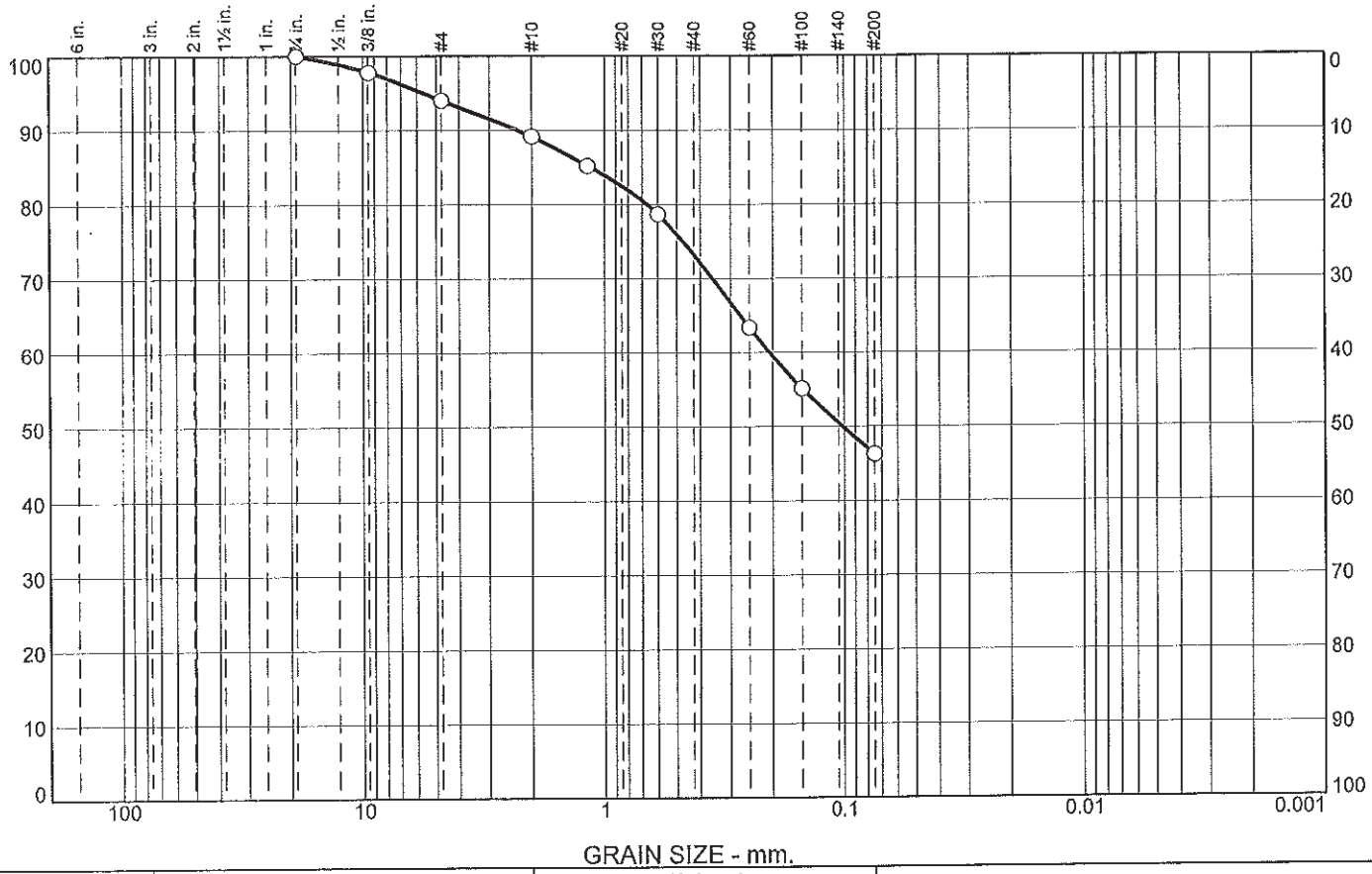
Location: #30
Sample Number: S-17 **Depth:** 10" - 20" **Date:** 6/24/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: ML **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	2.2	8.6	10.5	15.3	17.1	46.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.375	97.8		
#4	94.0		
#10	89.2		
#16	85.2		
#30	78.7		
#60	63.4		
#100	55.1		
#200	46.3		

* (no specification provided)

Material Description

Red Brown Silty Clay, and cmf Gravel, little- mf+ Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.2717 D_{85}= 1.1430 D_{60}= 0.2053
D_{50}= 0.1019 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

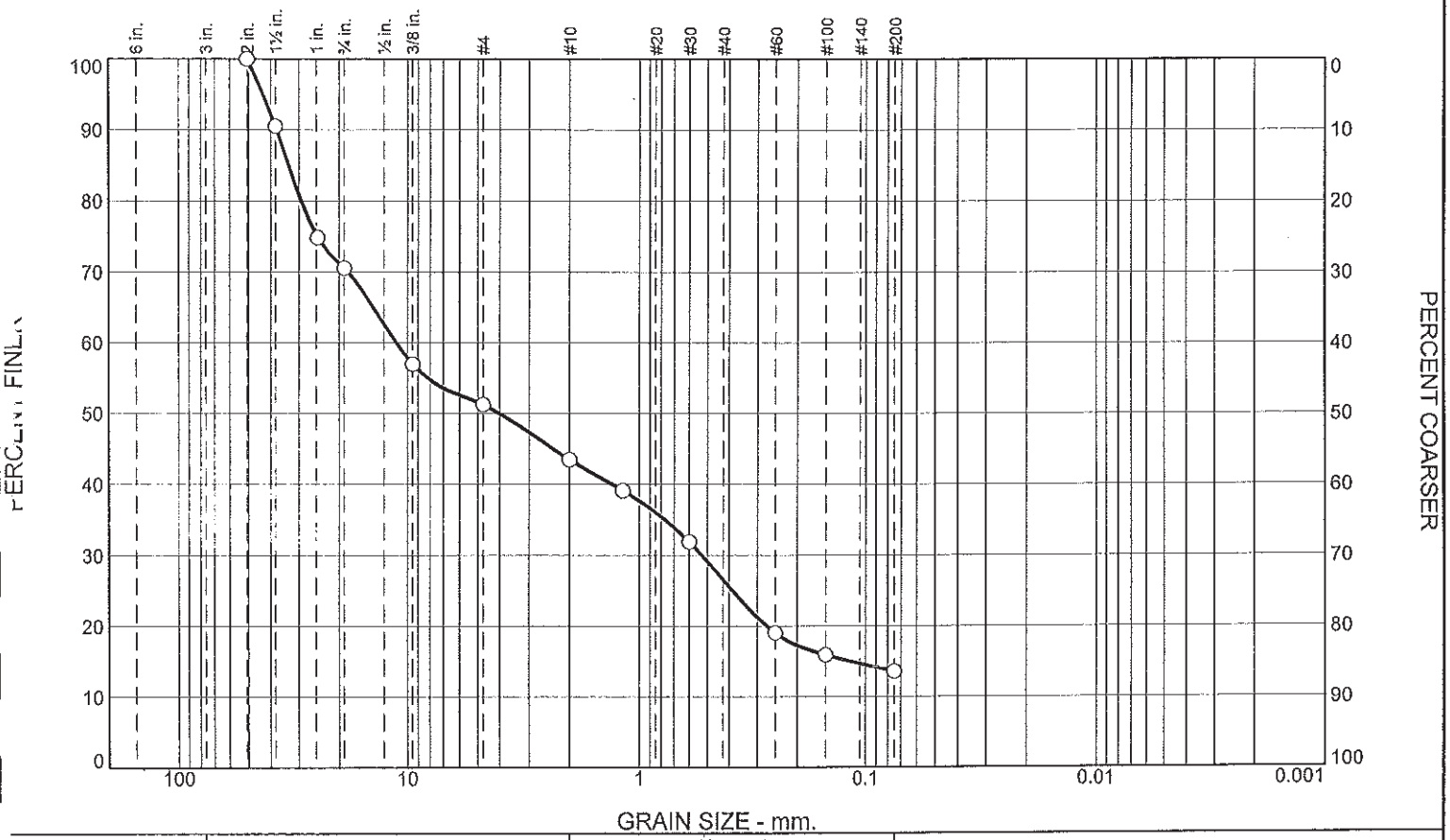
Location: #31
Sample Number: S-18 Depth: 11" - 19" Date: 6/24/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 Figure

Tested By: ML Checked By: RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	24.7	18.3	13.5	11.6	12.8	5.5	13.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2	100.0		
1.5	90.5		
1	74.9		
.75	70.6		
.375	57.0		
#4	51.2		
#10	43.5		
#16	39.1		
#30	31.9		
#60	19.1		
#100	15.9		
#200	13.6		

* (no specification provided)

Material Description

Red Brown c+mf GRAVEL, some cmf- Sand, little Silty Clay

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 37.5711 D_{85}= 33.2063 D_{60}= 11.1946
D_{50}= 4.0194 D_{30}= 0.5282 D_{15}= 0.1156
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

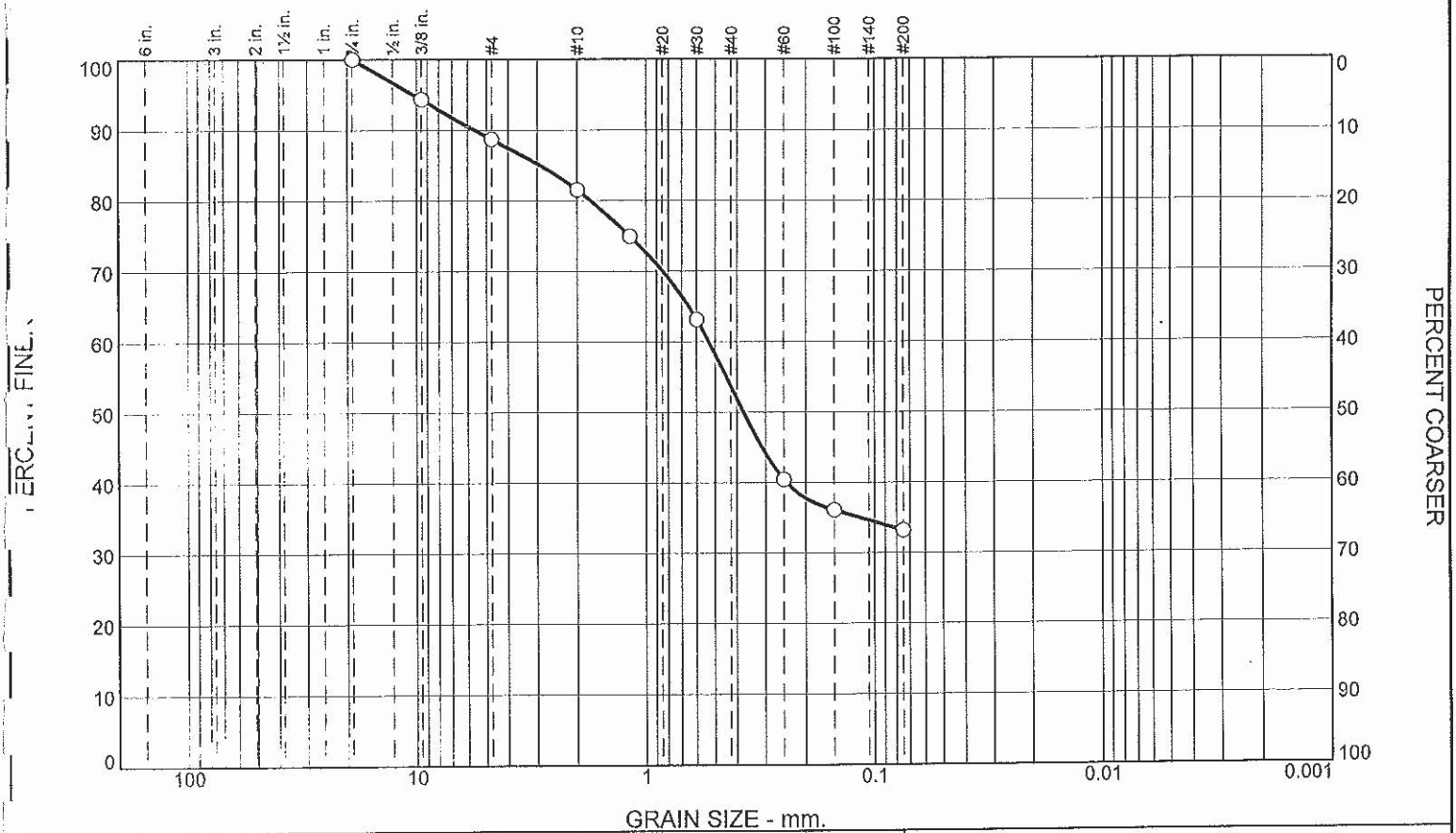
Location: #32
Sample Number: S-19 **Depth:** 12" - 17" **Date:** 6/24/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: ML **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	0.0	5.6	12.9	18.3	22.7	7.3	33.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.375	94.4		
#4	88.7		
#10	81.5		
#16	75.0		
#30	63.2		
#60	40.5		
#100	36.1		
#200	33.2		

* (no specification provided)

Material Description

Red Brown cmf- Sand, some+ Silt, little+ mf+ Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 5.5844 D_{85}= 2.9123 D_{60}= 0.5310
D_{50}= 0.3743 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Location: #33
Sample Number: S-20 **Depth:** 18" - 27.5"

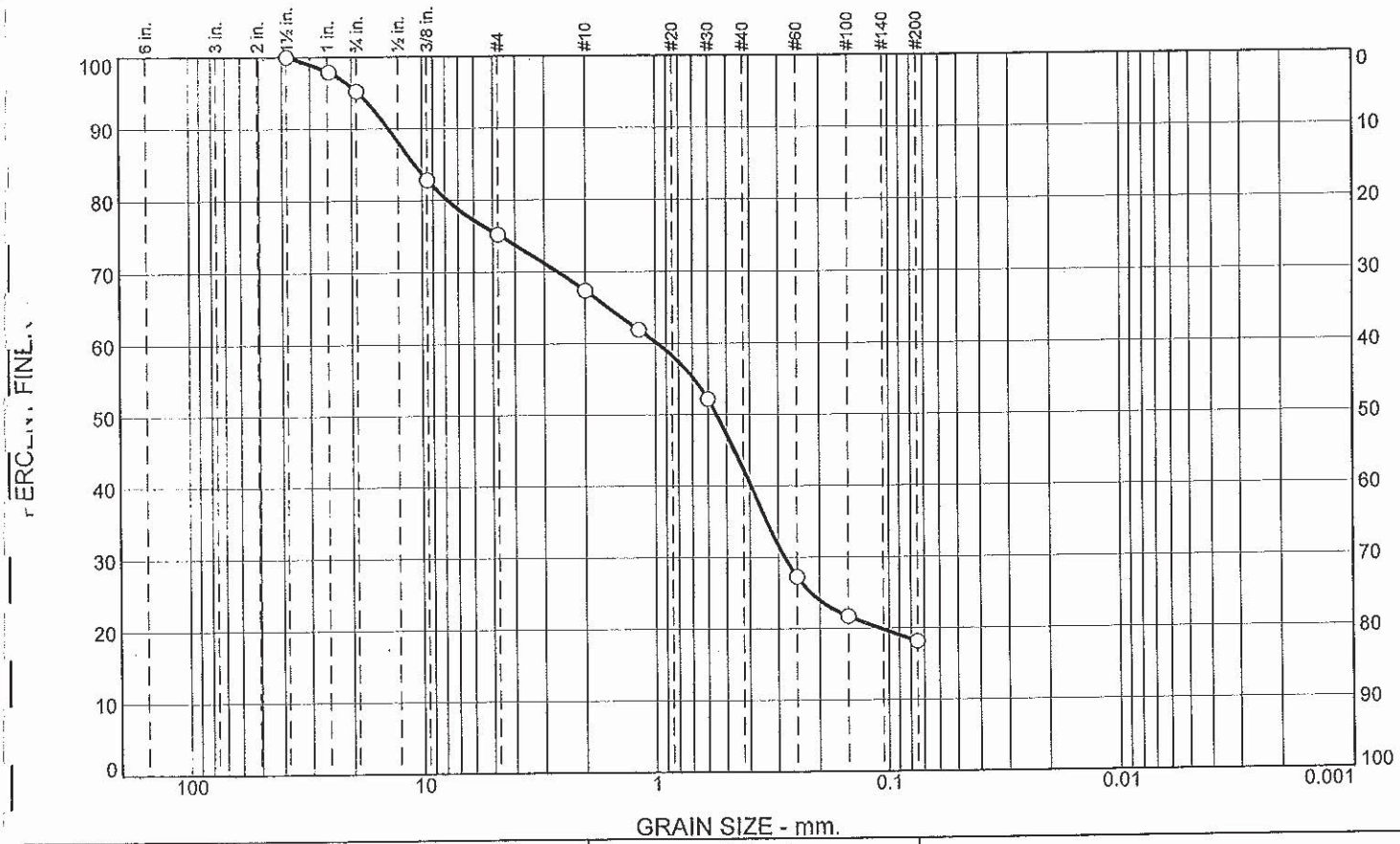
Date: 6/24/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: ML **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	2.0	15.1	15.5	15.2	24.9	9.1	18.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	97.9		
.75	95.2		
.375	82.9		
#4	75.2		
#10	67.4		
#16	61.9		
#30	52.2		
#60	27.3		
#100	21.7		
#200	18.2		

* (no specification provided)

Material Description

Red Brown cm+f Sand, some+ mf Gravel, little+ Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 13.9265 D_{85}= 10.7433 D_{60}= 0.9789
D_{50}= 0.5504 D_{30}= 0.2819 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Location: #34
Sample Number: S-21 **Depth:** 10" - 16"

Date: 6/27/11

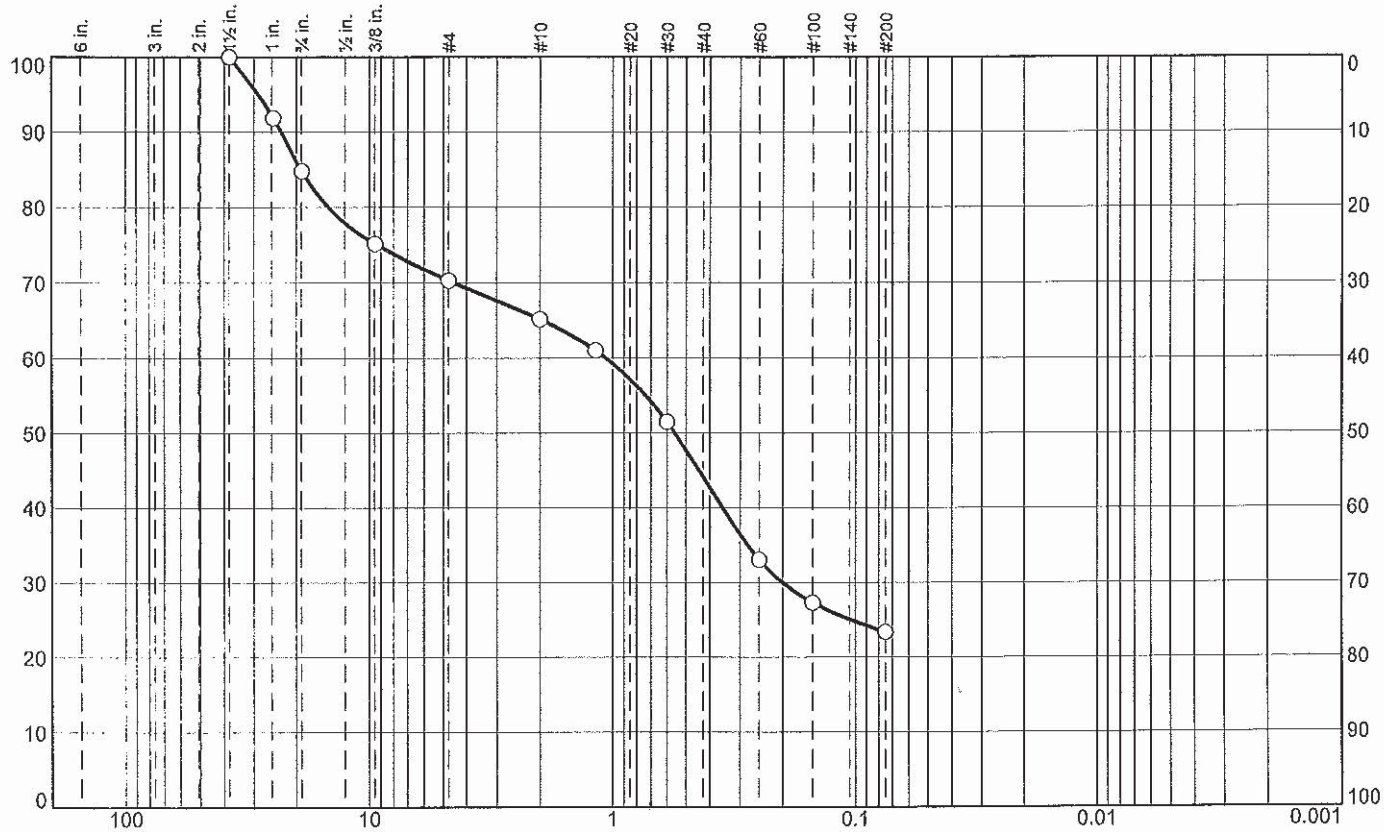
FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005

Figure

Tested By: JRB **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	7.7	17.1	10.0	13.7	18.4	9.7	23.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	91.9		
.75	84.8		
.375	75.2		
#4	70.3		
#10	65.2		
#16	61.0		
#30	51.5		
#60	33.1		
#100	27.3		
#200	23.4		

* (no specification provided)

Material Description

Red Brown cm+f Sand, some+ cm+f Gravel, some- Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 23.2104 D_{85}= 19.1685 D_{60}= 1.0665
D_{50}= 0.5563 D_{30}= 0.1997 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

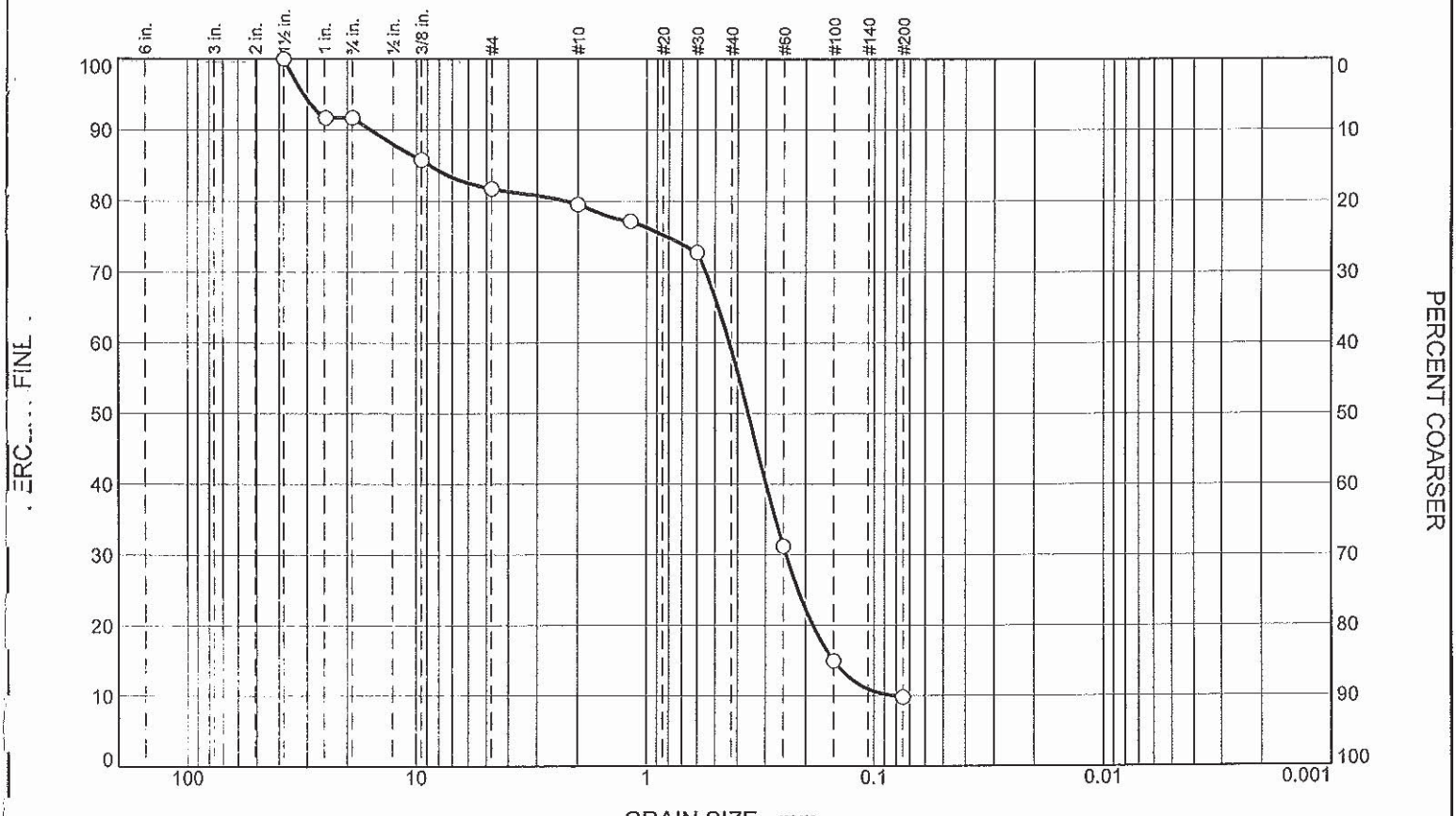
Location: #35
Sample Number: S-22 **Depth:** 10" - 20.5" **Date:** 6/27/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: JRB **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	8.2	6.0	6.3	6.7	41.6	21.4	9.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	91.7		
.75	91.7		
.375	85.8		
#4	81.8		
#10	79.5		
#16	77.2		
#30	72.8		
#60	31.2		
#100	15.0		
#200	9.8		

* (no specification provided)

Material Description

Yellow Brown m+f SAND, some- cmf Gravel, trace+ Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 15.8545 D_{85}= 8.7218 D_{60}= 0.4339
D_{50}= 0.3587 D_{30}= 0.2431 D_{15}= 0.1502
D_{10}= 0.0829 C_u= 5.23 C_c= 1.64

Classification

USCS= AASHTO=

Remarks

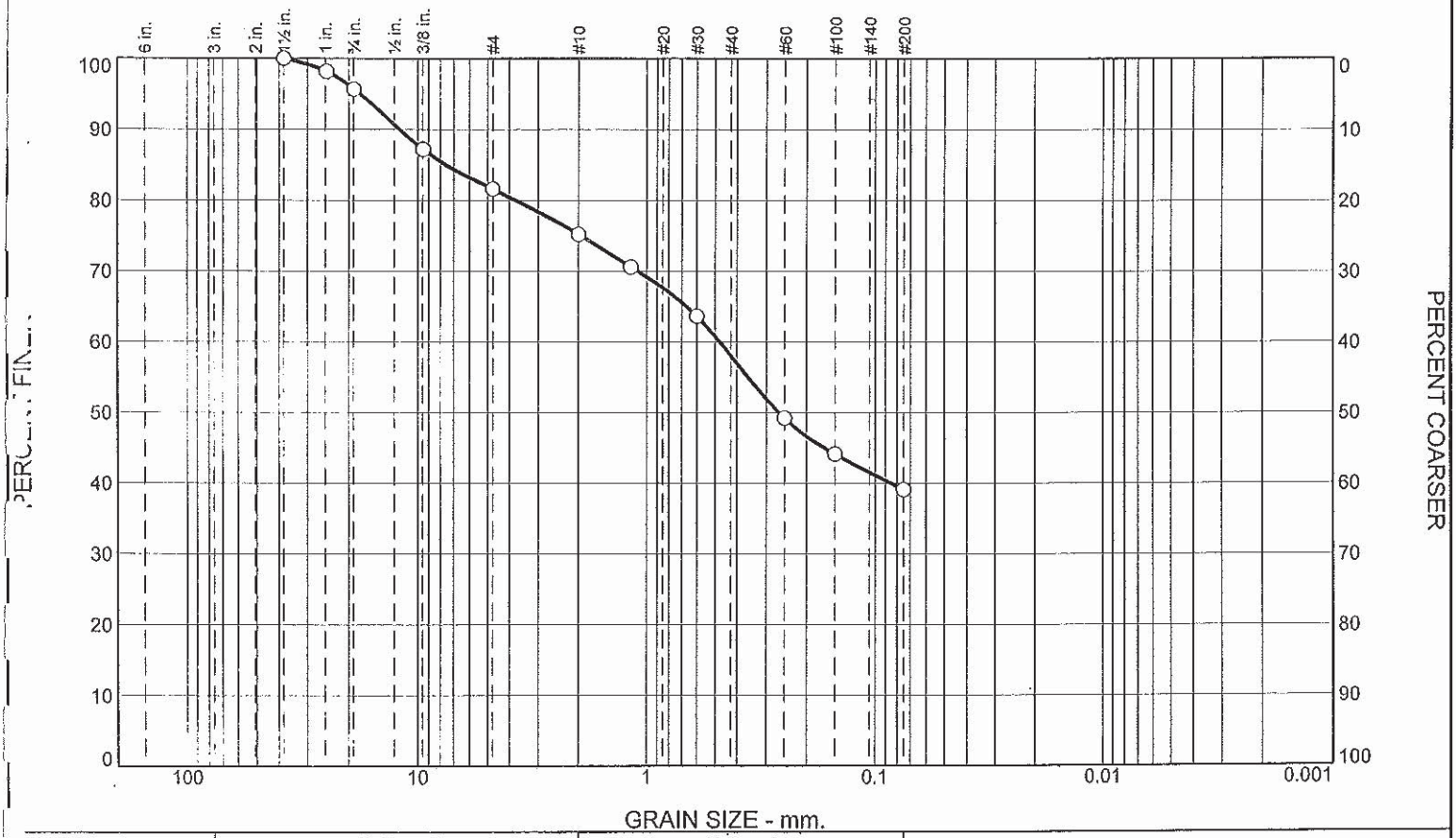
Location: #36
Sample Number: S-23 **Depth:** 15" - 20" **Date:** 6/27/11

FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: JRB **Checked By:** RT

Particle Size Distribution Report



% +3"	% Gravel			% Sand			% Fines
	Coarse	Medium	Fine	Coarse	Medium	Fine	
0.0	1.7	11.0	12.1	11.6	14.4	10.1	39.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	98.2		
.75	95.7		
.375	87.2		
#4	81.6		
#10	75.2		
#16	70.6		
#30	63.6		
#60	49.2		
#100	44.2		
#200	39.1		

* (no specification provided)

Material Description

Red Brown Silt, and- cmf Sand, some- mf Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 11.9863 D_{85}= 7.5140 D_{60}= 0.4764
D_{50}= 0.2639 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Location: #37
Sample Number: S-24 **Depth:** 16" - 21" **Date:** 6/27/11

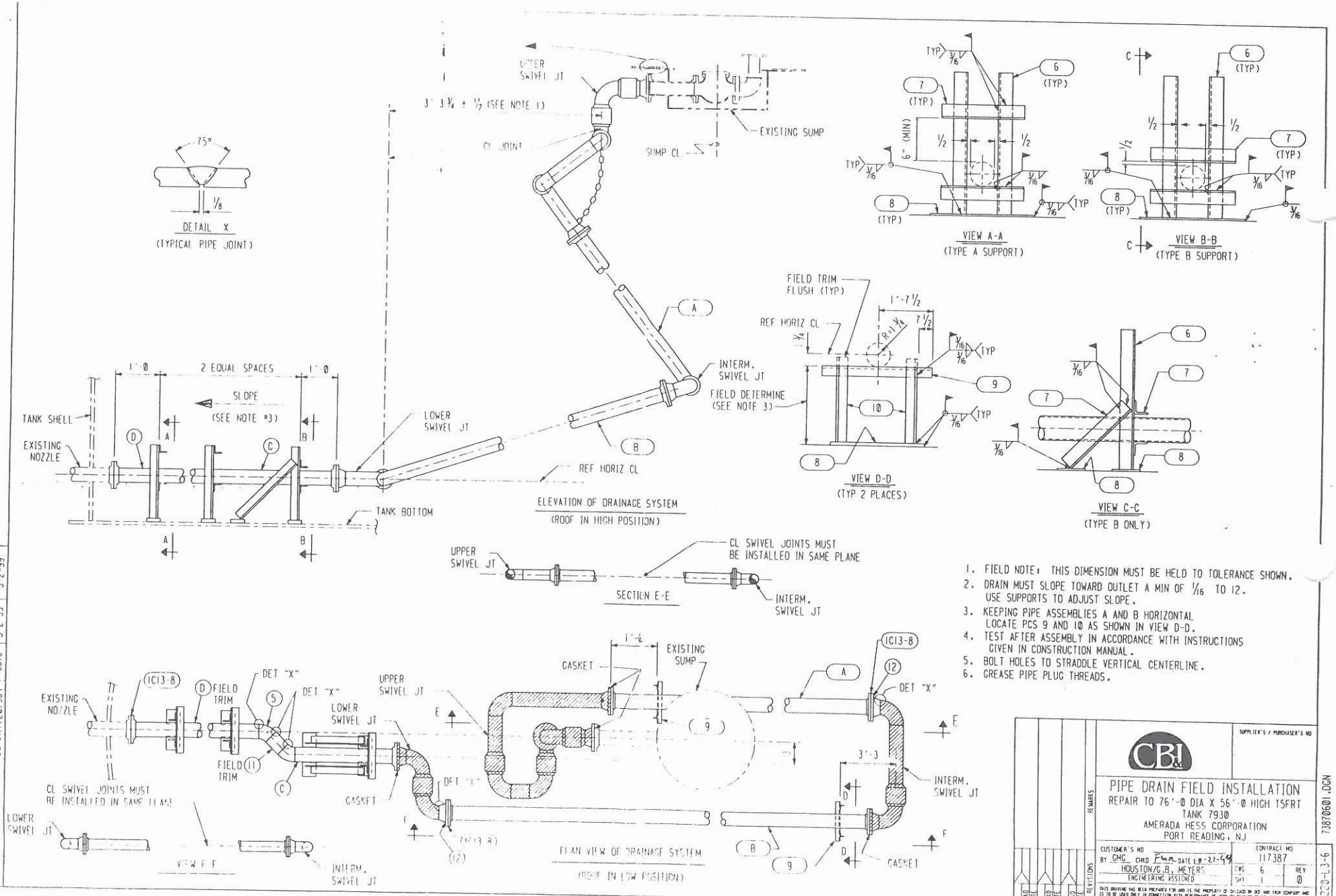
FRENCH & PARRELLO ASSOCIATES, P.A.
CONSULTING ENGINEERS
Wall, NJ

Client: EnviroTrac
Project: Hess - Port Reading Refinery
Project No: 2187.005 **Figure**

Tested By: JRB Checked By: RT

Appendix IX

Drainage System Schematic Drawings



1. FIELD NOTE: THIS DIMENSION MUST BE HELD TO TOLERANCE SHOWN.
2. DRAIN MUST SLOPE TOWARD OUTLET A MIN OF 1/16 TO 12. USE SUPPORTS TO ADJUST SLOPE.
3. KEEPING PIPE ASSEMBLIES A AND B HORIZONTAL LOCATE PCS 9 AND 10 AS SHOWN IN VIEW D-D.
4. TEST AFTER ASSEMBLY IN ACCORDANCE WITH INSTRUCTIONS GIVEN IN CONSTRUCTION MANUAL.
5. BOLT HOLES TO STRADDLE VERTICAL CENTERLINE.
6. GREASE PIPE PLUG THREADS.

CB&I

SUPPLIER'S / PURCHASER'S NO

PIPE DRAIN FIELD INSTALLATION
REPAIR TO 76'-0 DIA X 56'-0 HIGH T5FRT
TANK 7930
AMERADA HESS CORPORATION
PORT READING, NJ

CUSTOMER'S NO
BY GMG CHKD Fmn DATE 10-21-99
HOUSTON/G.B. MEYERS
ENGINEERING ASSIGNED

CONTRACT NO 117387
DWG 6 REV 0
SHT 1

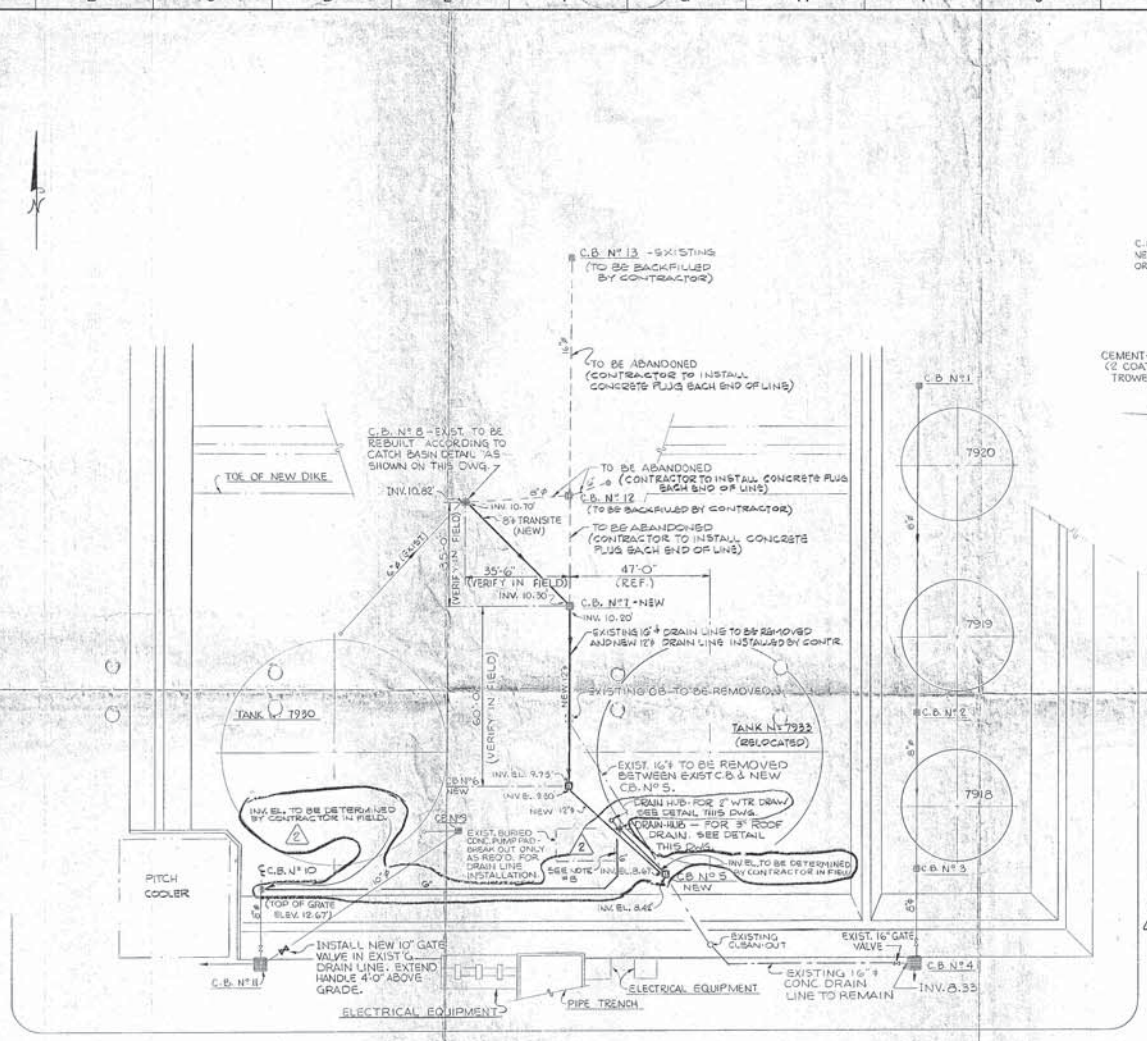
THIS DRAWING HAS BEEN PREPARED FOR AND IS THE PROPERTY OF CHICAGO BRIDGE AND IRON COMPANY AND IS TO BE USED ONLY IN CONNECTION WITH PERFORMANCE OF WORK BY CHICAGO BRIDGE AND IRON COMPANY. REPRODUCTION IN WHOLE OR IN PART FOR ANY OTHER PURPOSE IS EXPRESSLY PROHIBITED.

REVISIONS | REMARKS | BY | CHKD | DATE

3220-L3-6 73870601.DGN

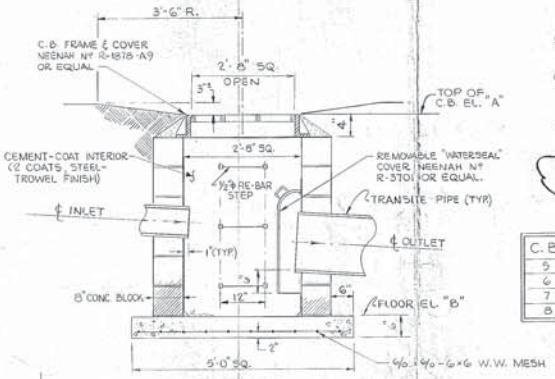
Standard Form Drawing No. 3220-L3-6 | By VAC | Chkd JJS | Date 11/20/96 | Rev 6 | By AWS | Chkd EVR | Date 3-2-99 | Approved DAF | Date 3-2-99

30



PLAN

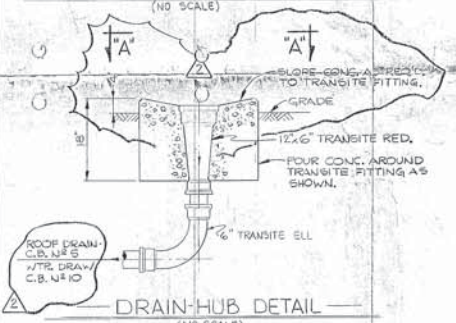
SCALE: 1" = 20'-0"



CATCH BASIN DETAIL

(NO SCALE)

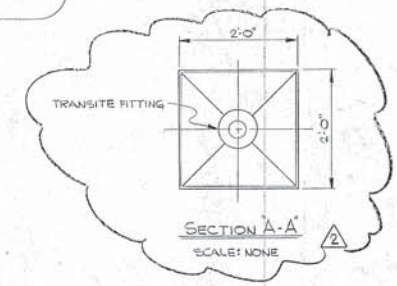
C.B.	ELEV. AT A	ELEV. AT B
5	12.20'	7.42'
6	12.30'	8.30'
7	12.30'	9.96'
8	12.57'	9.23'



DRAIN-HUB DETAIL

(NO SCALE)

(TANK 7933 - ROOF DRAIN)
(TANK 7933 - WTR. DRAW)



SECTION "A-A"

SCALE: NONE

GENERAL NOTES

1.) EXISTING C.B.'s Nos. 12 & 13 TO BE BACK-FILLED AND ABANDONED.

2.) EXISTING 16"ϕ, 6"ϕ & 6"ϕ DRAIN LINES NOTED "TO BE ABANDONED", SHALL BE PLUGGED WITH CONCRETE EACH END.

3.) CATCH BASINS Nos. 5 & 7 ARE NEW BASINS, AND SHALL BE CONSTRUCTED AS SHOWN ON CATCH BASIN DETAIL - THIS DWG.

4.) ALL EXISTING TANK FIELD DRAINAGE PIPING BETWEEN C.B. 7 & C.B. 6, AND ALSO BETWEEN C.B. 6 & C.B. 4, SHALL BE REMOVED TO INSTALL NEW TRANSITE DRAINAGE PIPING AS SHOWN ON THIS DRAWING.

5.) CONTRACTOR SHALL INSTALL 6" THICK SAND BED UNDER NEW TRANSITE DRAINAGE PIPING.

6.) CONTRACTOR SHALL RETURN TANK FIELD & EARTH DIKE TO ORIGINAL SHAPE & SLOPE AFTER INSTALLATION OF NEW DRAIN LINE.

7.) ALL FILL & BACKFILL MATERIAL SHALL BE COMPACTED TO A DRY DENSITY EQUIVALENT TO 95% OF MAX. OBTAINED IN A.S.T.M. D-698.

8.) CONTRACTOR SHALL ROUTE 6" DRAINAGE LINE IN FIELD AS NECESSARY TO AVOID EXIST'G. BURIED CONCRETE SLAB.

REFERENCE DWG'S.

BILL OF MATERIAL — B/M(PRR-82)D-052

REV.	DATE	BY	DESCRIPTION	CHECK	APP'D
2	11/22/83	W.O.P.	ALIGED WTR. DRAW DIST. & ROUTING OF 8" PIPE TO C.B. Nº 10, ELEVATED ROOF DRAW TO C.B. Nº 5, REVISED HUB DETAIL & ADDED DET. A-A	G.W.J.	
1	3/10/83	W.O.P.	REVISED C.B. LOCATIONS (C.B. 5 & 6) TO AVOID CONFLICT WITH EXISTING UNDERGROUND PUMP SLAB & FOUNDATION. RE-USED PORTION OF EXISTING 16"ϕ DRAIN LINE.	G.W.J.	
P	10/20/82	F.N.S.	PRELIMINARY	G.W.J.	

APPROVALS AND CHECKS	DRAFTING CHECK G.W.J.	DESIGN APPROVAL	PROJECT ENG. APPROVAL			FINAL APPROVAL

AMERADA HESS CORPORATION

1 HESS PLAZA, WOODBRIDGE, N.J.

TITLE: — PLAN & DETAILS — REVISED TANK FIELD DRAINAGE TANKS 7930 & 7933

PROJECT NO. | L.P.E. NO.

SCALE: AS SHOWN | DRAWN BY: F.N. SCHRECK | DATE: 11/8/82

LOCATION: PORT READING

DRAWING NO.: PRR-82-D-052 | REV.: 2

APPENDIX X

Laboratory Analytical Data Package- Soil Sample – 7930 Sump (PE-1)—June 2, 2009

EnviroTrac

New Jersey
ACCUTEST LABORATORIES

12/21/12

Technical Report for

EnviroTrac, Ltd.

Hess-Port Reading, NJ

Accutest Job Number: JA19940

Sampling Date: 06/02/09

Report to:

EnviroTrac

sarahd@envirotrac.com

ATTN: Sarah Dyson

Total number of pages in report: **63**

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.

Nancy Cole
Laboratory Director

Client Service contact: Matt Cordova 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), PA, RI, SC, TN, VA, WV

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Sections: 1 2 3 4 5 6 7 8

Table of Contents

-1-

Section 1: Sample Summary **3**
Section 2: Case Narrative/Conformance Summary **4**
Section 3: Summary of Hits **5**
Section 4: Sample Results **6**
4.1: JA19940-1: 7930 SUMP(PE-1) 7
Section 5: Misc. Forms **9**
5.1: Chain of Custody 10
5.2: Sample Tracking Chronicle 12
5.3: Internal Chain of Custody 13
Section 6: GC/MS Volatiles - QC Data Summaries **14**
6.1: Method Blank Summary 15
6.2: Blank Spike Summary 17
6.3: Matrix Spike/Matrix Spike Duplicate Summary 19
6.4: Instrument Performance Checks (BFB) 21
6.5: Internal Standard Area Summaries 23
6.6: Surrogate Recovery Summaries 24
6.7: Initial and Continuing Calibration Summaries 25
Section 7: GC/MS Volatiles - Raw Data **34**
7.1: Samples 35
7.2: Method Blanks 55
Section 8: General Chemistry - QC Data Summaries **62**
8.1: Percent Solids Raw Data Summary 63

Accutest LabLink@704161 09:48 21-Dec-2012

Sample Summary

EnviroTrac, Ltd.

Hess-Port Reading, NJ

Job No: JA19940

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JA19940-1	06/02/09	13:00 PA	06/02/09	SO	Soil	7930 SUMP(PE-1)

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	EnviroTrac, Ltd.	**Job No**	JA19940
Site:	Hess-Port Reading, NJ	**Report Date**	6/12/2009 8:51:08 AM

On 06/02/2009, 1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 5.3 C. Samples were intact and properly preserved, unless noted below. An Accutest Job Number of JA19940 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

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

Volatiles by GCMS By Method SW846 8260B

Matrix	SO	**Batch ID:**	VD6254

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JA19738-12MS, JA19738-12MSD were used as the QC samples indicated.
- JA19940-1: Dilution required due to matrix interference.

Wet Chemistry By Method ASTM 4643-00

Matrix	SO	**Batch ID:**	GN26841

- The data for ASTM 4643-00 meets quality control requirements.

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

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

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

Summary of Hits

Job Number: JA19940
Account: EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ
Collected: 06/02/09

3

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JA19940-1	**7930 SUMP(PE-1)**					
Benzene [a]		707	58	20	ug/kg	SW846 8260B
Ethylbenzene [a]		2330	58	21	ug/kg	SW846 8260B
Toluene [a]		5120	58	17	ug/kg	SW846 8260B
Xylene (total) [a]		15700	120	27	ug/kg	SW846 8260B
Total TIC, Volatile		64300 J			ug/kg	

(a) Dilution required due to matrix interference.

New Jersey
ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest LabLink@704161 09:48 21-Dec-2012

Report of Analysis

Client Sample ID:	7930 SUMP(PE-1)		
Lab Sample ID:	JA19940-1	**Date Sampled:**	06/02/09
Matrix:	SO - Soil	**Date Received:**	06/02/09
Method:	SW846 8260B SW846 5035	**Percent Solids:**	82.7
Project:	Hess-Port Reading, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	D155668.D	1	06/03/09	TDN	06/02/09 04:00	n/a	VD6254
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.4 g	5.0 ml	100 ul
Run #2			

VOA PPL List

CAS No.	Compound	Result	RL	MDL	Units	Q
107-02-8	Acrolein	ND	2900	830	ug/kg	
107-13-1	Acrylonitrile	ND	2900	48	ug/kg	
71-43-2	Benzene	707	58	20	ug/kg	
75-27-4	Bromodichloromethane	ND	290	15	ug/kg	
75-25-2	Bromoform	ND	290	8.7	ug/kg	
74-83-9	Bromomethane	ND	290	23	ug/kg	
56-23-5	Carbon tetrachloride	ND	290	32	ug/kg	
108-90-7	Chlorobenzene	ND	290	20	ug/kg	
75-00-3	Chloroethane	ND	290	66	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	1400	24	ug/kg	
67-66-3	Chloroform	ND	290	18	ug/kg	
74-87-3	Chloromethane	ND	290	9.5	ug/kg	
124-48-1	Dibromochloromethane	ND	290	6.3	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	290	16	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	290	16	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	290	19	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	290	55	ug/kg	
75-34-3	1,1-Dichloroethane	ND	290	8.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	58	20	ug/kg	
75-35-4	1,1-Dichloroethene	ND	290	38	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	290	14	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	290	26	ug/kg	
78-87-5	1,2-Dichloropropane	ND	290	7.5	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	290	7.7	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	290	5.5	ug/kg	
100-41-4	Ethylbenzene	2330	58	21	ug/kg	
75-09-2	Methylene chloride	ND	290	13	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	290	17	ug/kg	
127-18-4	Tetrachloroethene	ND	290	8.4	ug/kg	
108-88-3	Toluene	5120	58	17	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	290	7.4	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	290	11	ug/kg	

ND = Not detected MDL - Method Detection Limit
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:	7930 SUMP(PE-1)		
Lab Sample ID:	JA19940-1	**Date Sampled:**	06/02/09
Matrix:	SO - Soil	**Date Received:**	06/02/09
Method:	SW846 8260B SW846 5035	**Percent Solids:**	82.7
Project:	Hess-Port Reading, NJ		

VOA PPL List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	290	30	ug/kg	
75-69-4	Trichlorofluoromethane	ND	290	13	ug/kg	
75-01-4	Vinyl chloride	ND	290	10	ug/kg	
1330-20-7	Xylene (total)	15700	120	27	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%		67-127%
17060-07-0	1,2-Dichloroethane-D4	93%		65-132%
2037-26-5	Toluene-D8	101%		74-129%
460-00-4	4-Bromofluorobenzene	107%		62-138%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	cycloalkane/alkene	7.77	5800	ug/kg	J
	cycloalkane/alkene	8.64	7000	ug/kg	J
	C3 alkyl benzene	15.67	9100	ug/kg	J
108-67-8	Benzene, 1,3,5-trimethyl-	15.76	4100	ug/kg	JN
	Benzene, 1,2,4-trimethyl-	16.20	15000	ug/kg	J
	C3 alkyl benzene	16.69	4500	ug/kg	J
	unknown Indane	16.95	7400	ug/kg	J
	C4 alkyl benzene	17.38	3800	ug/kg	J
	1H-indene-dihydro-methyl	18.21	3400	ug/kg	J
	1H-indene-dihydro-methyl	18.41	4200	ug/kg	J
	Total TIC, Volatile		64300	ug/kg	J

(a) Dilution required due to matrix interference.

ND = Not detected MDL - Method Detection Limit
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

New Jersey
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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

ACCUTEST Laboratories

SLL

CHAIN OF CUSTODY

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # JA19940

Client / Reporting Information

Company Name: EnviroTrac
Street Address: 400 Corporate Ct.
City / State / Zip: South Plainfield, NJ
Project Contact: Bill Groeling
E-mail:
Phone #: 908-757-1900
Fax #:
Sampler(s) Name(s): Phil Allegro
Phone #:

Project Information

Project Name: Hess Port Reading
Street: 750 Cliff Rd.
City: Port Reading, NJ
State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (If different from Report to)
Company Name:
Street Address:
City / State / Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

VO+10 V8260PPL+10

Matrix Codes

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

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HO	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	VO+10 V8260PPL+10	LAB USE ONLY
	7930 Sump (PE-1)	-1	6/2/09	1300	PA	SO	4					1			3	X	0051, 14H6, 4947

Turnaround Time (Business days)

- ☐ Std. 15 Business Days
- ☐ Std. 10 Business Days (by Contract only)
- ☐ 10 Day RUSH
- ☐ 5 Day RUSH
- ☐ 3 Day EMERGENCY
- ☐ 2 Day EMERGENCY
- ☒ 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

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

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

Comments / Special Instructions

3 pc/sgx.

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

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	6/2/09 1545	1 [signature]	2		2
3		3	4		4
5		5	Custody Seal # ☐ Intact ☐ Not intact	Preserved where applicable ☐	On Ice ☒ Cooler Temp. 5.3°C

5.1

5

JA19940: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JA19940 **Client:** **Immediate Client Services Action Required:** No

Date / Time Received: 6/2/2009 **Delivery Method:** **Client Service Action Required at Login:** No

Project: **No. Coolers:** 1 **Airbill #'s:**

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

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	Infared gun	
3. Cooler media:	Ice (bag)	

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

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

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

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

Comments

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

JA19940: Chain of Custody
Page 2 of 2

Internal Sample Tracking Chronicle

EnviroTrac, Ltd.

Hess-Port Reading, NJ

Job No: JA19940

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JA19940-1	Collected: 02-JUN-09 13:00 By: PA		Received: 02-JUN-09 By:			
7930 SUMP(PE-1)						
JA19940-1	ASTM 4643-00	03-JUN-09	KD			%SOL
JA19940-1	SW846 8260B	03-JUN-09 13:47	TDN			V8260PPL+ 10

Accutest Internal Chain of Custody

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ
Received: 06/02/09

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JA19940-1.1	Secured Storage	Jayna Patel	06/03/09 09:11	Retrieve from Storage
JA19940-1.1	Jayna Patel	Secured Storage	06/03/09 09:20	Return to Storage
JA19940-1.1	Secured Storage	John Thomas	06/03/09 12:31	Retrieve from Storage
JA19940-1.1	John Thomas	Kathleen Dwyer	06/03/09 12:33	Custody Transfer
JA19940-1.1	Kathleen Dwyer	Secured Storage	06/03/09 16:55	Return to Storage
JA19940-1.1	Dave Hunkele		07/02/09 06:52	Disposed
JA19940-1.3	Secured Storage	Clare Tang	06/02/09 16:26	Retrieve from Storage
JA19940-1.3	Clare Tang	Secured Storage	06/02/09 16:31	Return to Storage
JA19940-1.3	Secured Storage	Thien Nguyen	06/03/09 13:18	Retrieve from Storage
JA19940-1.3	Thien Nguyen	Secured Storage	06/03/09 16:36	Return to Storage
JA19940-1.3	Dave Hunkele		07/02/09 06:52	Disposed
JA19940-1.4	Secured Storage	Clare Tang	06/02/09 16:26	Retrieve from Storage
JA19940-1.4	Clare Tang	Secured Storage	06/02/09 16:31	Return to Storage
JA19940-1.4	Dave Hunkele		07/02/09 06:52	Disposed
JA19940-1.5	Secured Storage	Clare Tang	06/02/09 16:26	Retrieve from Storage
JA19940-1.5	Clare Tang	Secured Storage	06/02/09 16:31	Return to Storage
JA19940-1.5	Dave Hunkele		07/02/09 06:52	Disposed

New Jersey
ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD6254-MB1	D155661.D	1	06/03/09	TDN	n/a	n/a	VD6254

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

JA19940-1

CAS No.	Compound	Result	RL	MDL	Units	Q
107-02-8	Acrolein	ND	2500	720	ug/kg	
107-13-1	Acrylonitrile	ND	2500	41	ug/kg	
71-43-2	Benzene	ND	50	17	ug/kg	
75-27-4	Bromodichloromethane	ND	250	13	ug/kg	
75-25-2	Bromoform	ND	250	7.6	ug/kg	
74-83-9	Bromomethane	ND	250	20	ug/kg	
56-23-5	Carbon tetrachloride	ND	250	28	ug/kg	
108-90-7	Chlorobenzene	ND	250	17	ug/kg	
75-00-3	Chloroethane	ND	250	57	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	1300	21	ug/kg	
67-66-3	Chloroform	ND	250	16	ug/kg	
74-87-3	Chloromethane	ND	250	8.3	ug/kg	
124-48-1	Dibromochloromethane	ND	250	5.5	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	250	14	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	250	14	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	250	17	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	250	47	ug/kg	
75-34-3	1,1-Dichloroethane	ND	250	6.9	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	17	ug/kg	
75-35-4	1,1-Dichloroethene	ND	250	33	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	250	12	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	250	22	ug/kg	
78-87-5	1,2-Dichloropropane	ND	250	6.5	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	250	6.7	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	250	4.8	ug/kg	
100-41-4	Ethylbenzene	ND	50	19	ug/kg	
75-09-2	Methylene chloride	ND	250	11	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	250	15	ug/kg	
127-18-4	Tetrachloroethene	ND	250	7.3	ug/kg	
108-88-3	Toluene	ND	50	15	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	250	6.4	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	250	9.3	ug/kg	
79-01-6	Trichloroethene	ND	250	26	ug/kg	
75-69-4	Trichlorofluoromethane	ND	250	11	ug/kg	
75-01-4	Vinyl chloride	ND	250	8.9	ug/kg	
1330-20-7	Xylene (total)	ND	100	23	ug/kg	

Method Blank Summary

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD6254-MB1	D155661.D	1	06/03/09	TDN	n/a	n/a	VD6254

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

JA19940-1

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	93%	67-127%
17060-07-0	1,2-Dichloroethane-D4	99%	65-132%
2037-26-5	Toluene-D8	97%	74-129%
460-00-4	4-Bromofluorobenzene	108%	62-138%

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

Blank Spike Summary

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD6254-BS	D155662.D	1	06/03/09	TDN	n/a	n/a	VD6254

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

JA19940-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
107-02-8	Acrolein	25000	30200	121	20-198
107-13-1	Acrylonitrile	12500	11900	95	61-140
71-43-2	Benzene	2500	2390	96	78-120
75-27-4	Bromodichloromethane	2500	2680	107	76-129
75-25-2	Bromoform	2500	2790	112	70-141
74-83-9	Bromomethane	2500	2810	112	57-142
56-23-5	Carbon tetrachloride	2500	2660	106	66-151
108-90-7	Chlorobenzene	2500	2510	100	80-117
75-00-3	Chloroethane	2500	2750	110	60-142
110-75-8	2-Chloroethyl vinyl ether	12500	11400	91	67-140
67-66-3	Chloroform	2500	2330	93	75-122
74-87-3	Chloromethane	2500	2930	117	56-140
124-48-1	Dibromochloromethane	2500	2730	109	76-136
95-50-1	1,2-Dichlorobenzene	2500	2720	109	77-117
541-73-1	1,3-Dichlorobenzene	2500	2630	105	77-116
106-46-7	1,4-Dichlorobenzene	2500	2540	102	76-113
75-71-8	Dichlorodifluoromethane	2500	2570	103	46-156
75-34-3	1,1-Dichloroethane	2500	2350	94	73-124
107-06-2	1,2-Dichloroethane	2500	2500	100	75-137
75-35-4	1,1-Dichloroethene	2500	2330	93	66-130
156-59-2	cis-1,2-Dichloroethene	2500	2340	94	73-121
156-60-5	trans-1,2-Dichloroethene	2500	2240	90	74-123
78-87-5	1,2-Dichloropropane	2500	2360	94	78-121
10061-01-5	cis-1,3-Dichloropropene	2500	2500	100	81-124
10061-02-6	trans-1,3-Dichloropropene	2500	2550	102	78-130
100-41-4	Ethylbenzene	2500	2650	106	81-121
75-09-2	Methylene chloride	2500	2140	86	69-123
79-34-5	1,1,2,2-Tetrachloroethane	2500	2540	102	71-123
127-18-4	Tetrachloroethene	2500	2680	107	73-134
108-88-3	Toluene	2500	2430	97	79-122
71-55-6	1,1,1-Trichloroethane	2500	2450	98	72-136
79-00-5	1,1,2-Trichloroethane	2500	2350	94	76-123
79-01-6	Trichloroethene	2500	2430	97	80-124
75-69-4	Trichlorofluoromethane	2500	2760	110	55-152
75-01-4	Vinyl chloride	2500	2810	112	59-145
1330-20-7	Xylene (total)	7500	8120	108	80-121

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VD6254-BS	D155662.D	1	06/03/09	TDN	n/a	n/a	VD6254

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

JA19940-1

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	94%	67-127%
17060-07-0	1,2-Dichloroethane-D4	97%	65-132%
2037-26-5	Toluene-D8	99%	74-129%
460-00-4	4-Bromofluorobenzene	106%	62-138%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JA19738-12MS	D155680.D	1	06/03/09	TDN	n/a	n/a	VD6254
JA19738-12MSD	D155681.D	1	06/03/09	TDN	n/a	n/a	VD6254
JA19738-12	D155664.D	1	06/03/09	TDN	n/a	n/a	VD6254

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

JA19940-1

CAS No.	Compound	JA19738-12 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
107-02-8	Acrolein	ND		30900	31100	101	30500	99	2	1-182/41
107-13-1	Acrylonitrile	ND		15500	13000	84	13000	84	0	37-147/26
71-43-2	Benzene	ND		3090	2750	89	2640	85	4	41-136/24
75-27-4	Bromodichloromethane	ND		3090	2810	91	2730	88	3	37-150/23
75-25-2	Bromoform	ND		3090	2890	93	2920	94	1	31-153/24
74-83-9	Bromomethane	ND		3090	2900	94	2690	87	8	4-154/32
56-23-5	Carbon tetrachloride	ND		3090	2830	91	2700	87	5	27-165/26
108-90-7	Chlorobenzene	ND		3090	2760	89	2670	86	3	33-140/26
75-00-3	Chloroethane	ND		3090	2630	85	2460	80	7	5-151/33
110-75-8	2-Chloroethyl vinyl ether	ND		15500	14400	93	14200	92	1	36-150/27
67-66-3	Chloroform	ND		3090	2530	82	2430	79	4	44-135/24
74-87-3	Chloromethane	ND		3090	2950	95	3160	102	7	27-149/27
124-48-1	Dibromochloromethane	ND		3090	2980	96	2940	95	1	35-154/23
95-50-1	1,2-Dichlorobenzene	ND		3090	2860	92	2800	90	2	20-146/29
541-73-1	1,3-Dichlorobenzene	ND		3090	2800	90	2730	88	3	19-147/30
106-46-7	1,4-Dichlorobenzene	ND		3090	2710	88	2640	85	3	19-143/30
75-71-8	Dichlorodifluoromethane	ND		3090	3020	98	2900	94	4	17-170/25
75-34-3	1,1-Dichloroethane	ND		3090	2600	84	2490	80	4	45-135/24
107-06-2	1,2-Dichloroethane	ND		3090	2680	87	2620	85	2	44-143/23
75-35-4	1,1-Dichloroethene	ND		3090	2700	87	2560	83	5	32-149/26
156-59-2	cis-1,2-Dichloroethene	ND		3090	2600	84	2500	81	4	42-135/25
156-60-5	trans-1,2-Dichloroethene	ND		3090	2610	84	2470	80	6	37-140/25
78-87-5	1,2-Dichloropropane	ND		3090	2680	87	2620	85	2	45-136/23
10061-01-5	cis-1,3-Dichloropropene	ND		3090	2750	89	2670	86	3	37-143/26
10061-02-6	trans-1,3-Dichloropropene	ND		3090	2790	90	2720	88	3	34-148/26
100-41-4	Ethylbenzene	ND		3090	2990	97	2910	94	3	28-147/27
75-09-2	Methylene chloride	ND		3090	2470	80	2390	77	3	39-138/24
79-34-5	1,1,2,2-Tetrachloroethane	ND		3090	2740	89	2680	87	2	35-136/25
127-18-4	Tetrachloroethene	ND		3090	2960	96	2840	92	4	27-164/28
108-88-3	Toluene	ND		3090	2840	92	2710	88	5	32-145/26
71-55-6	1,1,1-Trichloroethane	ND		3090	2660	86	2530	82	5	36-150/24
79-00-5	1,1,2-Trichloroethane	ND		3090	2580	83	2510	81	3	37-147/23
79-01-6	Trichloroethene	ND		3090	2710	88	2600	84	4	34-149/25
75-69-4	Trichlorofluoromethane	ND		3090	3440	111	3260	105	5	25-160/27
75-01-4	Vinyl chloride	ND		3090	3320	107	3200	103	4	29-152/26
1330-20-7	Xylene (total)	ND		9280	8990	97	8770	94	2	24-150/28

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JA19738-12MS	D155680.D	1	06/03/09	TDN	n/a	n/a	VD6254
JA19738-12MSD	D155681.D	1	06/03/09	TDN	n/a	n/a	VD6254
JA19738-12	D155664.D	1	06/03/09	TDN	n/a	n/a	VD6254

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

JA19940-1

CAS No.	Surrogate Recoveries	MS	MSD	JA19738-12	Limits
1868-53-7	Dibromofluoromethane	92%	92%	92%	67-127%
17060-07-0	1,2-Dichloroethane-D4	92%	91%	98%	65-132%
2037-26-5	Toluene-D8	100%	99%	97%	74-129%
460-00-4	4-Bromofluorobenzene	106%	103%	107%	62-138%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample:	VD6218-BFB	**Injection Date:**	05/12/09
Lab File ID:	D154831.D	**Injection Time:**	10:33
Instrument ID:	GCMSD		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	21845	21.9		Pass
75	30.0 - 60.0% of mass 95	52048	52.2		Pass
95	Base peak, 100% relative abundance	99640	100.0		Pass
96	5.0 - 9.0% of mass 95	6810	6.8		Pass
173	Less than 2.0% of mass 174	0	0.0	(0.0) [a]	Pass
174	50.0 - 120.0% of mass 95	85808	86.1		Pass
175	5.0 - 9.0% of mass 174	6131	6.2	(7.1) [a]	Pass
176	95.0 - 101.0% of mass 174	83667	84.0	(97.5) [a]	Pass
177	5.0 - 9.0% of mass 176	5533	5.6	(6.6) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VD6218-IC6218	D154832.D	05/12/09	11:00	00:27	Initial cal 0.5
VD6218-IC6218	D154833.D	05/12/09	11:30	00:57	Initial cal 1
VD6218-IC6218	D154835.D	05/12/09	12:28	01:55	Initial cal 5
VD6218-IC6218	D154836.D	05/12/09	12:57	02:24	Initial cal 20
VD6218-ICC6218	D154837.D	05/12/09	13:27	02:54	Initial cal 50
VD6218-IC6218	D154838.D	05/12/09	13:56	03:23	Initial cal 100
VD6218-IC6218	D154839.D	05/12/09	14:25	03:52	Initial cal 200
VD6218-IC6218	D154843.D	05/12/09	16:22	05:49	Initial cal 2

Instrument Performance Check (BFB)

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample:	VD6254-BFB	**Injection Date:**	06/03/09
Lab File ID:	D155658.D	**Injection Time:**	08:41
Instrument ID:	GCMSD		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	18544	23.0		Pass
75	30.0 - 60.0% of mass 95	43435	53.9		Pass
95	Base peak, 100% relative abundance	80579	100.0		Pass
96	5.0 - 9.0% of mass 95	5379	6.7		Pass
173	Less than 2.0% of mass 174	0	0.0	(0.0) [a]	Pass
174	50.0 - 120.0% of mass 95	67544	83.8		Pass
175	5.0 - 9.0% of mass 174	5139	6.4	(7.6) [a]	Pass
176	95.0 - 101.0% of mass 174	65555	81.4	(97.1) [a]	Pass
177	5.0 - 9.0% of mass 176	4362	5.4	(6.7) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VD6254-CC6218	D155659.D	06/03/09	09:09	00:28	Continuing cal 20
VD6254-MB1	D155661.D	06/03/09	10:14	01:33	Method Blank
VD6254-BS	D155662.D	06/03/09	10:50	02:09	Blank Spike
JA19738-12	D155664.D	06/03/09	11:49	03:08	(used for QC only; not part of job JA19940)
ZZZZZZ	D155665.D	06/03/09	12:19	03:38	(unrelated sample)
ZZZZZZ	D155666.D	06/03/09	12:48	04:07	(unrelated sample)
JA19940-1	D155668.D	06/03/09	13:47	05:06	7930 SUMP(PE-1)
ZZZZZZ	D155669.D	06/03/09	14:16	05:35	(unrelated sample)
ZZZZZZ	D155670.D	06/03/09	14:45	06:04	(unrelated sample)
ZZZZZZ	D155671.D	06/03/09	15:15	06:34	(unrelated sample)
ZZZZZZ	D155673.D	06/03/09	16:14	07:33	(unrelated sample)
ZZZZZZ	D155674.D	06/03/09	16:43	08:02	(unrelated sample)
ZZZZZZ	D155675.D	06/03/09	17:12	08:31	(unrelated sample)
ZZZZZZ	D155676.D	06/03/09	17:42	09:01	(unrelated sample)
ZZZZZZ	D155677.D	06/03/09	18:11	09:30	(unrelated sample)
ZZZZZZ	D155678.D	06/03/09	18:40	09:59	(unrelated sample)
ZZZZZZ	D155679.D	06/03/09	19:09	10:28	(unrelated sample)
JA19738-12MS	D155680.D	06/03/09	19:39	10:58	Matrix Spike
JA19738-12MSD	D155681.D	06/03/09	20:08	11:27	Matrix Spike Duplicate
ZZZZZZ	D155682.D	06/03/09	20:37	11:56	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Check Std:	VD6254-CC6218	**Injection Date:**	06/03/09
Lab File ID:	D155659.D	**Injection Time:**	09:09
Instrument ID:	GCMSD	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	137819	7.55	228068	9.80	326186	10.71	298618	14.05	182716	16.63
Upper Limit [a]	275638	8.05	456136	10.30	652372	11.21	597236	14.55	365432	17.13
Lower Limit [b]	68910	7.05	114034	9.30	163093	10.21	149309	13.55	91358	16.13

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VD6254-MB1	130620	7.56	229210	9.80	327288	10.71	296904	14.05	174894	16.63
VD6254-BS	155211	7.56	231513	9.81	334214	10.71	307470	14.05	187210	16.63
JA19738-12	139314	7.56	234302	9.80	335223	10.71	302468	14.05	178738	16.64
ZZZZZZ	140401	7.56	226317	9.81	326019	10.71	320640	14.05	197638	16.64
ZZZZZZ	151842	7.55	228439	9.81	327381	10.71	314173	14.05	200423	16.63
JA19940-1 [c]	122660	7.56	239448	9.80	336856	10.71	319847	14.05	199460	16.63
ZZZZZZ	145683	7.59	238413	9.80	341303	10.71	329168	14.05	210637	16.64
ZZZZZZ	156953	7.55	231327	9.81	333815	10.71	322925	14.05	212590	16.64
ZZZZZZ	155599	7.55	236272	9.81	332030	10.71	320173	14.05	209929	16.64
ZZZZZZ	152190	7.56	239092	9.80	345212	10.71	326887	14.05	212911	16.63
ZZZZZZ	151123	7.56	238488	9.80	344422	10.71	330737	14.05	207111	16.64
ZZZZZZ	154109	7.56	234691	9.80	337748	10.71	323378	14.05	212468	16.64
ZZZZZZ	156688	7.56	234078	9.80	338638	10.71	323633	14.05	215818	16.64
ZZZZZZ	154866	7.56	238118	9.81	344999	10.71	342367	14.05	213248	16.64
ZZZZZZ	157022	7.55	244134	9.80	353013	10.71	337179	14.05	219614	16.63
ZZZZZZ	158629	7.55	244660	9.80	354570	10.71	340034	14.05	210344	16.64
JA19738-12MS	157005	7.56	251535	9.80	363257	10.71	339868	14.05	208105	16.64
JA19738-12MSD	156345	7.56	252864	9.81	364499	10.71	335467	14.05	210989	16.64
ZZZZZZ	160810	7.55	245844	9.81	353388	10.71	337013	14.05	211068	16.64

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

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Dilution required due to matrix interference.

Volatile Surrogate Recovery Summary

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Method: SW846 8260B **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JA19940-1	D155668.D	90.0	93.0	101.0	107.0
JA19738-12MS	D155680.D	92.0	92.0	100.0	106.0
JA19738-12MSD	D155681.D	92.0	91.0	99.0	103.0
VD6254-BS	D155662.D	94.0	97.0	99.0	106.0
VD6254-MB1	D155661.D	93.0	99.0	97.0	108.0

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	67-127%
S2 = 1,2-Dichloroethane-D4	65-132%
S3 = Toluene-D8	74-129%
S4 = 4-Bromofluorobenzene	62-138%

Initial Calibration Summary

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample: VD6218-ICC6218
Lab FileID: D154837.D

Response Factor Report MSD

Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
Title : SW-846 Method 8260B
Last Update : Wed May 13 09:50:38 2009
Response via : Initial Calibration

Calibration Files
5 =D154835.D 2 =D154843.D 0.5 =D154832.D 50 =D154837.D
100 =D154838.D 1 =D154833.D 200 =D154839.D 20 =D154836.D

Compound	5	2	0.5	50	100	1	200	20	Avg	%RSD
1) I Tert Butyl Alcohol-d9					ISTD					
2) 1,4-dioxane	0.141	0.119		0.116	0.124	0.135	0.124	0.128	0.127	6.88
3) tertiary but	1.434	1.681		1.208	1.252		1.268	1.231	1.346	13.60
4) I pentafluorobenzene					ISTD					
5) 1,2-dichloro									0.000#	-1.00
6) chlorodifluo	0.850	0.837		0.683	0.675		0.657	0.697	0.733	11.82
7) dichlorodifl	1.013	1.193		1.029	1.055	1.076	0.912	1.007	1.041	8.16
8) chloromethan	1.233			1.069	1.139		0.962	1.096	1.100	9.00
9) vinyl chlori	1.101			1.047	1.130		1.013	1.054	1.069	4.33
10) bromomethane	0.714			0.653	0.677		0.494	0.674	0.643	13.37
11) chloroethane	0.688			0.601	0.627		0.502	0.636	0.611	11.24
12) trichloroflu	1.180			1.207	1.310		1.192	1.190	1.216	4.42
13) ethyl ether	0.501	0.542	0.479	0.413	0.433	0.532	0.439	0.439	0.472	10.27
14) acrolein	0.193	0.193	0.187	0.138		0.190		0.169	0.178	12.21
15) chlorotriflu									0.000#	-1.00
16) 1,1-dichloro	0.671	0.720	0.609	0.572	0.626	0.665	0.619	0.606	0.636	7.39
17) acetone	0.092			0.072	0.073		0.076	0.072	0.077	10.86
18) allyl chlori	1.419	1.717	1.479	1.204	1.288	1.569	1.332	1.260	1.408	12.30
19) acetonitrile	0.074			0.058	0.058		0.057	0.060	0.061	11.63
20) acetaldehyde									0.000#	-1.00
21) iodomethane	1.145	1.230	1.158	1.002	1.087	1.181	1.078	1.074	1.119	6.49
22) iso-butyl al	0.102	0.096		0.094	0.109	0.093	0.107	0.102	0.100	6.25
23) carbon disul	2.440	2.510	2.478	2.106	2.265	2.420	2.233	2.233	2.336	6.22
24) methylene ch	0.915			0.733	0.779		0.763	0.812	0.800	8.76
25) methyl aceta	0.589	0.622		0.582	0.590	0.664	0.606	0.587	0.606	4.81
26) methyl tert	2.369	2.612	2.426	2.105	2.231	2.443	2.227	2.195	2.326	7.13
27) trans-1,2-di	0.727	0.760	0.728	0.606	0.651	0.729	0.641	0.642	0.686	8.25
28) di-isopropyl	2.487	2.726		2.230	2.274	2.758	2.279	2.286	2.434	9.27
29) ethyl tert-b	2.303	2.451	1.675	2.156	2.255	2.563	2.256	2.157	2.227	11.81
30) 2-butanone	0.087	0.102		0.084	0.089		0.091	0.089	0.090	6.90
31) 1,1-dichloro	1.358	1.455	1.438	1.148	1.216	1.335	1.197	1.227	1.297	8.93
32) chloroprene	1.056	1.098		1.003	1.042	1.124	1.047	0.999	1.053	4.35
33) acrylonitril	0.355	0.360		0.292	0.303	0.379	0.309	0.307	0.330	10.39
34) vinyl acetat	0.104			0.118	0.137		0.142	0.124	0.125	12.03
35) ethyl acetat	0.122			0.087	0.091		0.093	0.090	0.097	14.96
36) 2,2-dichloro	1.167	1.180	1.074	0.972	1.054	1.124	1.014	1.030	1.077	6.91
37) cis-1,2-dich	0.744	0.820	0.726	0.647	0.682	0.768	0.685	0.676	0.719	7.96
38) propionitril	0.140	0.155		0.114	0.117	0.145	0.120	0.120	0.130	12.45
39) bromochlorom	0.367	0.395	0.331	0.312	0.330	0.379	0.331	0.329	0.347	8.49
40) tetrahydrofu	0.340	0.277		0.274	0.276		0.287	0.281	0.289	8.80
41) chloroform	1.255	1.369	1.335	1.059	1.117	1.276	1.093	1.119	1.203	9.95
42) dibromofluor	0.625	0.559		0.490	0.554	0.676	0.560	0.522	0.569	10.98
43) 1,2-dichloro	0.857	0.784		0.671	0.748	0.911	0.737	0.712	0.774	10.84
44) freon 113	0.556	0.600		0.498	0.523	0.633	0.514	0.494	0.546	9.79
45) methacryloni	0.517	0.543		0.465	0.492	0.461	0.501	0.480	0.494	5.91

Initial Calibration Summary

Job Number: JA19940 **Sample:** VD6218-ICC6218
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** D154837.D
Project: Hess-Port Reading, NJ

46)	t-butyl form	0.587	0.620		0.599	0.633	0.677	0.653	0.580	0.621	5.74
47)	1,1,1-trichl	1.095	1.189	1.036	0.963	1.029	1.098	0.984	0.995	1.049	7.15
48)	tert-amyl me	2.128	2.408	1.601	1.987	2.100	2.477	2.110	1.992	2.100	12.87
49)	I 1,4-difluorobenzene	----------ISTD----------									
50)	Di-isobutyle									0.000#	-1.00
51)	tert amyl al	0.149	0.146		0.119	0.123	0.129	0.116	0.136	0.131	10.02
52)	2,2,4-trimet									0.000#	-1.00
53)	epichlorohyd	0.062			0.056	0.056		0.059	0.056	0.058	4.68
54)	n-butyl alco	0.015	0.012		0.015	0.015	0.015	0.017	0.015	0.015	10.51
55)	carbon tetra	0.609	0.634	0.567	0.561	0.600	0.611	0.585	0.569	0.592	4.35
56)	1,1-dichloro	0.636	0.660	0.598	0.563	0.598	0.619	0.592	0.583	0.606	5.11
57)	hexane	0.604	0.612		0.580	0.613	0.626	0.600	0.564	0.600	3.55
58)	benzene	1.918	1.989	1.893	1.603	1.694	1.898	1.673	1.695	1.795	8.01
59)	heptane	0.327	0.353		0.309	0.337	0.332	0.325	0.307	0.327	4.92
60)	isopropyl ac	0.904	0.955	0.683	0.867	0.887	0.980	0.918	0.856	0.881	10.25
61)	1,2-dichloro	0.716	0.763	0.741	0.610	0.634	0.738	0.630	0.635	0.683	9.04
62)	trichloroeth	0.453	0.475	0.528	0.390	0.421	0.460	0.421	0.410	0.445	9.87
63)	2-nitropropa	0.122			0.126	0.141		0.151	0.113	0.131	11.62
64)	2-chloroethy	0.355	0.353		0.330	0.327	0.358	0.322	0.333	0.340	4.38
65)	methyl metha	0.554	0.537		0.541	0.569	0.512	0.571	0.536	0.546	3.79
66)	tert-amyl et	0.630	0.593		0.603	0.710	0.477	0.656	0.633	0.615	11.67
67)	1,2-dichloro	0.523	0.554	0.514	0.446	0.476	0.528	0.470	0.473	0.498	7.39
68)	methylcycloh	0.790	0.832		0.741	0.785	0.831	0.778	0.727	0.783	5.12
69)	dibromometha	0.304	0.310	0.303	0.261	0.275	0.309	0.276	0.279	0.289	6.53
70)	bromodichlor	0.577	0.608	0.586	0.541	0.577	0.583	0.577	0.556	0.576	3.52
71)	cis-1,3-dich	0.783	0.803	0.784	0.719	0.760	0.737	0.753	0.753	0.762	3.59
72)	toluene-d8 (	1.577	1.347		1.294	1.453	1.686	1.446	1.352	1.451	9.60
73)	4-methyl-2-p	0.226	0.234		0.205	0.211	0.194	0.218	0.214	0.214	6.10
74)	toluene	1.183	1.197	0.969	1.033	1.093	1.045	1.072	1.083	1.084	6.98
75)	3-methyl-1-b	0.014	0.013		0.015	0.015	0.013	0.017	0.014	0.014	9.09
76)	trans-1,3-di	0.752	0.801	0.657	0.723	0.762	0.696	0.753	0.732	0.735	5.97
77)	ethyl methac	0.520	0.505		0.570	0.598		0.608	0.553	0.559	7.38
78)	1,1,2-trichl	0.385	0.423	0.381	0.335	0.346	0.377	0.346	0.350	0.368	7.93
79)	2-hexanone	0.170	0.162		0.187	0.197		0.212	0.179	0.184	10.00
80)	I chlorobenzene-d5	----------ISTD----------									
81)	tetrachloroe	0.523	0.533	0.481	0.437	0.467	0.514	0.457	0.468	0.485	7.11
82)	1,3-dichloro	0.825	0.852	0.761	0.703	0.729	0.780	0.717	0.738	0.763	6.94
83)	butyl acetat	0.273	0.238		0.310	0.322		0.337	0.292	0.295	12.25
84)	3,3-dimethyl	0.041	0.044		0.048	0.051	0.047	0.059	0.045	0.048	11.88
85)	dibromochlor	0.458	0.447	0.403	0.427	0.462	0.434	0.464	0.439	0.442	4.66
86)	1,2-dibromoe	0.467	0.477	0.401	0.403	0.424	0.417	0.427	0.416	0.429	6.61
87)	chlorobenzen	1.367	1.442	1.346	1.140	1.206	1.396	1.204	1.213	1.289	8.60
88)	1,1,1,2-tetr	0.466	0.499	0.427	0.418	0.455	0.465	0.465	0.440	0.454	5.69
89)	ethylbenzene	2.305	2.339	1.965	2.029	2.181	2.106	2.136	2.141	2.150	5.88
90)	m,p-xylene	0.883	0.896	0.708	0.776	0.838	0.781	0.845	0.817	0.818	7.55
91)	o-xylene	0.864	0.858	0.616	0.770	0.835	0.725	0.856	0.808	0.792	10.86
92)	styrene	1.325	1.271		1.346	1.479	1.051	1.512	1.368	1.336	11.36
93)	bromoform	0.327	0.348		0.329	0.362		0.379	0.329	0.346	6.26
94)	I 1,4-dichlorobenzene-d	----------ISTD----------									
95)	isopropylben	3.606	3.565	2.661	3.337	3.583	2.911	3.630	3.448	3.343	10.86
96)	4-bromofluor	1.099	0.901		0.888	1.025	1.031	1.090	0.917	0.993	9.04
97)	bromobenzene	1.019	1.067	0.901	0.888	0.946	1.009	0.989	0.922	0.968	6.53
98)	cyclohexanon	0.031	0.033		0.033	0.037		0.039	0.033	0.034	9.33
99)	1,1,2,2-tetr	1.177	1.279	1.052	0.972	1.008	1.161	1.053	1.000	1.088	9.81
100)	trans-1,4-di	0.337	0.369		0.323	0.342	0.329	0.365	0.326	0.341	5.47
101)	1,2,3-trichl	0.321	0.357	0.318	0.264	0.272	0.316	0.285	0.273	0.301	10.79
102)	n-propylbenz	4.536	4.597	3.442	4.084	4.379	3.791	4.359	4.235	4.178	9.41

Initial Calibration Summary

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample: VD6218-ICC6218
Lab FileID: D154837.D

103)	p-ethyltolue	3.696	3.626	3.062	3.284	3.901	2.711	3.579	3.617	3.435	11.34
104)	2-chlorotolu	0.977	1.014	0.812	0.827	0.903	0.873	0.942	0.854	0.900	8.05
105)	4-chlorotolu	2.947	3.164	2.619	2.542	2.725	2.792	2.754	2.675	2.777	7.11
106)	1,3,5-trimet	3.387	3.475	2.814	2.956	3.127	3.025	3.166	3.037	3.123	7.01
107)	tert-butylbe	2.671	2.703	2.018	2.432	2.634	2.177	2.690	2.512	2.480	10.37
108)	pentachloroe	0.618	0.620	0.503	0.575	0.633	0.528	0.672	0.576	0.591	9.47
109)	1,2,4-trimet	3.406	3.470	2.452	3.048	3.307	2.847	3.373	3.163	3.133	10.98
110)	sec-butylben	4.118	4.238	3.241	3.700	3.994	3.546	3.911	3.848	3.824	8.43
111)	1,3-dichloro	1.962	2.137	2.017	1.684	1.788	2.064	1.813	1.754	1.902	8.63
112)	p-isopropylt	3.333	3.353	2.335	3.076	3.330	2.805	3.329	3.179	3.092	11.61
113)	1,4-dichloro	2.139	2.397	2.240	1.756	1.848	2.277	1.866	1.856	2.047	11.89
114)	p-diethylben	2.013	1.880		1.861	2.191	1.417	1.991	1.996	1.907	12.67
115)	1,2-dichloro	1.924	2.097	1.831	1.609	1.695	1.953	1.714	1.710	1.817	9.03
116)	n-butylbenze	1.959	1.965	1.413	1.711	1.847	1.647	1.830	1.788	1.770	10.23
117)	1,2,4,5-tetr	2.905	2.596		2.804	3.298		3.037	2.975	2.936	8.01
118)	1,2-dibromo-	0.183	0.201	0.128	0.175	0.184	0.186	0.195	0.173	0.178	12.54
119)	1,2,4-trichl	1.184	1.324	1.228	1.128	1.227	1.165	1.285	1.143	1.210	5.68
120)	hexachlorobu	0.681	0.768	0.743	0.606	0.666	0.737	0.681	0.629	0.689	8.26
121)	naphthalene	2.513	2.665	2.457	2.426	2.559	2.494	2.706	2.396	2.527	4.38
122)	1,2,3-trichl	0.993	1.118	1.047	0.915	0.986	1.013	1.041	0.920	1.004	6.70
123)	hexachloroet	0.546	0.599	0.526	0.531	0.595	0.528	0.620	0.540	0.561	6.73
124)	Cyclohexane	1.206	1.243	1.111	1.068	1.157	1.118	1.137	1.091	1.141	5.15

(#) = Out of Range ### Number of calibration levels exceeded format ###

MD6218.M Fri May 15 08:56:38 2009 MSD

6.7.1

6

Initial Calibration Verification

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample: VD6220-ICV6218
Lab FileID: D154876.D

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\D154876.D Vial: 6
Acq On : 13 May 2009 11:49 am Operator: thienn
Sample : icv6218-50 Inst : MSD
Misc : MS79702,VD6220,5,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
Title : SW-846 Method 8260B
Last Update : Wed May 13 09:50:38 2009
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	110	0.00	7.57
2	M	1,4-dioxane	0.127	0.114	10.2	109	0.00	11.42
3	M	tertiary butyl alcohol	1.346	1.233	8.4	113	0.00	7.67
4	I	pentafluorobenzene	1.000	1.000	0.0	99	0.00	9.80
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.733	0.695	5.2	101	0.00	4.24
7	M	dichlorodifluoromethane	1.041	1.002	3.7	96	0.00	4.25
8	M	chloromethane	1.100	1.052	4.4	98	0.00	4.56
9	M	vinyl chloride	1.069	1.047	2.1	99	0.00	4.82
10	M	bromomethane	0.643	0.650	-1.1	99	0.00	5.47
11	M	chloroethane	0.611	0.602	1.5	99	0.00	5.66
12	M	trichlorofluoromethane	1.216	1.229	-1.1	101	0.00	6.16
13	M	ethyl ether	0.472	0.452	4.2	108	0.00	6.55
14	M	acrolein	0.178	0.160	10.1	116	0.00	6.71
15	M	chlorotrifluoroethene		----------NA----------				
16	M	1,1-dichloroethene	0.636	0.602	5.3	104	0.00	6.96
17	M	acetone	0.077	0.090	-16.9	123	0.01	6.94
18	M	allyl chloride	1.408	1.378	2.1	114	0.00	7.45
19	M	acetonitrile	0.061	0.062	-1.6	107	0.01	7.31
20	M	acetaldehyde		----------NA----------				
21	M	iodomethane	1.119	1.092	2.4	108	0.00	7.21
22	M	iso-butyl alcohol	0.100	0.112	-12.0	118	0.00	10.01
23	M	carbon disulfide	2.336	2.073	11.3	98	0.00	7.37
24	M	methylene chloride	0.800	0.784	2.0	106	0.00	7.61
25	M	methyl acetate	0.606	0.624	-3.0	106	0.00	7.42
26	M	methyl tert butyl ether	2.326	2.306	0.9	109	0.00	8.01
27	M	trans-1,2-dichloroethene	0.686	0.649	5.4	106	0.00	8.02
28	M	di-isopropyl ether	2.434	2.379	2.3	106	0.00	8.62
29	M	ethyl tert-butyl ether	2.227	2.294	-3.0	105	0.00	9.08
30	M	2-butanone	0.090	0.092	-2.2	108	0.00	9.21
31	M	1,1-dichloroethane	1.297	1.273	1.9	110	0.00	8.55
32	M	chloroprene	1.053	1.060	-0.7	105	0.00	8.69
33	M	acrylonitrile	0.330	0.339	-2.7	115	0.00	7.87
34	M	vinyl acetate	0.125	0.135	-8.0	114	0.00	8.55
35	M	ethyl acetate	0.097	0.095	2.1	109	0.00	9.27
36	M	2,2-dichloropropane	1.077	1.126	-4.5	115	0.00	9.31
37	M	cis-1,2-dichloroethene	0.719	0.731	-1.7	112	0.00	9.27
38	M	propionitrile	0.130	0.133	-2.3	115	0.00	9.24
39	M	bromochloromethane	0.347	0.348	-0.3	110	0.00	9.56
40	M	tetrahydrofuran	0.289	0.307	-6.2	111	0.00	9.64
41	M	chloroform	1.203	1.173	2.5	110	0.00	9.62

Initial Calibration Verification

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample: VD6220-ICV6218
Lab FileID: D154876.D

42	S	dibromofluoromethane (s)	0.569	0.567	0.4	115	0.00	9.81
43	S	1,2-dichloroethane-d4 (s)	0.774	0.764	1.3	113	0.00	10.23
44	M	freon 113	0.546	0.518	5.1	103	0.00	6.97
45	M	methacrylonitrile	0.494	0.512	-3.6	109	0.00	9.47
46	m	t-butyl formate	0.621	0.668	-7.6	111	0.00	9.70
47	M	1,1,1-trichloroethane	1.049	1.048	0.1	108	0.00	9.94
48	M	tert-amyl methyl ether	2.100	2.371	-12.9	118	0.00	10.43
49	I	1,4-difluorobenzene	1.000	1.000	0.0	98	0.00	10.71
50	M	Di-isobutylene		----------NA----------				
51		tert amyl alcohol	0.131	0.137	-4.6	113	0.00	10.19
52	M	2,2,4-trimethylpentane		----------NA----------				
53	M	epichlorohydrin	0.058	0.062	-6.9	107	0.00	11.93
54	M	n-butyl alcohol	0.015	0.017	-13.3	108	0.00	10.78
55	M	carbon tetrachloride	0.592	0.617	-4.2	108	0.00	10.16
56	M	1,1-dichloropropene	0.606	0.623	-2.8	109	0.00	10.11
57	M	hexane	0.600	0.637	-6.2	108	0.00	8.40
58	M	benzene	1.795	1.781	0.8	109	0.00	10.36
59	M	heptane	0.327	0.350	-7.0	111	0.00	10.61
60	M	isopropyl acetate	0.881	0.956	-8.5	108	0.00	10.27
61	M	1,2-dichloroethane	0.683	0.670	1.9	108	0.00	10.32
62	M	trichloroethene	0.445	0.438	1.6	110	0.00	11.08
63	M	2-nitropropane	0.131	0.155	-18.3	121	0.00	11.76
64	M	2-chloroethyl vinyl ether	0.340	0.347	-2.1	103	0.00	11.84
65	M	methyl methacrylate	0.546	0.567	-3.8	103	0.00	11.34
66	M	tert-amyl ethyl ether	0.615	0.679	-10.4	110	0.00	11.29
67	M	1,2-dichloropropane	0.498	0.499	-0.2	110	0.00	11.31
68	M	methylcyclohexane	0.783	0.820	-4.7	108	0.00	11.37
69	M	dibromomethane	0.289	0.293	-1.4	110	0.00	11.45
70	M	bromodichloromethane	0.576	0.619	-7.5	112	0.00	11.58
71	M	cis-1,3-dichloropropene	0.762	0.815	-7.0	111	0.00	12.08
72	S	toluene-d8 (s)	1.451	1.510	-4.1	114	0.00	12.43
73	M	4-methyl-2-pentanone	0.214	0.236	-10.3	112	0.00	12.18
74	M	toluene	1.084	1.130	-4.2	107	0.00	12.51
75	M	3-methyl-1-butanol	0.014	0.017	-21.4#	111	0.00	12.18
76	M	trans-1,3-dichloropropene	0.735	0.802	-9.1	109	0.00	12.65
77	M	ethyl methacrylate	0.559	0.726	-29.9#	125	0.00	12.70
78	M	1,1,2-trichloroethane	0.368	0.373	-1.4	109	0.00	12.88
79	M	2-hexanone	0.184	0.224	-21.7#	118	0.00	13.09
80	I	chlorobenzene-d5	1.000	1.000	0.0	95	0.00	14.05
81	M	tetrachloroethene	0.485	0.492	-1.4	107	0.00	13.16
82	M	1,3-dichloropropane	0.763	0.792	-3.8	107	0.00	13.08
83	M	butyl acetate	0.295	0.343	-16.3	105	0.00	13.20
84	m	3,3-dimethyl-1-butanol	0.048	0.058	-20.8#	114	0.00	13.27
85	M	dibromochloromethane	0.442	0.467	-5.7	104	0.00	13.37
86	M	1,2-dibromoethane	0.429	0.451	-5.1	106	0.00	13.54
87	M	chlorobenzene	1.289	1.297	-0.6	108	0.00	14.09
88	M	1,1,1,2-tetrachloroethane	0.454	0.481	-5.9	109	0.00	14.14
89	M	ethylbenzene	2.150	2.257	-5.0	106	0.00	14.17
90	M	m,p-xylene	0.818	0.876	-7.1	107	0.00	14.29
91	M	o-xylene	0.792	0.886	-11.9	109	0.00	14.75
92	M	styrene	1.336	1.498	-12.1	106	0.00	14.75
93	M	bromoform	0.346	0.379	-9.5	109	0.00	14.99
94	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	97	0.00	16.63
95	M	isopropylbenzene	3.343	3.138	6.1	91	0.00	15.14
96	S	4-bromofluorobenzene (s)	0.993	1.006	-1.3	110	0.00	15.33
97	M	bromobenzene	0.968	0.962	0.6	105	0.00	15.55
98	M	cyclohexanone	0.034	0.053	-55.9#	158	0.00	15.24

Initial Calibration Verification

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample: VD6220-ICV6218
Lab FileID: D154876.D

99	M	1,1,2,2-tetrachloroethane	1.088	1.081	0.6	108	0.00	15.39
100	M	trans-1,4-dichloro-2-bute	0.341	0.401	-17.6	121	0.00	15.45
101	M	1,2,3-trichloropropane	0.301	0.324	-7.6	120	0.00	15.48
102	M	n-propylbenzene	4.178	4.375	-4.7	104	0.00	15.59
103	M	p-ethyltoluene	3.435	3.495	-1.7	103	0.00	15.71
104	M	2-chlorotoluene	0.900	0.919	-2.1	108	0.00	15.74
105	M	4-chlorotoluene	2.777	2.814	-1.3	108	0.00	15.84
106	M	1,3,5-trimethylbenzene	3.123	3.196	-2.3	105	0.00	15.76
107	M	tert-butylbenzene	2.480	2.744	-10.6	110	0.00	16.16
108	M	pentachloroethane	0.591	0.658	-11.3	111	0.00	16.21
109	M	1,2,4-trimethylbenzene	3.133	3.369	-7.5	107	0.00	16.20
110	M	sec-butylbenzene	3.824	4.144	-8.4	109	0.00	16.40
111	M	1,3-dichlorobenzene	1.902	1.923	-1.1	111	0.00	16.58
112	M	p-isopropyltoluene	3.092	3.544	-14.6	112	0.00	16.53
113	M	1,4-dichlorobenzene	2.047	2.000	2.3	111	0.00	16.67
114	M	p-diethylbenzene	1.907	2.041	-7.0	107	0.00	16.95
115	M	1,2-dichlorobenzene	1.817	1.850	-1.8	112	0.00	17.09
116	M	n-butylbenzene	1.770	1.945	-9.9	111	0.00	16.99
117	M	1,2,4,5-tetramethylbenzen	2.936	3.099	-5.6	108	0.00	17.82
118	M	1,2-dibromo-3-chloropropa	0.178	0.216	-21.3#	120	0.00	17.90
119	M	1,2,4-trichlorobenzene	1.210	1.316	-8.8	113	0.00	18.87
120	M	hexachlorobutadiene	0.689	0.676	1.9	109	0.00	19.05
121	M	naphthalene	2.527	2.976	-17.8	119	0.00	19.18
122	M	1,2,3-trichlorobenzene	1.004	1.150	-14.5	122	0.00	19.46
123	M	hexachloroethane	0.561	0.637	-13.5	117	0.00	17.42
124	M	Cyclohexane	1.141	1.213	-6.3	110	0.00	10.06

(#) = Out of Range SPCC's out = 0 CCC's out = 0
D154837.D MD6218.M Fri May 15 09:12:11 2009 MSD

6.7.2

6

Continuing Calibration Summary

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample: VD6254-CC6218
Lab FileID: D155659.D

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\D155659.D Vial: 2
Acq On : 3 Jun 2009 9:09 am Operator: thienn
Sample : cc6218-20 Inst : MSD
Misc : MS80849,VD6254,5,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
Title : SW-846 Method 8260B
Last Update : Tue May 26 17:16:15 2009
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	77	-0.01	7.55
2	M	1,4-dioxane	0.127	0.085	33.1#	51	0.00	11.42
3	M	tertiary butyl alcohol	1.346	1.315	2.3	82	0.00	7.67
4	I	pentafluorobenzene	1.000	1.000	0.0	86	0.00	9.80
5	M	1,2-dichloro-1,2,2-triflu		----------NA----------				
6	M	chlorodifluoromethane	0.733	0.776	-5.9	96	0.00	4.24
7	M	dichlorodifluoromethane	1.041	1.059	-1.7	91	0.00	4.24
8	M	chloromethane	1.100	1.367	-24.3#	108	0.00	4.56
9	M	vinyl chloride	1.069	1.239	-15.9	102	0.00	4.82
10	M	bromomethane	0.643	0.728	-13.2	93	0.02	5.48
11	M	chloroethane	0.611	0.695	-13.7	94	0.01	5.67
12	M	trichlorofluoromethane	1.216	1.316	-8.2	96	0.00	6.17
13	M	ethyl ether	0.472	0.403	14.6	79	0.00	6.55
14	M	acrolein	0.178	0.240	-34.8#	123	0.00	6.72
15	M	chlorotrifluoroethene		----------NA----------				
16	M	1,1-dichloroethene	0.636	0.553	13.1	79	0.00	6.96
17	M	acetone	0.077	0.066	14.3	79	0.00	6.94
18	M	allyl chloride	1.408	1.238	12.1	85	0.00	7.45
19	M	acetonitrile	0.061	0.052	14.8	75	0.02	7.32
20	M	acetaldehyde		----------NA----------				
21	M	iodomethane	1.119	0.951	15.0	77	0.00	7.21
22	M	iso-butyl alcohol	0.100	0.088	12.0	75	0.00	10.01
23	M	carbon disulfide	2.336	2.069	11.4	80	0.00	7.37
24	M	methylene chloride	0.800	0.673	15.9	72	0.00	7.61
25	M	methyl acetate	0.606	0.600	1.0	88	0.00	7.43
26	M	methyl tert butyl ether	2.326	1.960	15.7	77	0.00	8.01
27	M	trans-1,2-dichloroethene	0.686	0.598	12.8	81	0.00	8.03
28	M	di-isopropyl ether	2.434	2.238	8.1	85	0.00	8.61
29	M	ethyl tert-butyl ether	2.227	2.050	7.9	82	0.00	9.07
30	M	2-butanone	0.090	0.074	17.8	72	0.01	9.22
31	M	1,1-dichloroethane	1.297	1.131	12.8	80	0.00	8.55
32	M	chloroprene	1.053	1.027	2.5	89	0.00	8.69
33	M	acrylonitrile	0.330	0.275	16.7	77	0.00	7.87
34	M	vinyl acetate	0.125	0.119	4.8	83	0.00	8.55
35	M	ethyl acetate	0.097	0.078	19.6	75	0.00	9.28
36	M	2,2-dichloropropane	1.077	0.967	10.2	81	0.00	9.31
37	M	cis-1,2-dichloroethene	0.719	0.612	14.9	78	0.00	9.27
38	M	propionitrile	0.130	0.104	20.0#	75	0.00	9.25
39	M	bromochloromethane	0.347	0.293	15.6	77	0.00	9.56
40	M	tetrahydrofuran	0.289	0.245	15.2	75	0.00	9.64
41	M	chloroform	1.203	1.034	14.0	80	0.00	9.62

Continuing Calibration Summary

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample: VD6254-CC6218
Lab FileID: D155659.D

42	S	dibromofluoromethane (s)	0.569	0.546	4.0	90	0.00	9.81
43	S	1,2-dichloroethane-d4 (s)	0.774	0.752	2.8	91	0.00	10.23
44	M	freon 113	0.546	0.480	12.1	84	0.00	6.97
45	M	methacrylonitrile	0.494	0.429	13.2	77	0.00	9.47
46	m	t-butyl formate	0.621	0.544	12.4	81	0.00	9.70
47	M	1,1,1-trichloroethane	1.049	0.944	10.0	82	0.00	9.93
48	M	tert-amyl methyl ether	2.100	1.817	13.5	79	0.00	10.44
49	I	1,4-difluorobenzene	1.000	1.000	0.0	82	0.00	10.71
50	M	Di-isobutylene		----------NA----------				
51		tert amyl alcohol		----------NA----------				
52	M	2,2,4-trimethylpentane		----------NA----------				
53	M	epichlorohydrin	0.058	0.054	6.9	78	0.00	11.94
54	M	n-butyl alcohol	0.015	0.014	6.7	78	0.00	10.78
55	M	carbon tetrachloride	0.592	0.571	3.5	82	0.00	10.16
56	M	1,1-dichloropropene	0.606	0.561	7.4	78	0.00	10.12
57	M	hexane	0.600	0.579	3.5	84	0.00	8.40
58	M	benzene	1.795	1.613	10.1	78	0.00	10.36
59	M	heptane	0.327	0.291	11.0	77	0.00	10.61
60	M	isopropyl acetate	0.881	0.837	5.0	80	0.00	10.27
61	M	1,2-dichloroethane	0.683	0.635	7.0	81	0.00	10.32
62	M	trichloroethene	0.445	0.392	11.9	78	0.00	11.08
63	M	2-nitropropane	0.131	0.124	5.3	89	0.00	11.77
64	M	2-chloroethyl vinyl ether	0.340	0.300	11.8	73	0.00	11.85
65	M	methyl methacrylate	0.546	0.471	13.7	72	0.00	11.34
66	M	tert-amyl ethyl ether		----------NA----------				
67	M	1,2-dichloropropane	0.498	0.424	14.9	73	0.00	11.31
68	M	methylcyclohexane	0.783	0.722	7.8	81	0.00	11.37
69	M	dibromomethane	0.289	0.255	11.8	75	0.00	11.45
70	M	bromodichloromethane	0.576	0.530	8.0	78	0.00	11.59
71	M	cis-1,3-dichloropropene	0.762	0.658	13.6	71	0.00	12.08
72	S	toluene-d8 (s)	1.451	1.421	2.1	86	0.00	12.43
73	M	4-methyl-2-pentanone	0.214	0.184	14.0	70	0.00	12.19
74	M	toluene	1.084	0.961	11.3	72	0.00	12.51
75	M	3-methyl-1-butanol	0.014	0.013	7.1	76	0.00	12.18
76	M	trans-1,3-dichloropropene	0.735	0.639	13.1	71	0.00	12.66
77	M	ethyl methacrylate	0.559	0.451	19.3	66	0.00	12.70
78	M	1,1,2-trichloroethane	0.368	0.300	18.5	70	0.00	12.88
79	M	2-hexanone	0.184	0.147	20.1#	67	0.00	13.10
80	I	chlorobenzene-d5	1.000	1.000	0.0	73	0.00	14.05
81	M	tetrachloroethene	0.485	0.477	1.6	75	0.00	13.16
82	M	1,3-dichloropropane	0.763	0.701	8.1	70	0.00	13.08
83	M	butyl acetate	0.295	0.310	-5.1	78	0.00	13.20
84	m	3,3-dimethyl-1-butanol	0.048	0.048	0.0	80	0.00	13.27
85	M	dibromochloromethane	0.442	0.432	2.3	72	0.00	13.37
86	M	1,2-dibromoethane	0.429	0.398	7.2	70	0.00	13.54
87	M	chlorobenzene	1.289	1.158	10.2	70	0.00	14.09
88	M	1,1,1,2-tetrachloroethane	0.454	0.440	3.1	73	0.00	14.14
89	M	ethylbenzene	2.150	2.066	3.9	71	0.00	14.17
90	M	m,p-xylene	0.818	0.778	4.9	70	0.00	14.29
91	M	o-xylene	0.792	0.770	2.8	70	0.00	14.75
92	M	styrene	1.336	1.281	4.1	69	0.00	14.75
93	M	bromoform	0.346	0.314	9.2	70	0.00	14.99
94	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	72	0.00	16.63
95	M	isopropylbenzene	3.343	3.410	-2.0	71	0.00	15.14
96	S	4-bromofluorobenzene (s)	0.993	1.043	-5.0	82	0.00	15.33
97	M	bromobenzene	0.968	0.877	9.4	68	0.00	15.55
98	M	cyclohexanone	0.034	0.042	-23.5#	93	0.00	15.25

Continuing Calibration Summary

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample: VD6254-CC6218
Lab FileID: D155659.D

99	M	1,1,2,2-tetrachloroethane	1.088	0.981	9.8	71	0.00	15.39
100	M	trans-1,4-dichloro-2-bute	0.341	0.316	7.3	70	0.00	15.45
101	M	1,2,3-trichloropropane	0.301	0.273	9.3	72	0.00	15.48
102	M	n-propylbenzene	4.178	4.203	-0.6	71	0.00	15.59
103	M	p-ethyltoluene		----------NA----------				
104	M	2-chlorotoluene	0.900	0.810	10.0	68	0.00	15.74
105	M	4-chlorotoluene	2.777	2.586	6.9	70	0.00	15.84
106	M	1,3,5-trimethylbenzene	3.123	3.021	3.3	72	0.00	15.77
107	M	tert-butylbenzene	2.480	2.519	-1.6	72	0.00	16.16
108	M	pentachloroethane	0.591	0.579	2.0	72	0.00	16.21
109	M	1,2,4-trimethylbenzene	3.133	3.130	0.1	71	0.00	16.20
110	M	sec-butylbenzene	3.824	3.856	-0.8	72	0.00	16.40
111	M	1,3-dichlorobenzene	1.902	1.772	6.8	73	0.00	16.58
112	M	p-isopropyltoluene	3.092	3.198	-3.4	72	0.00	16.53
113	M	1,4-dichlorobenzene	2.047	1.848	9.7	72	0.00	16.67
114	M	p-diethylbenzene		----------NA----------				
115	M	1,2-dichlorobenzene	1.817	1.753	3.5	74	0.00	17.09
116	M	n-butylbenzene	1.770	1.721	2.8	69	0.00	16.99
117	M	1,2,4,5-tetramethylbenzen		----------NA----------				
118	M	1,2-dibromo-3-chloropropa	0.178	0.190	-6.7	79	0.00	17.91
119	M	1,2,4-trichlorobenzene	1.210	1.197	1.1	75	0.00	18.87
120	M	hexachlorobutadiene	0.689	0.663	3.8	76	0.00	19.04
121	M	naphthalene	2.527	2.534	-0.3	76	0.00	19.18
122	M	1,2,3-trichlorobenzene	1.004	0.987	1.7	77	0.00	19.46
123	M	hexachloroethane	0.561	0.568	-1.2	76	0.00	17.42
124	M	Cyclohexane	1.141	1.155	-1.2	76	0.00	10.06

(#) = Out of Range SPCC's out = 0 CCC's out = 0
D154836.D MD6218.M Wed Jun 03 13:04:51 2009 MSD

6.7.3

6

New Jersey
ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (LSC Reviewed)

Data File : C:\HPCHEM\1\DATA\D155668.D Vial: 11
Acq On : 3 Jun 2009 1:47 pm Operator: thienn
Sample : ja19940-1 Inst : MSD
Misc : MS81063,VD6254,6.4,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 3 14:25 2009 Quant Results File: MD6218.RES

Quant Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
Title : SW-846 Method 8260B
Last Update : Tue May 26 17:16:15 2009
Response via : Initial Calibration
DataAcq Meth : MD6218

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.56	65	122660	500.00 ug/L	0.00
4) pentafluorobenzene	9.80	168	239448	50.00 ug/L	0.00
49) 1,4-difluorobenzene	10.71	114	336856	50.00 ug/L	0.00
80) chlorobenzene-d5	14.05	117	319847	50.00 ug/L	0.00
94) 1,4-dichlorobenzene-d4	16.63	152	199460	50.00 ug/L	0.00

System Monitoring Compounds

42) dibromofluoromethane (s)	9.81	113	122891	45.07 ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery = 90.14%		
43) 1,2-dichloroethane-d4 (s)	10.23	65	172657	46.56 ug/L	0.00
Spiked Amount 50.000	Range 64 - 135		Recovery = 93.12%		
72) toluene-d8 (s)	12.43	98	491344	50.27 ug/L	0.00
Spiked Amount 50.000	Range 76 - 117		Recovery = 100.54%		
96) 4-bromofluorobenzene (s)	15.33	95	212495	53.64 ug/L	0.00
Spiked Amount 50.000	Range 72 - 122		Recovery = 107.28%		

Target Compounds

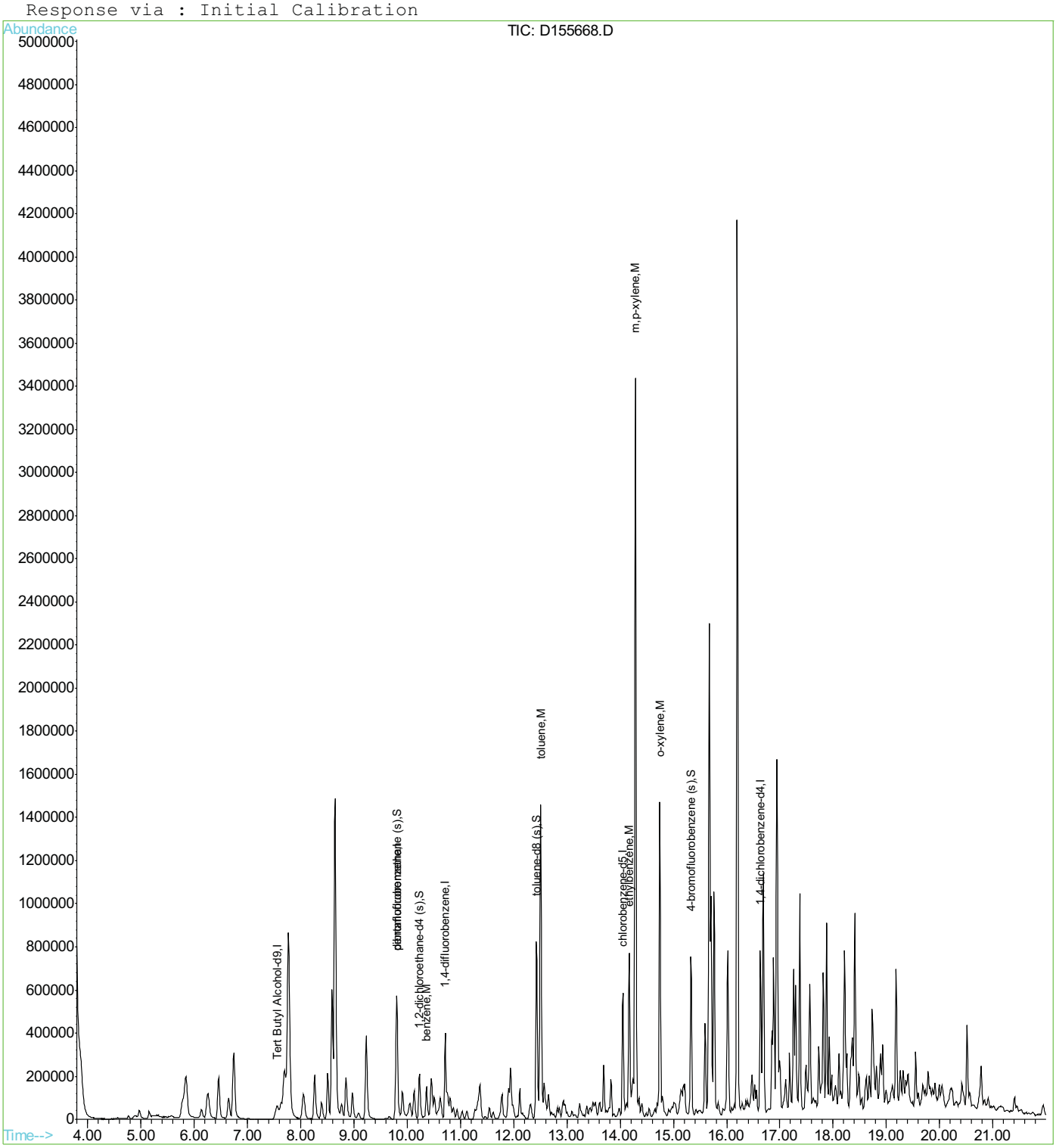
					Qvalue
58) benzene	10.36	78	148227	12.26 ug/L	98
74) toluene	12.51	92	648698	88.81 ug/L	99
89) ethylbenzene	14.17	91	555745	40.40 ug/L	100
90) m,p-xylene	14.28	106	1009525	192.93 ug/L	98
91) o-xylene	14.74	106	397523	78.51 ug/L	100

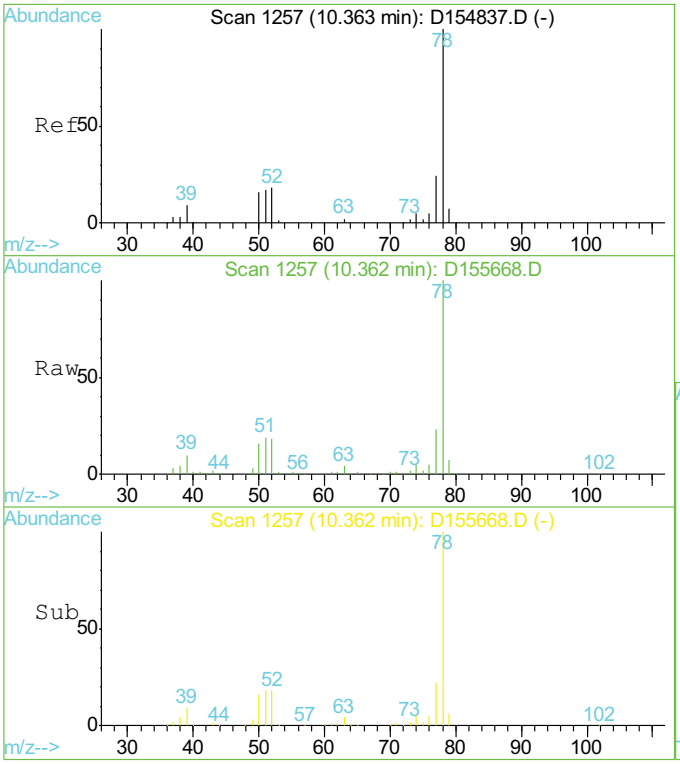
(#) = qualifier out of range (m) = manual integration
D155668.D MD6218.M Wed Jun 03 15:15:46 2009 MSD Page 1

Quantitation Report

Data File : C:\HPCHEM\1\DATA\D155668.D Vial: 11
Acq On : 3 Jun 2009 1:47 pm Operator: thienn
Sample : ja19940-1 Inst : MSD
Misc : MS81063,VD6254,6.4,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 3 14:25 2009 Quant Results File: MD6218.RES

Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
Title : SW-846 Method 8260B
Last Update : Tue May 26 17:16:15 2009
Response via : Initial Calibration

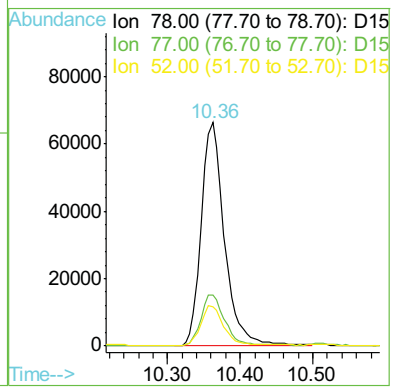


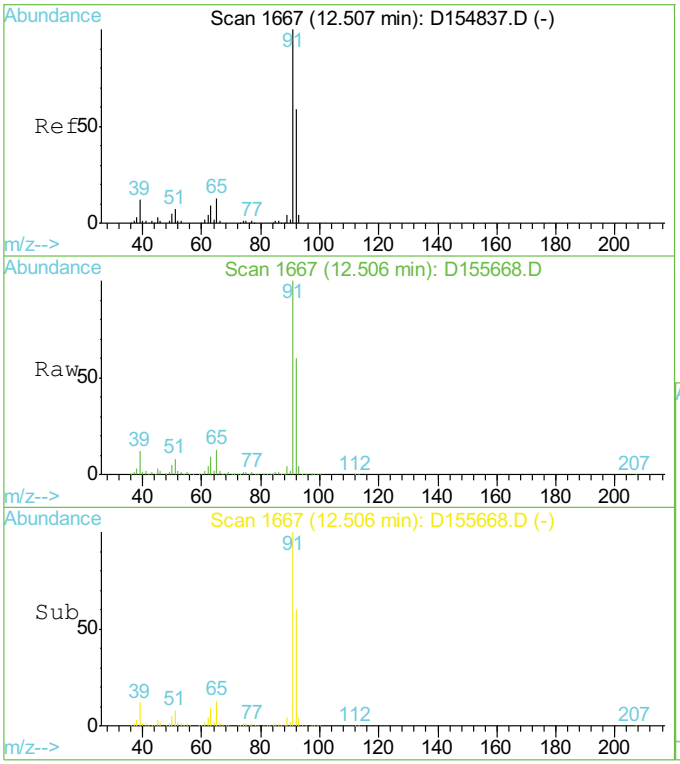


#58
benzene
Concen: 12.26 ug/L
RT: 10.36 min Scan# 1257
Delta R.T. -0.00 min
Lab File: D155668.D
Acq: 3 Jun 2009 1:47 pm

Tgt Ion: 78 Resp: 148227

Ion	Ratio	Lower	Upper
78	100		
77	22.7	0.0	53.7
52	17.7	0.0	48.1

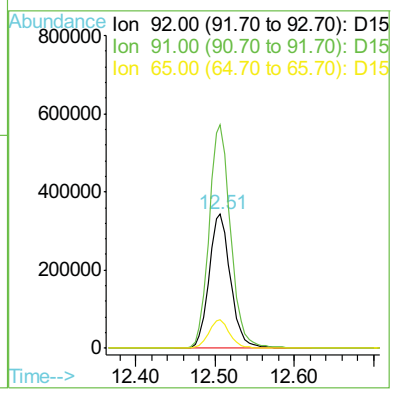




#74
toluene
Concen: 88.81 ug/L
RT: 12.51 min Scan# 1667
Delta R.T. -0.00 min
Lab File: D155668.D
Acq: 3 Jun 2009 1:47 pm

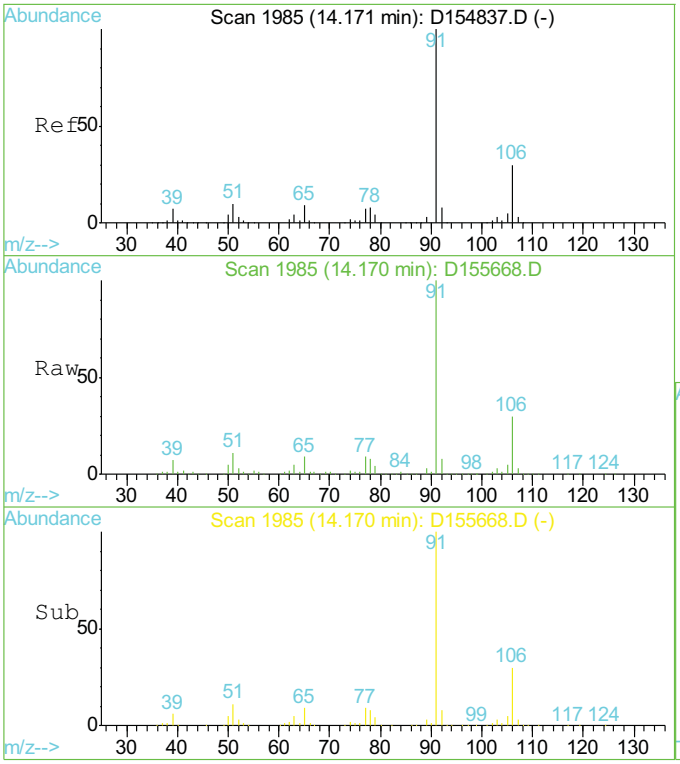
Tgt Ion: 92 Resp: 648698

Ion	Ratio	Lower	Upper
92	100		
91	166.8	138.4	198.4
65	21.0	0.0	51.2



7.1.1

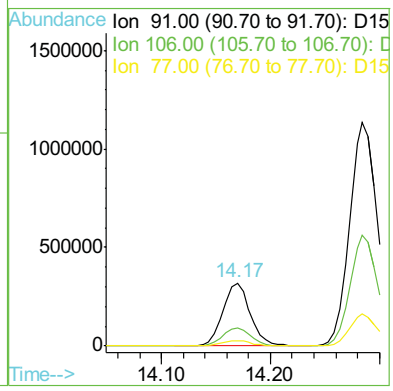
7

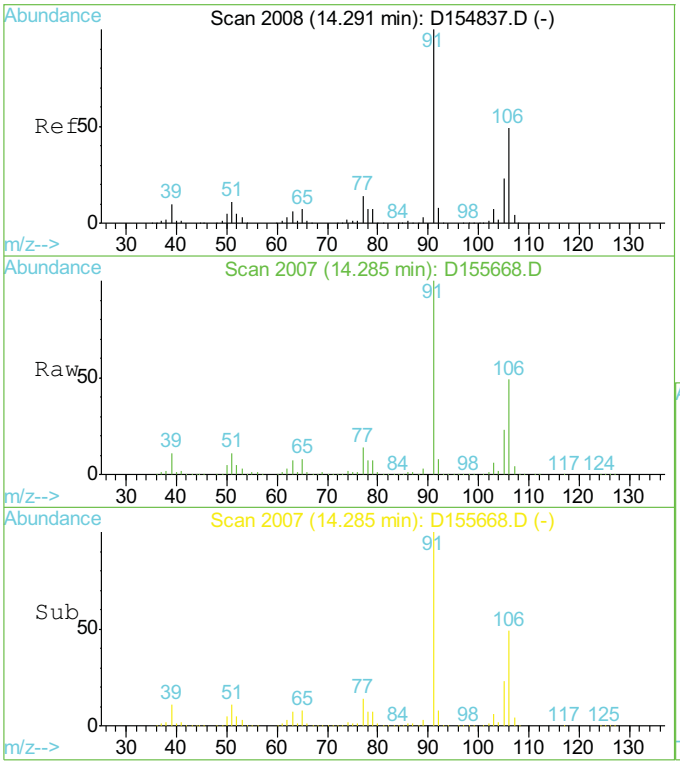


#89
ethylbenzene
Concen: 40.40 ug/L
RT: 14.17 min Scan# 1985
Delta R.T. -0.00 min
Lab File: D155668.D
Acq: 3 Jun 2009 1:47 pm

Tgt Ion: 91 Resp: 555745

Ion	Ratio	Lower	Upper
91	100		
106	29.6	0.0	59.7
77	8.9	0.0	39.1

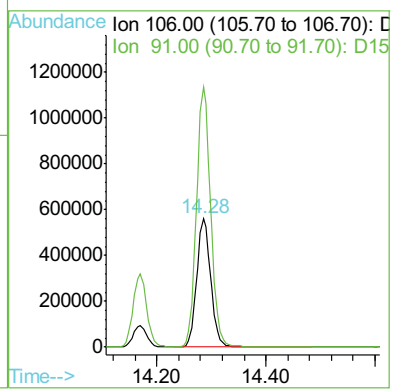




#90
m,p-xylene
Concen: 192.93 ug/L
RT: 14.28 min Scan# 2007
Delta R.T. -0.01 min
Lab File: D155668.D
Acq: 3 Jun 2009 1:47 pm

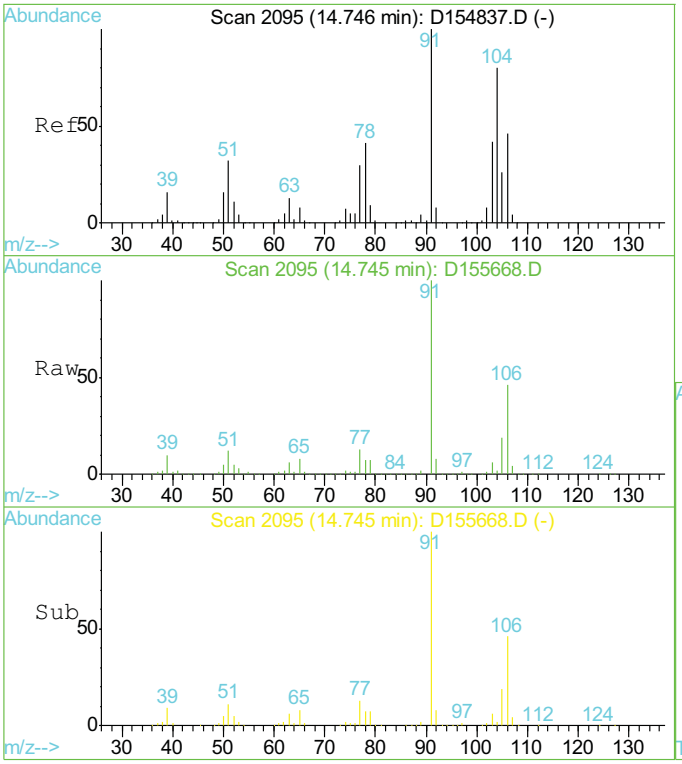
Tgt Ion:106 Resp: 1009525

Ion	Ratio	Lower	Upper
106	100		
91	202.1	143.4	266.4



7.1.1

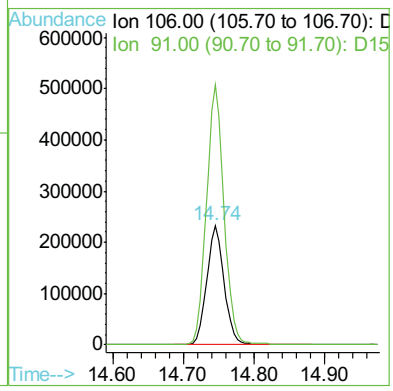
7



#91
o-xylene
Concen: 78.51 ug/L
RT: 14.74 min Scan# 2095
Delta R.T. -0.00 min
Lab File: D155668.D
Acq: 3 Jun 2009 1:47 pm

Tgt Ion:106 Resp: 397523

Ion	Ratio	Lower	Upper
106	100		
91	217.3	152.2	282.7



7.1.1

7

LSC Area Percent Report

Data File : C:\HPCHEM\1\DATA\D155668.D Vial: 11
Acq On : 3 Jun 2009 1:47 pm Operator: thienn
Sample : ja19940-1 Inst : MSD
Misc : MS81063,VD6254,6.4,,100,5,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
Title : SW-846 Method 8260B
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.02 Max Peaks: 100
Stop Thrs : 0.005 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	5.843	367	393	424	rVV	188834	1011699	14.84%	1.065%
2	6.256	459	472	499	rVB7	116331	471708	6.92%	0.497%
3	6.455	499	510	534	rBV	191007	506709	7.43%	0.533%
4	6.643	534	546	555	rVV	93358	254468	3.73%	0.268%
5	6.743	555	565	600	rVB	305377	917385	13.46%	0.966%
6	7.553	698	720	728	rBV5	63134	273042	4.00%	0.287%
7	7.637	728	736	738	rVV	75238	204331	3.00%	0.215%
8	7.695	738	747	751	rVV2	223960	702389	10.30%	0.739%
9	7.768	751	761	801	rVV	863479	2927837	42.95%	3.082%
10	8.050	801	815	843	rVB2	112431	391733	5.75%	0.412%
11	8.260	843	855	872	rBV2	202853	547172	8.03%	0.576%
12	8.505	893	902	910	rBV	211454	476641	6.99%	0.502%
13	8.584	910	917	922	rVV	593905	1292779	18.96%	1.361%
14	8.641	922	928	945	rVV	1483427	3555622	52.15%	3.743%
15	8.845	960	967	983	rVV2	185855	468274	6.87%	0.493%
16	8.971	983	991	1005	rVB3	118264	278228	4.08%	0.293%
17	9.227	1029	1040	1080	rVB	388498	1041930	15.28%	1.097%
18	9.802	1134	1150	1163	rBV4	572621	1458618	21.39%	1.536%
19	9.907	1163	1170	1184	rVV	117919	296089	4.34%	0.312%
20	10.127	1205	1212	1224	rVB	127340	288664	4.23%	0.304%
21	10.226	1224	1231	1245	rBV	204307	449191	6.59%	0.473%
22	10.362	1245	1257	1266	rBV	144046	319132	4.68%	0.336%
23	10.451	1266	1274	1281	rVV3	175735	472944	6.94%	0.498%
24	10.509	1281	1285	1293	rVV2	88351	199687	2.93%	0.210%
25	10.613	1293	1305	1317	rVB5	93288	332371	4.88%	0.350%
26	10.712	1317	1324	1337	rBV	392333	1001222	14.69%	1.054%
27	11.366	1434	1449	1462	rVB3	155520	575657	8.44%	0.606%
28	11.779	1512	1528	1543	rBV2	111643	308816	4.53%	0.325%
29	11.905	1543	1552	1554	rBV	134696	261120	3.83%	0.275%
30	11.942	1554	1559	1578	rVB2	231500	631224	9.26%	0.665%
31	12.114	1585	1592	1598	rBV	132540	250340	3.67%	0.264%
32	12.318	1617	1631	1641	rBV5	68750	204091	2.99%	0.215%
33	12.428	1641	1652	1659	rBV	818717	1581142	23.19%	1.665%
34	12.506	1659	1667	1675	rVV	1438622	2767243	40.59%	2.913%
35	12.569	1675	1679	1690	rVV3	148265	375125	5.50%	0.395%
36	13.688	1885	1893	1901	rVV	226049	425296	6.24%	0.448%
37	13.830	1907	1920	1926	rVB	167387	361014	5.30%	0.380%
38	14.049	1954	1962	1970	rBV	564591	1025782	15.05%	1.080%

39	14.170	1979	1985	1991	rVV	743982	1306281	19.16%	1.375%
40	14.238	1992	1998	2000	rVV6	155126	316061	4.64%	0.333%
41	14.285	2000	2007	2016	rVV	3410151	6179065	90.63%	6.505%
42	14.745	2088	2095	2102	rVV	1441233	2478270	36.35%	2.609%
43	15.142	2157	2171	2176	rBV3	112346	352994	5.18%	0.372%
44	15.184	2176	2179	2182	rVV	122826	207314	3.04%	0.218%
45	15.331	2197	2207	2219	rVB	733463	1323716	19.42%	1.394%
46	15.592	2246	2257	2264	rBV	416659	721721	10.59%	0.760%
47	15.671	2264	2272	2277	rVV	2264867	4108485	60.26%	4.325%
48	15.707	2277	2279	2284	rVV	1000113	1327740	19.48%	1.398%
49	15.765	2284	2290	2300	rVV	1021159	1859303	27.27%	1.957%
50	16.021	2327	2339	2349	rVB	749564	1471281	21.58%	1.549%
51	16.199	2365	2373	2384	rVV	4137817	6817609	100.00%	7.177%
52	16.476	2415	2426	2432	rVV2	169953	473708	6.95%	0.499%
53	16.633	2449	2456	2461	rVV	744761	1297881	19.04%	1.366%
54	16.691	2461	2467	2477	rVB	1112245	2013226	29.53%	2.119%
55	16.853	2491	2498	2500	rVV	373558	562658	8.25%	0.592%
56	16.884	2500	2504	2509	rVV	710073	1172538	17.20%	1.234%
57	16.947	2509	2516	2522	rVV3	1629477	3350754	49.15%	3.527%
58	16.994	2522	2525	2533	rVV2	233114	449743	6.60%	0.473%
59	17.109	2533	2547	2555	rVV7	145911	433188	6.35%	0.456%
60	17.182	2555	2561	2568	rVV	267516	500295	7.34%	0.527%
61	17.255	2568	2575	2579	rVV	655876	1145388	16.80%	1.206%
62	17.297	2579	2583	2591	rVV	580932	1013574	14.87%	1.067%
63	17.376	2591	2598	2609	rVV	1004494	1716698	25.18%	1.807%
64	17.485	2609	2619	2626	rVV3	210908	489291	7.18%	0.515%
65	17.564	2626	2634	2641	rVV2	583945	1179935	17.31%	1.242%
66	17.731	2659	2666	2671	rVV	296715	563013	8.26%	0.593%
67	17.815	2671	2682	2688	rVV	636551	1340033	19.66%	1.411%
68	17.878	2688	2694	2699	rVV	869555	1445437	21.20%	1.522%
69	17.925	2699	2703	2708	rVV2	341544	573937	8.42%	0.604%
70	17.972	2708	2712	2717	rVV	161480	287327	4.21%	0.302%
71	18.040	2717	2725	2733	rVV5	111340	366187	5.37%	0.385%
72	18.108	2733	2738	2743	rVV2	261833	464920	6.82%	0.489%
73	18.212	2749	2758	2763	rVV2	737597	1518654	22.28%	1.599%
74	18.254	2763	2766	2773	rVV3	262205	436230	6.40%	0.459%
75	18.359	2773	2786	2790	rVV3	333987	1057629	15.51%	1.113%
76	18.406	2790	2795	2804	rVV2	913192	1896470	27.82%	1.996%
77	18.484	2804	2810	2816	rVV2	165178	352837	5.18%	0.371%
78	18.620	2826	2836	2842	rVV5	150179	404849	5.94%	0.426%
79	18.678	2842	2847	2852	rVV2	155643	327256	4.80%	0.345%
80	18.735	2852	2858	2869	rVV3	464146	1332219	19.54%	1.402%
81	18.814	2869	2873	2879	rVV	200049	387013	5.68%	0.407%
82	18.887	2879	2887	2891	rVV2	256513	594205	8.72%	0.626%
83	18.929	2891	2895	2902	rVV	297263	612228	8.98%	0.645%
84	18.992	2902	2907	2915	rVV6	88970	236619	3.47%	0.249%
85	19.117	2915	2931	2936	rVV7	110324	439206	6.44%	0.462%
86	19.180	2936	2943	2952	rVV	647711	1267104	18.59%	1.334%
87	19.259	2952	2958	2964	rVV3	177200	403884	5.92%	0.425%
88	19.316	2964	2969	2974	rVV2	180266	382008	5.60%	0.402%
89	19.363	2974	2978	2982	rVV5	134032	289109	4.24%	0.304%
90	19.405	2982	2986	2999	rVV4	163174	447709	6.57%	0.471%
91	19.551	3006	3014	3020	rVV2	264518	530745	7.78%	0.559%
92	19.687	3029	3040	3044	rVV4	110977	305436	4.48%	0.322%
93	19.782	3052	3058	3063	rVV	172140	397408	5.83%	0.418%
94	19.912	3078	3083	3092	rVV4	119346	332332	4.87%	0.350%
95	19.991	3092	3098	3103	rVV2	110387	266794	3.91%	0.281%

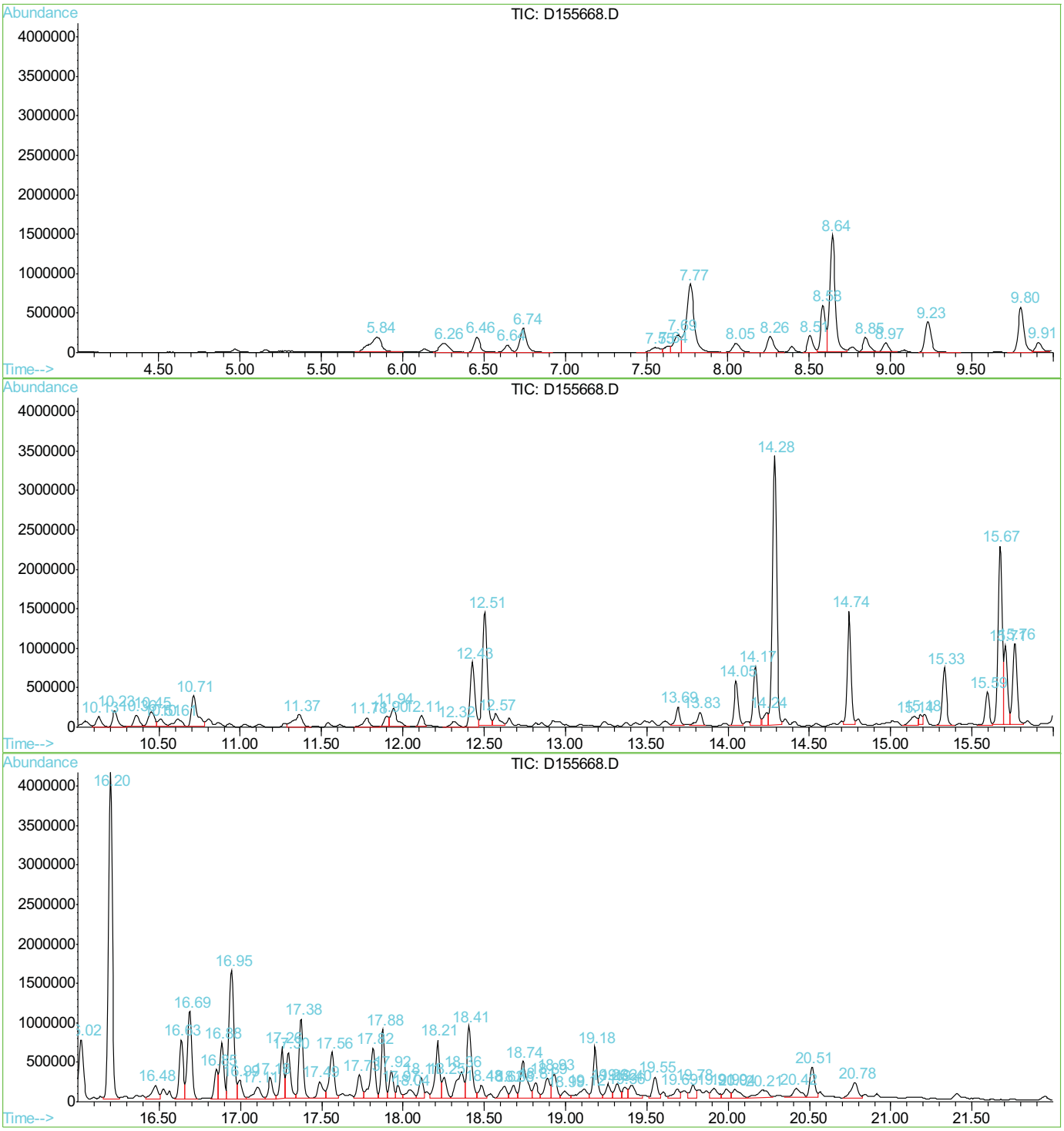
96	20.043	3103	3108	3122	rVV2	107080	342728	5.03%	0.361%
97	20.210	3122	3140	3152	rVV9	92872	460126	6.75%	0.484%
98	20.420	3166	3180	3191	rVV5	115638	409292	6.00%	0.431%
99	20.514	3191	3198	3205	rVV2	382834	767834	11.26%	0.808%
100	20.780	3234	3249	3257	rBV3	197053	576171	8.45%	0.607%

Sum of corrected areas: 94990381

D155668.D MD6218.M Wed Jun 03 14:25:37 2009 MSD

LSC Report - Integrated Chromatogram

File : C:\HPCHEM\1\DATA\D155668.D
Operator : thienn
Acquired : 3 Jun 2009 1:47 pm using AcqMethod MD6218
Instrument : MSD
Sample Name: ja19940-1
Misc Info : MS81063,VD6254,6.4,,100,5,1
Vial Number: 11
Quant File :MD6218.RES (RTE Integrator)



D155668.D MD6218.M Wed Jun 03 14:25:38 2009 MSD

Library Search Compound Report

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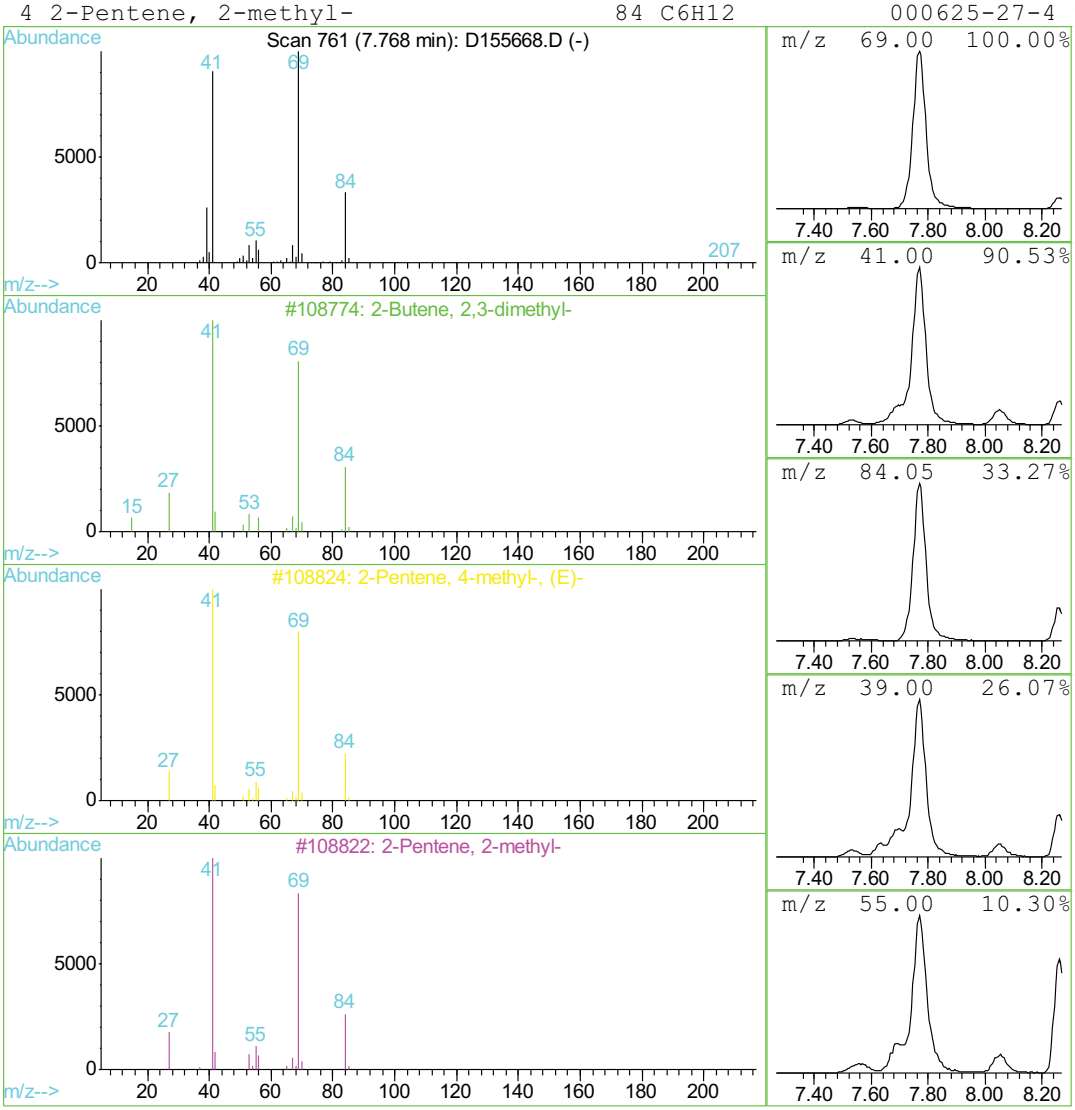
  Data File : C:\HPCHEM\1\DATA\D155668.D                    Vial: 11
  Acq On    :  3 Jun 2009   1:47 pm                     Operator: thienn
  Sample    : ja19940-1                                  Inst    : MSD
  Misc      : MS81063,VD6254,6.4,,100,5,1                Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Quant Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
  Title        : SW-846 Method 8260B
  Library      : C:\DATABASE\NIST98.L
*****************************************************************
Peak Number  1  2-Butene, 2,3-dimethyl-         Concentration Rank  5

  R.T.   EstConc           Area       Relative to ISTD         R.T.
-------------------------------------------------------------------
  7.77  100.36 ug/L      2927840    pentafluorobenzene          9.80

 Hit# of  5    Tentative ID              MW  MolForm       CAS#        Qual
-------------------------------------------------------------------------
 1 2-Butene, 2,3-dimethyl-                84 C6H12          000563-79-1 91
 2 2-Pentene, 4-methyl-, (E)-             84 C6H12          000674-76-0 91
 3 2-Pentene, 2-methyl-                   84 C6H12          000625-27-4 91
 4 2-Pentene, 2-methyl-                   84 C6H12          000625-27-4 91
```



Library Search Compound Report

```
  Data File : C:\HPCHEM\1\DATA\D155668.D                    Vial: 11
  Acq On    :  3 Jun 2009   1:47 pm                     Operator: thienn
  Sample    : ja19940-1                                  Inst    : MSD
  Misc      : MS81063,VD6254,6.4,,100,5,1                Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Quant Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
  Title        : SW-846 Method 8260B
  Library      : C:\DATABASE\NIST98.L
*****************************************************************
Peak Number  2  2-Butene, 2,3-dimethyl-        Concentration Rank  4

  R.T.   EstConc           Area       Relative to ISTD         R.T.
-------------------------------------------------------------------
  8.64  121.88 ug/L      3555620    pentafluorobenzene          9.80

 Hit# of  5    Tentative ID              MW  MolForm       CAS#        Qual
-------------------------------------------------------------------------
 1 2-Butene, 2,3-dimethyl-                84 C6H12          000563-79-1 91
 2 Cyclopropane, 1,1,2-trimethyl-         84 C6H12          004127-45-1 90
 3 2-Butene, 2,3-dimethyl-                84 C6H12          000563-79-1 90
 4 2-Pentene, 4-methyl-                   84 C6H12          004461-48-7 86
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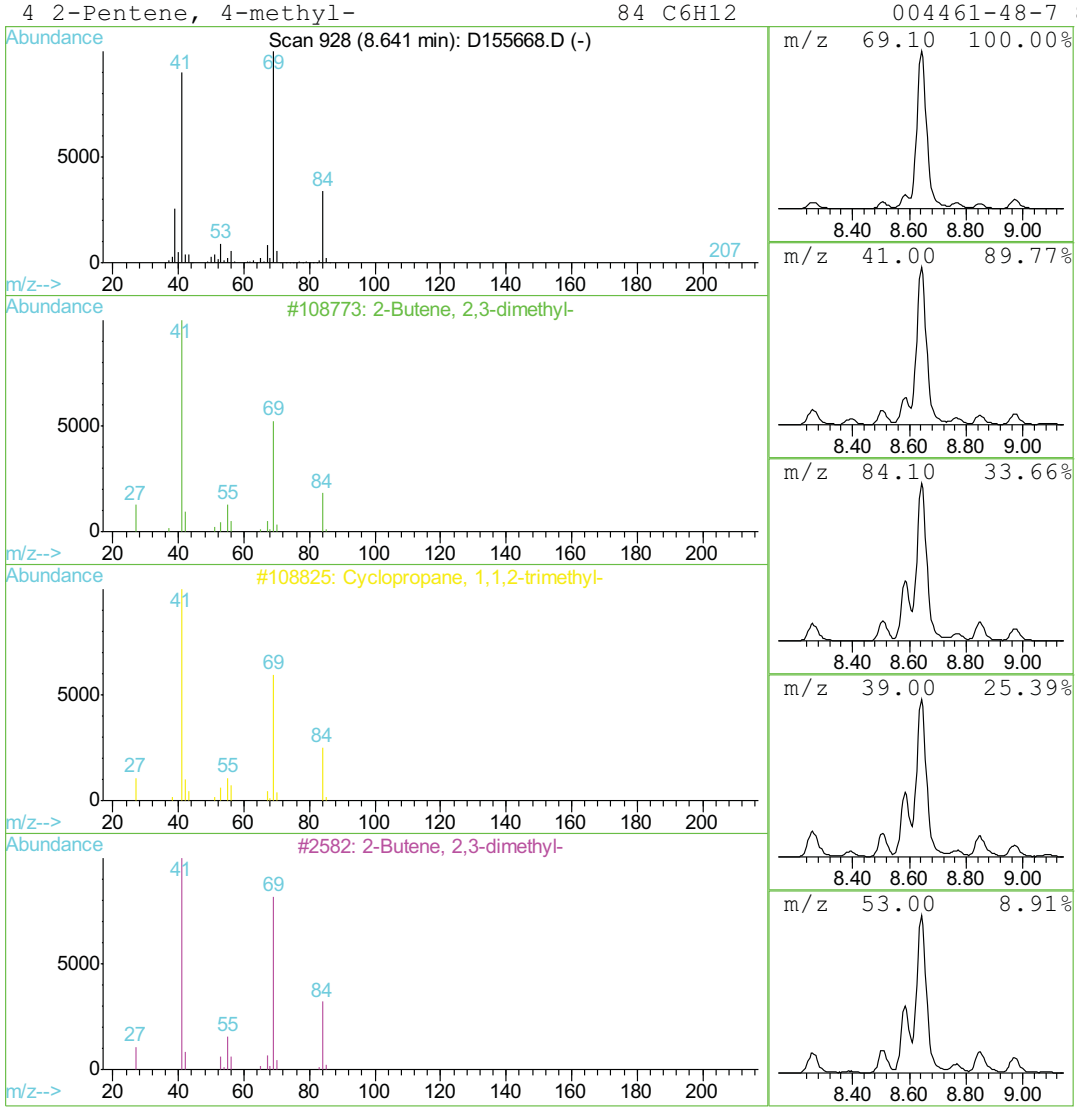

Library Search Compound Report

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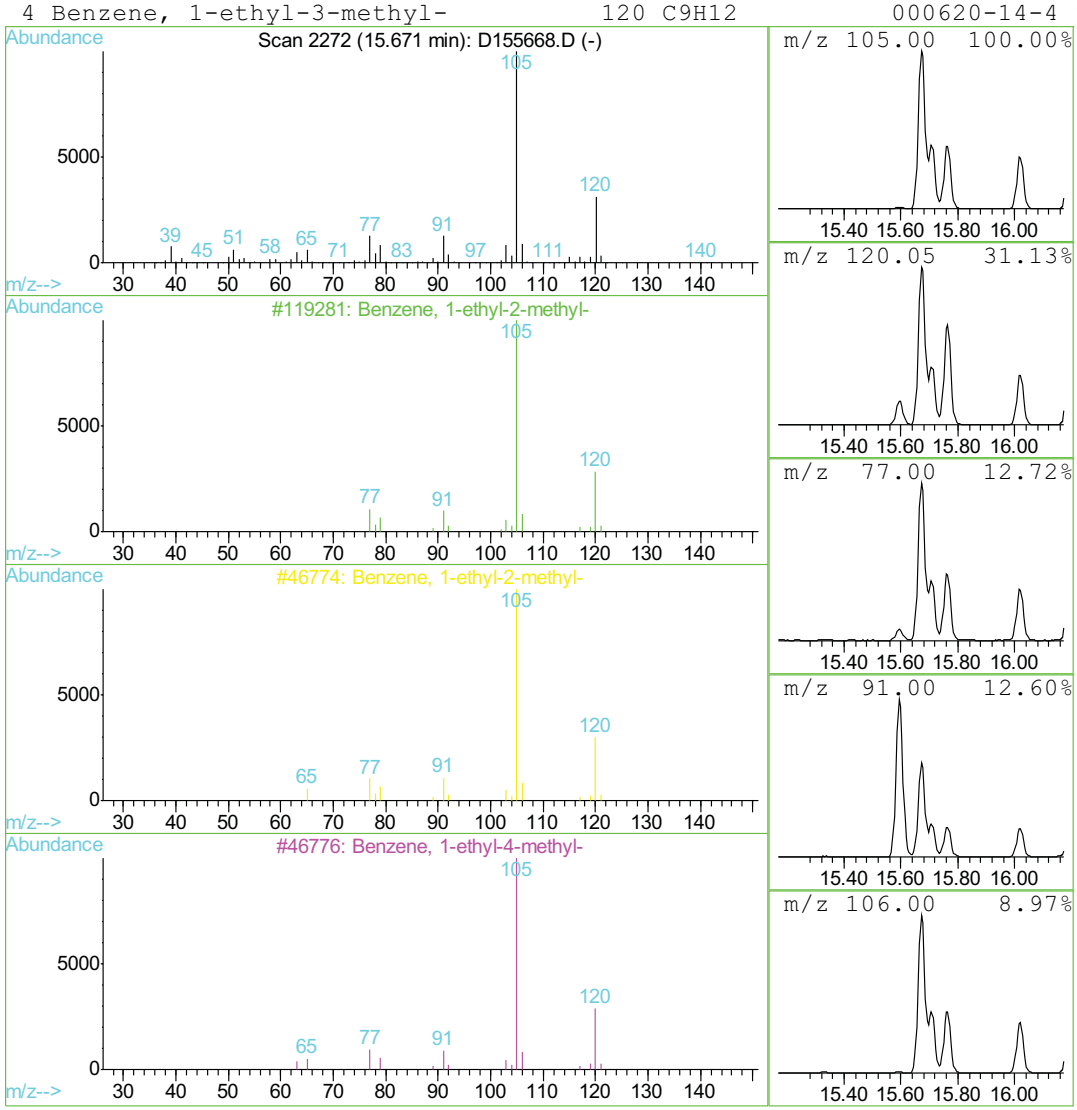
  Data File : C:\HPCHEM\1\DATA\D155668.D                    Vial: 11
  Acq On    :  3 Jun 2009   1:47 pm                     Operator: thienn
  Sample    : ja19940-1                                  Inst    : MSD
  Misc      : MS81063,VD6254,6.4,,100,5,1                Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Quant Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
  Title        : SW-846 Method 8260B
  Library      : C:\DATABASE\NIST98.L
*****************************************************************
Peak Number  3  Benzene, 1-ethyl-2-methyl-      Concentration Rank  2

  R.T.   EstConc           Area       Relative to ISTD         R.T.
-------------------------------------------------------------------
 15.67  158.28 ug/L      4108490    1,4-dichlorobenzene-d4     16.63

 Hit# of  5    Tentative ID              MW  MolForm       CAS#        Qual
-------------------------------------------------------------------------
 1 Benzene, 1-ethyl-2-methyl-           120 C9H12          000611-14-3 95
 2 Benzene, 1-ethyl-2-methyl-           120 C9H12          000611-14-3 95
 3 Benzene, 1-ethyl-4-methyl-           120 C9H12          000622-96-8 95
 4 Benzene, 1-ethyl-3-methyl-           120 C9H12          000620-14-4 95
```



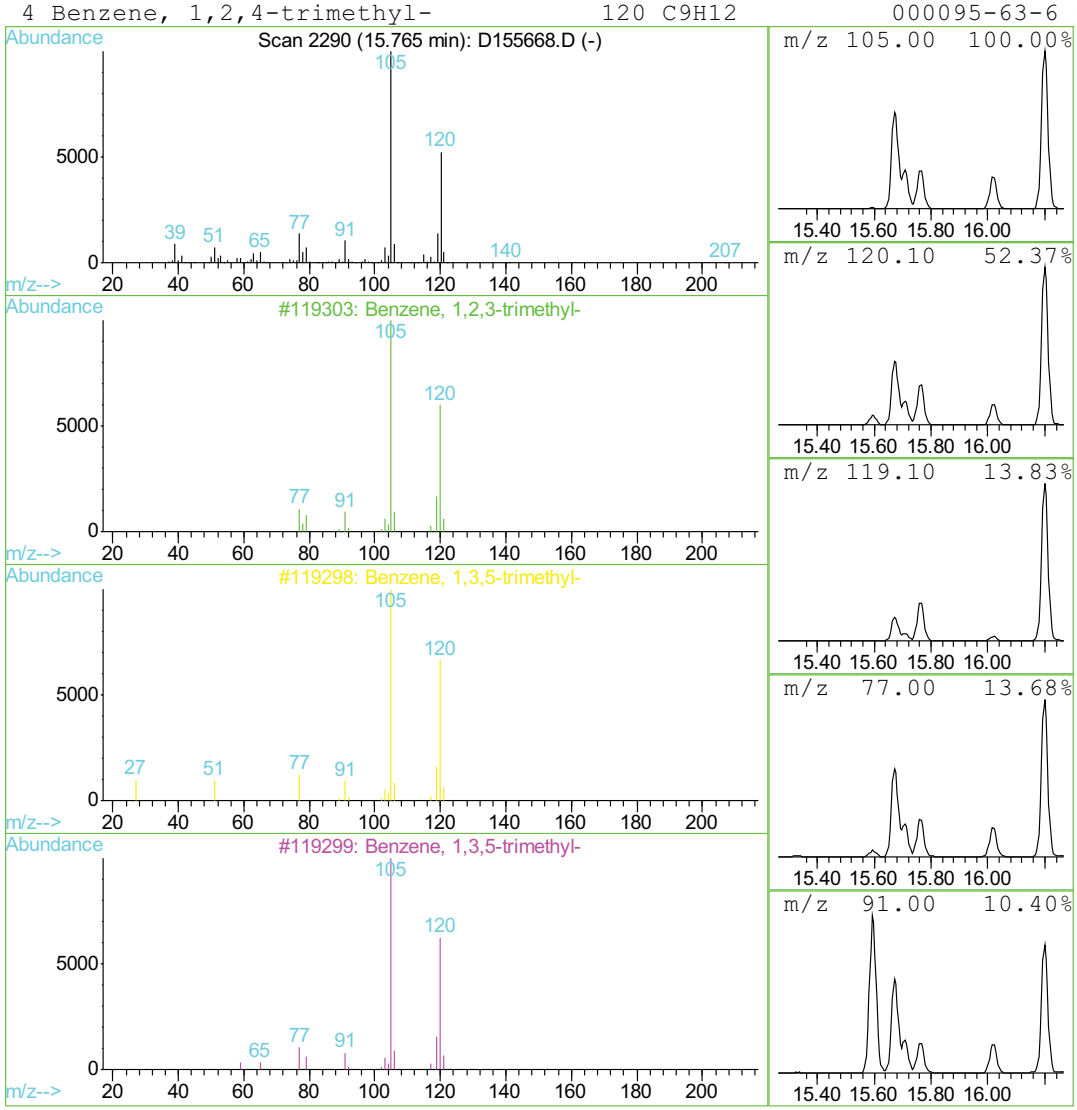
Library Search Compound Report

```
  Data File : C:\HPCHEM\1\DATA\D155668.D                    Vial: 11
  Acq On    :  3 Jun 2009   1:47 pm                     Operator: thienn
  Sample    : ja19940-1                                  Inst    : MSD
  Misc      : MS81063,VD6254,6.4,,100,5,1                Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Quant Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
  Title        : SW-846 Method 8260B
  Library      : C:\DATABASE\NIST98.L
*******************************************************************
Peak Number  4  Benzene, 1,2,3-trimethyl-       Concentration Rank  8

  R.T.   EstConc           Area       Relative to ISTD         R.T.
-------------------------------------------------------------------
 15.76   71.63 ug/L      1859300    1,4-dichlorobenzene-d4     16.63

 Hit# of  5    Tentative ID              MW  MolForm       CAS#        Qual
-------------------------------------------------------------------------
 1 Benzene, 1,2,3-trimethyl-            120 C9H12          000526-73-8 97
 2 Benzene, 1,3,5-trimethyl-            120 C9H12          000108-67-8 95
 3 Benzene, 1,3,5-trimethyl-            120 C9H12          000108-67-8 95
 4 Benzene, 1,2,4-trimethyl-            120 C9H12          000095-63-6 94
```



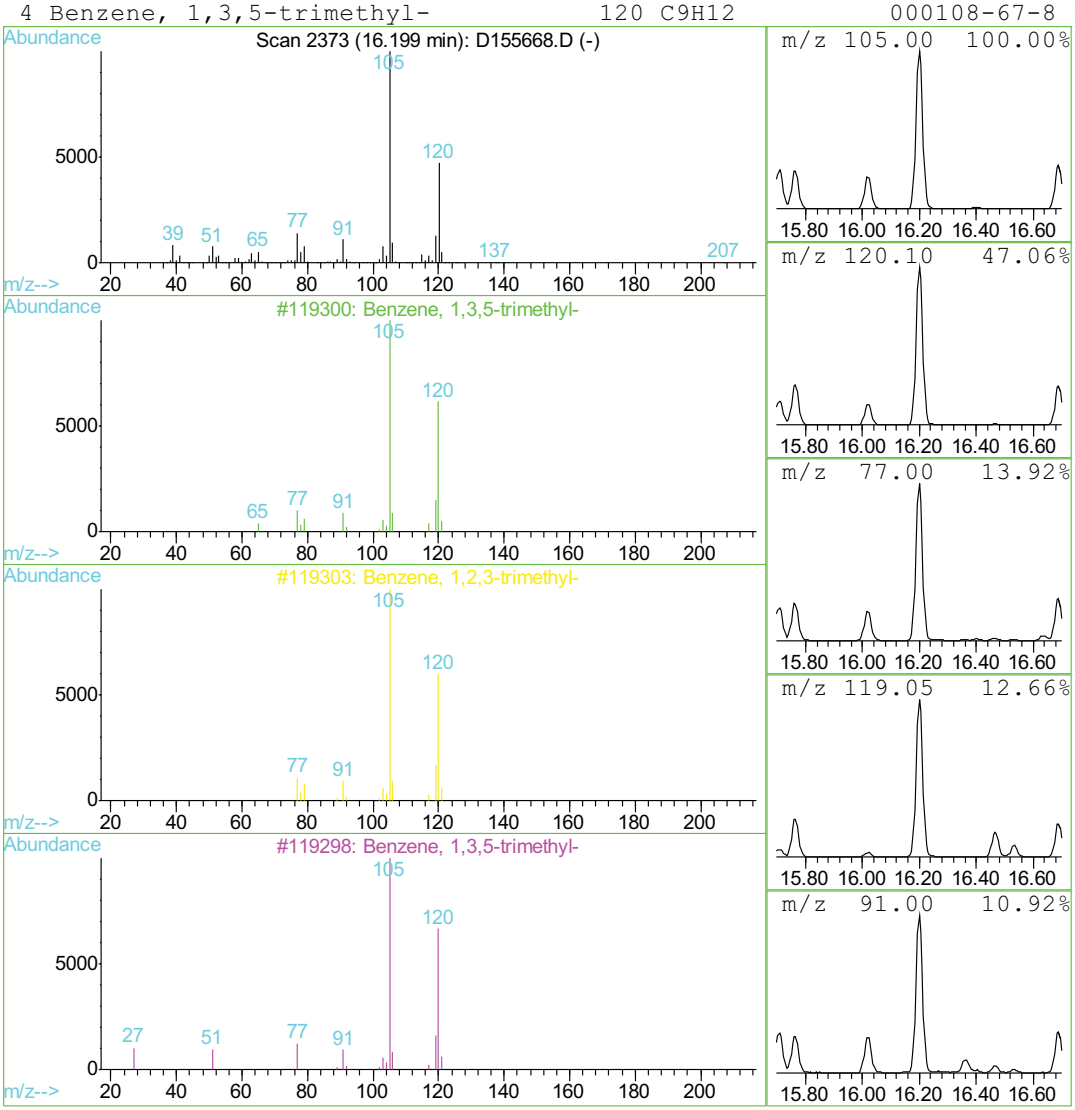
Library Search Compound Report

```
  Data File : C:\HPCHEM\1\DATA\D155668.D                    Vial: 11
  Acq On    :  3 Jun 2009   1:47 pm                     Operator: thienn
  Sample    : ja19940-1                                  Inst    : MSD
  Misc      : MS81063,VD6254,6.4,,100,5,1                Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Quant Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
  Title        : SW-846 Method 8260B
  Library      : C:\DATABASE\NIST98.L
*******************************************************************
Peak Number  5  Benzene, 1,3,5-trimethyl-       Concentration Rank  1
```

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.20	262.64 ug/L	6817610	1,4-dichlorobenzene-d4	16.63

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1,3,5-trimethyl-	120	C9H12	000108-67-8	97
2	Benzene, 1,2,3-trimethyl-	120	C9H12	000526-73-8	97
3	Benzene, 1,3,5-trimethyl-	120	C9H12	000108-67-8	95
4	Benzene, 1,3,5-trimethyl-	120	C9H12	000108-67-8	95



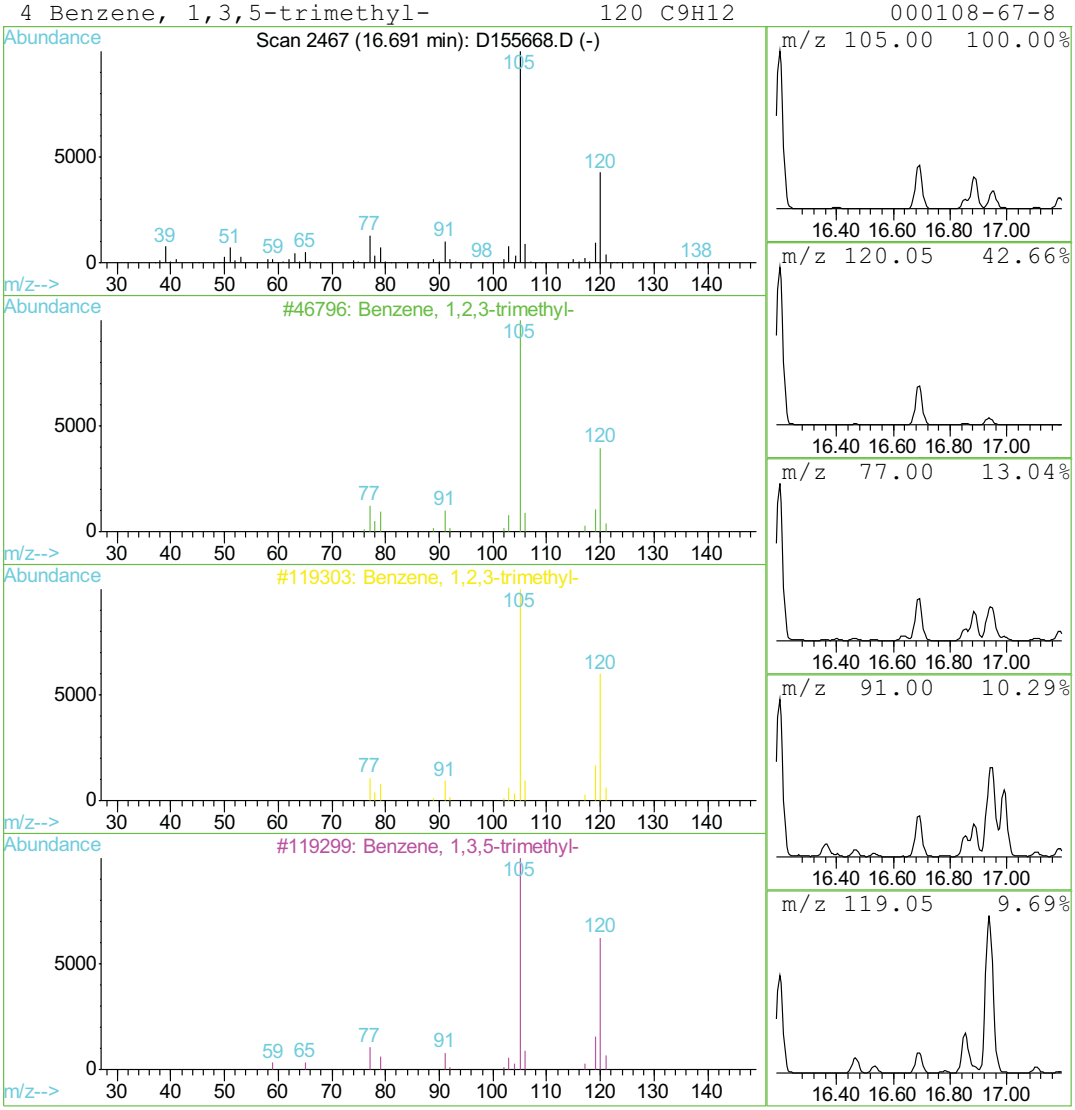
Library Search Compound Report

```
  Data File : C:\HPCHEM\1\DATA\D155668.D                    Vial: 11
  Acq On    :  3 Jun 2009   1:47 pm                     Operator: thienn
  Sample    : ja19940-1                                  Inst    : MSD
  Misc      : MS81063,VD6254,6.4,,100,5,1                Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Quant Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
  Title        : SW-846 Method 8260B
  Library      : C:\DATABASE\NIST98.L
*****************************************************************
Peak Number  6  Benzene, 1,2,3-trimethyl-       Concentration Rank  6

  R.T.   EstConc           Area       Relative to ISTD         R.T.
-------------------------------------------------------------------
 16.69   77.56 ug/L      2013230    1,4-dichlorobenzene-d4     16.63

 Hit# of  5    Tentative ID              MW  MolForm       CAS#        Qual
-------------------------------------------------------------------------
 1 Benzene, 1,2,3-trimethyl-            120 C9H12          000526-73-8 95
 2 Benzene, 1,2,3-trimethyl-            120 C9H12          000526-73-8 95
 3 Benzene, 1,3,5-trimethyl-            120 C9H12          000108-67-8 94
 4 Benzene, 1,3,5-trimethyl-            120 C9H12          000108-67-8 94
```



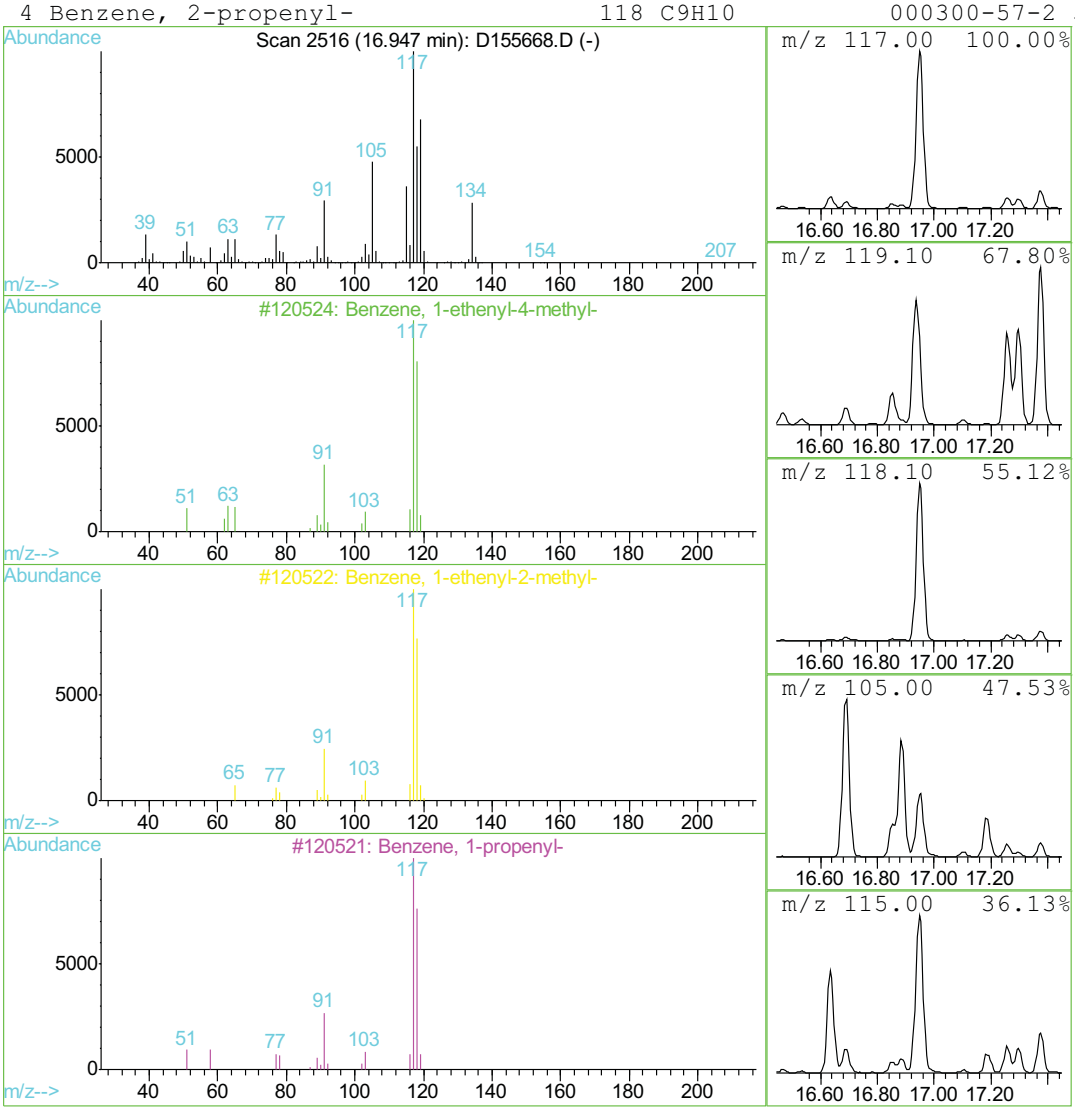
Library Search Compound Report

```
  Data File : C:\HPCHEM\1\DATA\D155668.D                    Vial: 11
  Acq On    :  3 Jun 2009   1:47 pm                     Operator: thienn
  Sample    : ja19940-1                                  Inst    : MSD
  Misc      : MS81063,VD6254,6.4,,100,5,1                Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Quant Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
  Title        : SW-846 Method 8260B
  Library      : C:\DATABASE\NIST98.L
*****************************************************************
Peak Number  7  Benzene, 1-ethenyl-4-methyl-    Concentration Rank  3

  R.T.   EstConc           Area       Relative to ISTD         R.T.
-------------------------------------------------------------------
 16.95  129.09 ug/L      3350750    1,4-dichlorobenzene-d4     16.63

 Hit# of  5    Tentative ID              MW  MolForm       CAS#        Qual
-------------------------------------------------------------------------
 1 Benzene, 1-ethenyl-4-methyl-         118 C9H10          000622-97-9 80
 2 Benzene, 1-ethenyl-2-methyl-         118 C9H10          000611-15-4 55
 3 Benzene, 1-propenyl-                 118 C9H10          000637-50-3 55
 4 Benzene, 2-propenyl-                 118 C9H10          000300-57-2 55
```



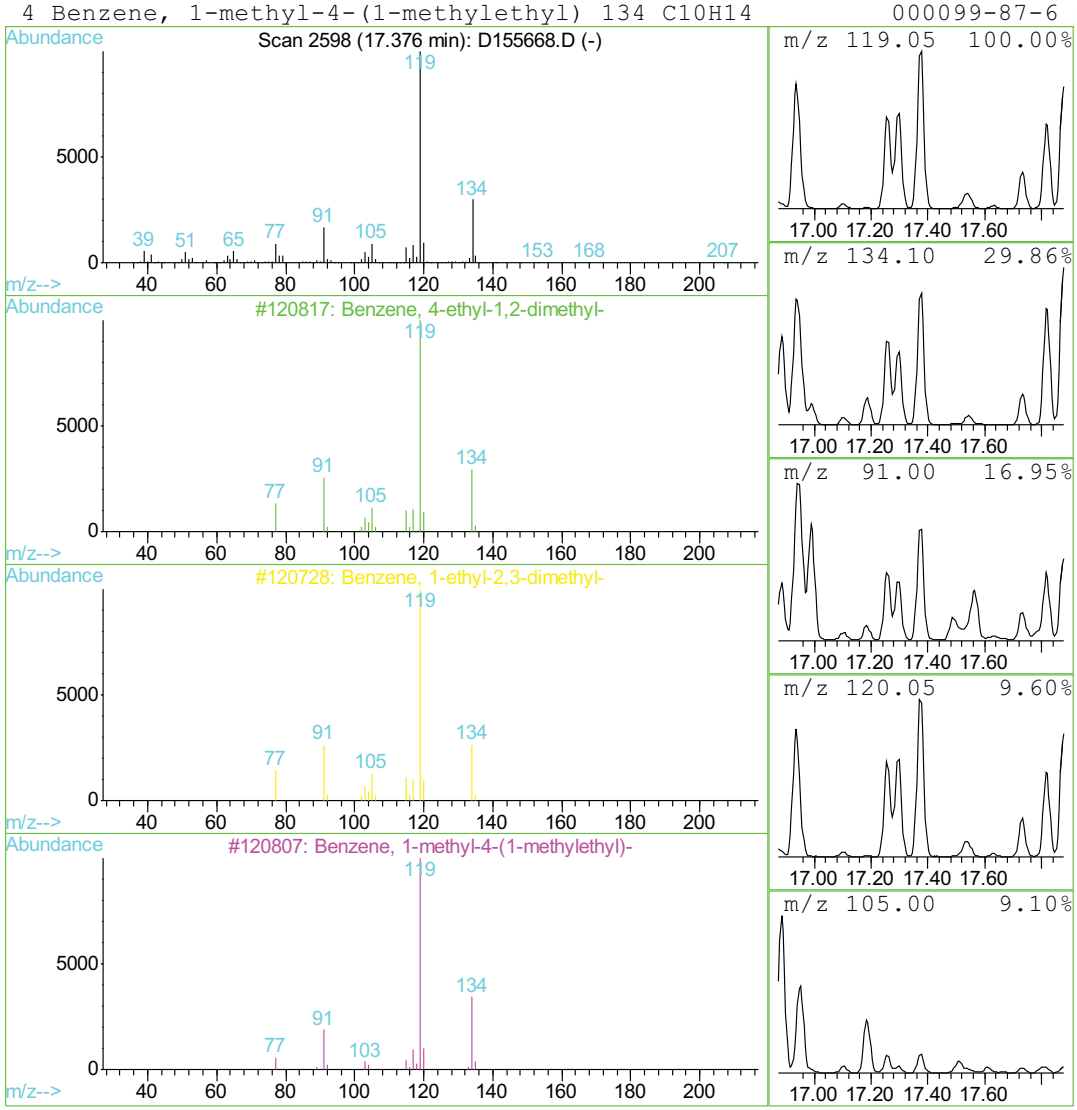
Library Search Compound Report

```
  Data File : C:\HPCHEM\1\DATA\D155668.D                    Vial: 11
  Acq On    :  3 Jun 2009   1:47 pm                     Operator: thienn
  Sample    : ja19940-1                                  Inst    : MSD
  Misc      : MS81063,VD6254,6.4,,100,5,1                Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Quant Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
  Title        : SW-846 Method 8260B
  Library      : C:\DATABASE\NIST98.L
*****************************************************************
Peak Number  8  Benzene, 4-ethyl-1,2-dimethyl-  Concentration Rank  9

  R.T.   EstConc           Area       Relative to ISTD         R.T.
-------------------------------------------------------------------
 17.38   66.13 ug/L      1716700    1,4-dichlorobenzene-d4     16.63

 Hit# of  5    Tentative ID              MW  MolForm       CAS#        Qual
-------------------------------------------------------------------------
 1 Benzene, 4-ethyl-1,2-dimethyl-       134 C10H14         000934-80-5 95
 2 Benzene, 1-ethyl-2,3-dimethyl-       134 C10H14         000933-98-2 95
 3 Benzene, 1-methyl-4-(1-methylethyl) 134 C10H14         000099-87-6 94
 4 Benzene, 1-methyl-4-(1-methylethyl) 134 C10H14         000099-87-6 94
```



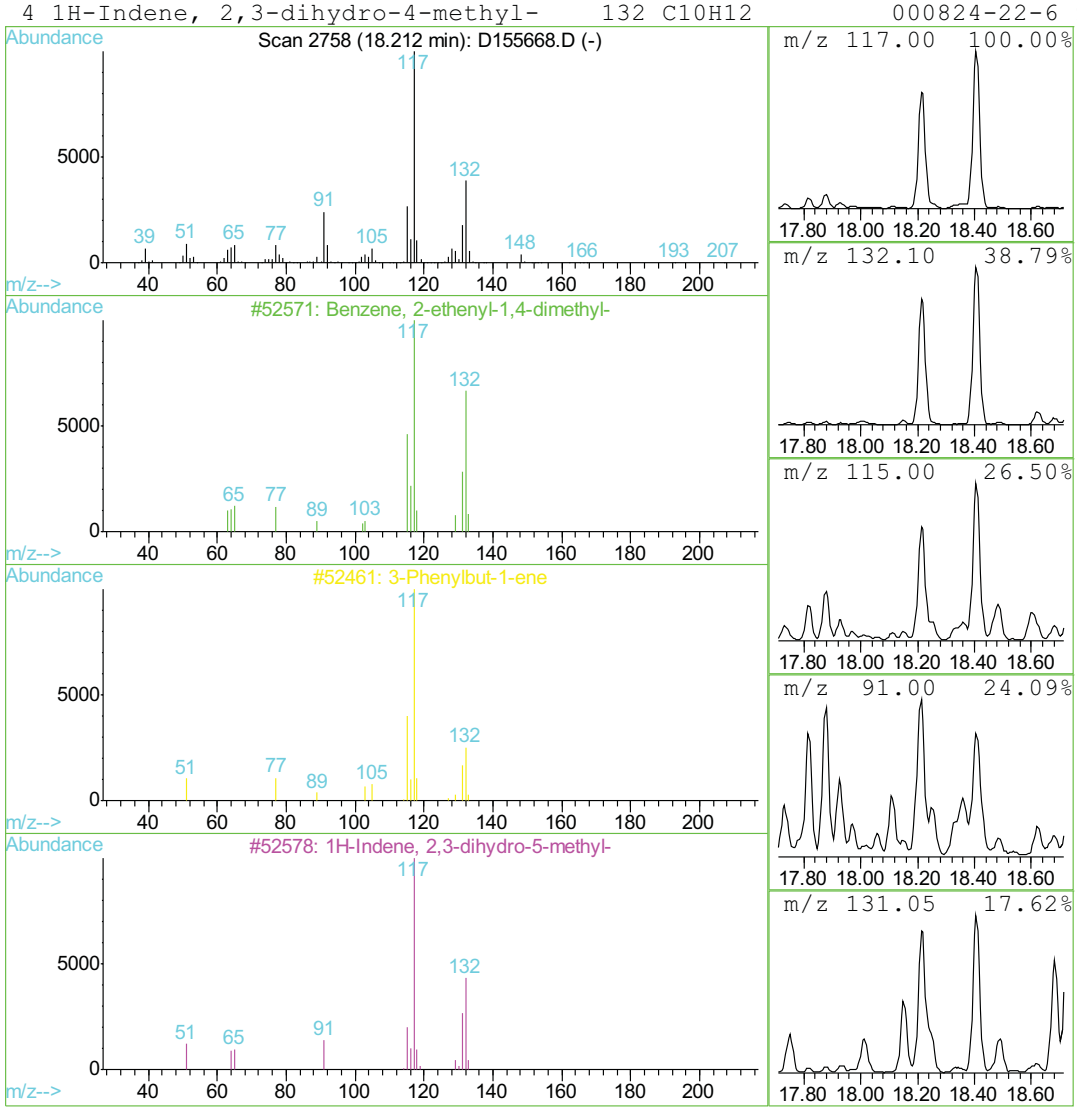
Library Search Compound Report

```
  Data File : C:\HPCHEM\1\DATA\D155668.D                    Vial: 11
  Acq On    :  3 Jun 2009   1:47 pm                     Operator: thienn
  Sample    : ja19940-1                                  Inst    : MSD
  Misc      : MS81063,VD6254,6.4,,100,5,1                Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Quant Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
  Title        : SW-846 Method 8260B
  Library      : C:\DATABASE\NIST98.L
*****************************************************************
Peak Number  9  Benzene, 2-ethenyl-1,4-dimethy  Concentration Rank 10

  R.T.   EstConc           Area       Relative to ISTD         R.T.
-------------------------------------------------------------------
 18.21   58.51 ug/L      1518650    1,4-dichlorobenzene-d4     16.63

 Hit# of  5    Tentative ID              MW  MolForm       CAS#        Qual
-------------------------------------------------------------------------
 1 Benzene, 2-ethenyl-1,4-dimethyl-     132 C10H12         002039-89-6 96
 2 3-Phenylbut-1-ene                    132 C10H12         000934-10-1 94
 3 1H-Indene, 2,3-dihydro-5-methyl-     132 C10H12         000874-35-1 93
 4 1H-Indene, 2,3-dihydro-4-methyl-     132 C10H12         000824-22-6 93
```



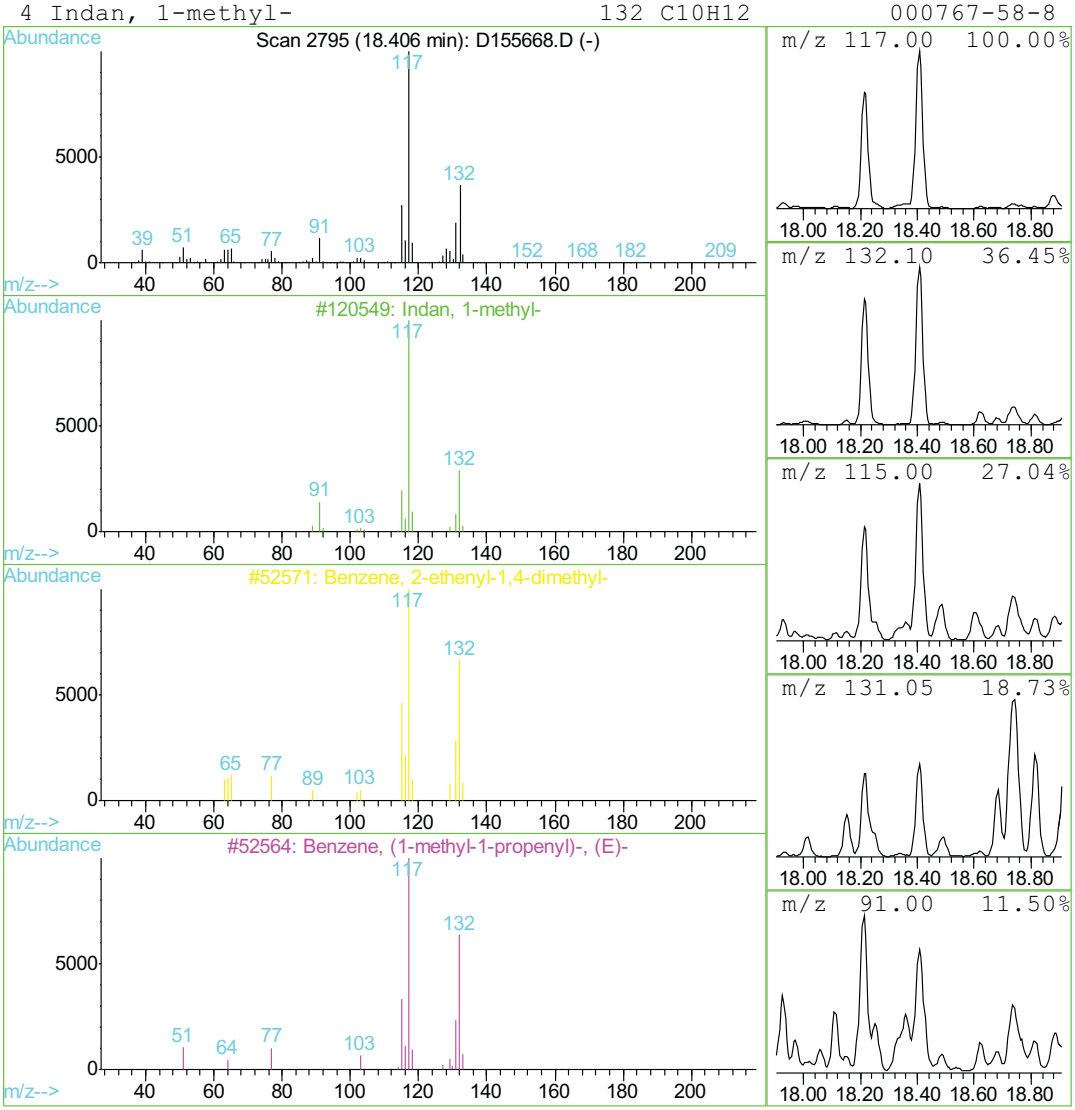
Library Search Compound Report

```
  Data File : C:\HPCHEM\1\DATA\D155668.D                    Vial: 11
  Acq On    :  3 Jun 2009   1:47 pm                     Operator: thienn
  Sample    : ja19940-1                                  Inst    : MSD
  Misc      : MS81063,VD6254,6.4,,100,5,1                Multiplr: 1.00
  MS Integration Params: LSCINT.P

  Quant Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
  Title        : SW-846 Method 8260B
  Library      : C:\DATABASE\NIST98.L
*****************************************************************
Peak Number 10  Indan, 1-methyl-                Concentration Rank  7

  R.T.   EstConc           Area       Relative to ISTD         R.T.
-------------------------------------------------------------------
 18.41   73.06 ug/L      1896470    1,4-dichlorobenzene-d4     16.63

 Hit# of  5    Tentative ID                MW  MolForm       CAS#        Qual
-------------------------------------------------------------------------
 1 Indan, 1-methyl-                       132 C10H12        000767-58-8 91
 2 Benzene, 2-ethenyl-1,4-dimethyl-       132 C10H12        002039-89-6 91
 3 Benzene, (1-methyl-1-propenyl)-, (E    132 C10H12        000768-00-3 90
 4 Indan, 1-methyl-                       132 C10H12        000767-58-8 90
```



Tentatively Identified Compound (LSC) summary

Operator ID: thienn Date Acquired: 3 Jun 2009 1:47 pm
Data File: C:\HPCHEM\1\DATA\D155668.D
Name: ja19940-1
Misc: MS81063,VD6254,6.4,,100,5,1
Method: C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
Title: SW-846 Method 8260B
Library Searched: C:\DATABASE\NIST98.L

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc
2-Butene, 2,3-dimeth	7.77	100.4	ug/L	2927840	ISTD02	9.80	1458620	50.0
2-Butene, 2,3-dimeth	8.64	121.9	ug/L	3555620	ISTD02	9.80	1458620	50.0
Benzene, 1-ethyl-2-m	15.67	158.3	ug/L	4108490	ISTD05	16.63	1297880	50.0
Benzene, 1,2,3-trime	15.76	71.6	ug/L	1859300	ISTD05	16.63	1297880	50.0
Benzene, 1,3,5-trime	16.20	262.6	ug/L	6817610	ISTD05	16.63	1297880	50.0
Benzene, 1,2,3-trime	16.69	77.6	ug/L	2013230	ISTD05	16.63	1297880	50.0
Benzene, 1-ethenyl-4	16.95	129.1	ug/L	3350750	ISTD05	16.63	1297880	50.0
Benzene, 4-ethyl-1,2	17.38	66.1	ug/L	1716700	ISTD05	16.63	1297880	50.0
Benzene, 2-ethenyl-1	18.21	58.5	ug/L	1518650	ISTD05	16.63	1297880	50.0
Indan, 1-methyl-	18.41	73.1	ug/L	1896470	ISTD05	16.63	1297880	50.0

D155668.D MD6218.M Wed Jun 03 14:25:44 2009 MSD

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\D155661.D Vial: 4
Acq On : 3 Jun 2009 10:14 am Operator: thienn
Sample : mb1 Inst : MSD
Misc : MS80953,VD6254,5,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 3 12:58 2009 Quant Results File: MD6218.RES

Quant Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
Title : SW-846 Method 8260B
Last Update : Tue May 26 17:16:15 2009
Response via : Initial Calibration
DataAcq Meth : MD6218

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.56	65	130620	500.00	ug/L	0.00
4) pentafluorobenzene	9.80	168	229210	50.00	ug/L	0.00
49) 1,4-difluorobenzene	10.71	114	327288	50.00	ug/L	0.00
80) chlorobenzene-d5	14.05	117	296904	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	16.63	152	174894	50.00	ug/L	0.00

System Monitoring Compounds

42) dibromofluoromethane (s)	9.81	113	120951	46.34	ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery = 92.68%			
43) 1,2-dichloroethane-d4 (s)	10.23	65	176566	49.74	ug/L	0.00
Spiked Amount 50.000	Range 64 - 135		Recovery = 99.48%			
72) toluene-d8 (s)	12.43	98	458957	48.33	ug/L	0.00
Spiked Amount 50.000	Range 76 - 117		Recovery = 96.66%			
96) 4-bromofluorobenzene (s)	15.33	95	186790	53.78	ug/L	0.00
Spiked Amount 50.000	Range 72 - 122		Recovery = 107.56%			

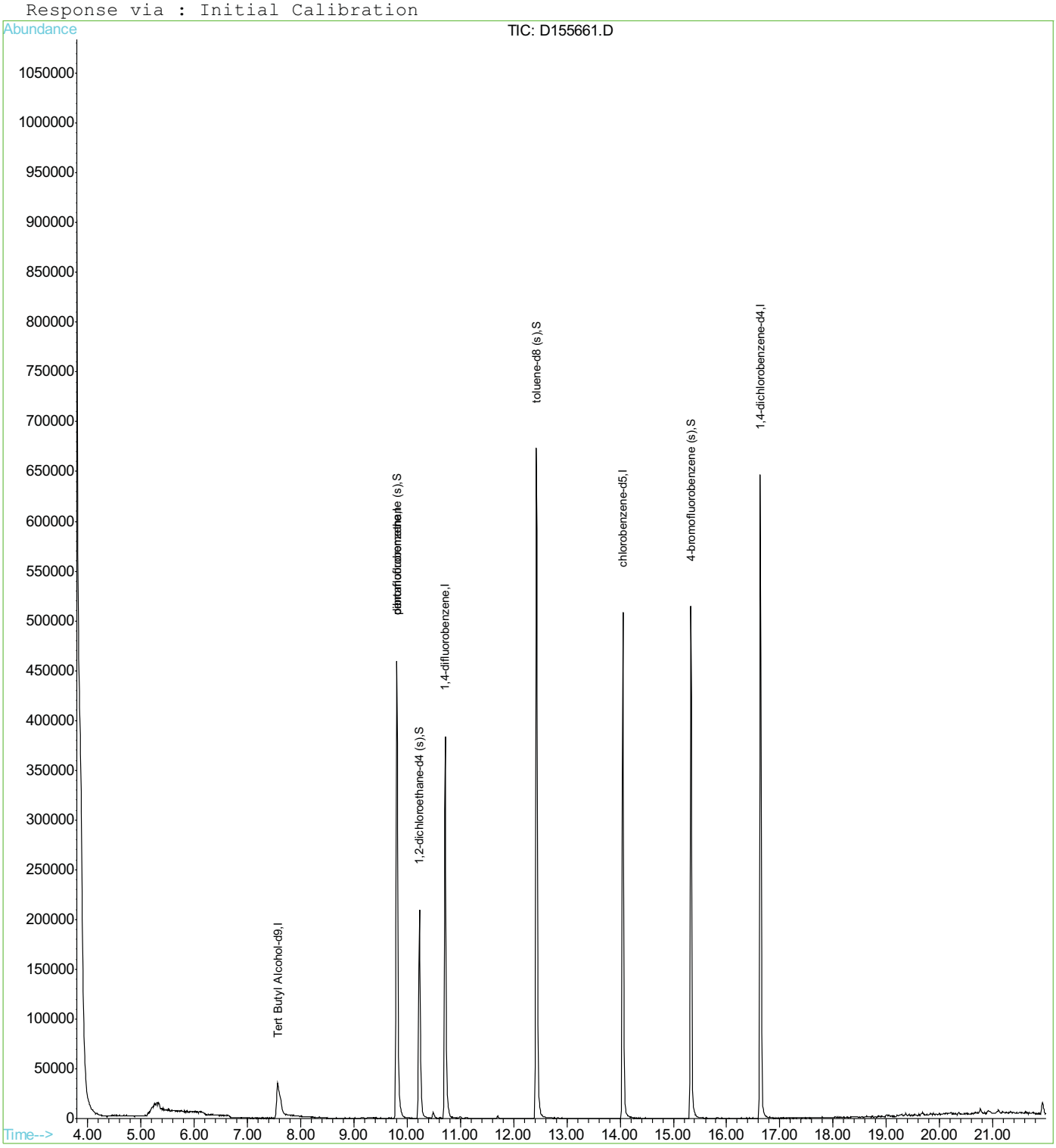
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration
D155661.D MD6218.M Wed Jun 03 12:58:42 2009 MSD Page 1

Quantitation Report

Data File : C:\HPCHEM\1\DATA\D155661.D Vial: 4
Acq On : 3 Jun 2009 10:14 am Operator: thienn
Sample : mb1 Inst : MSD
Misc : MS80953,VD6254,5,,100,5,1 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 3 12:58 2009 Quant Results File: MD6218.RES

Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
Title : SW-846 Method 8260B
Last Update : Tue May 26 17:16:15 2009
Response via : Initial Calibration



LSC Area Percent Report

Data File : C:\HPCHEM\1\DATA\D155661.D Vial: 4
Acq On : 3 Jun 2009 10:14 am Operator: thienn
Sample : mb1 Inst : MSD
Misc : MS80953,VD6254,5,,100,5,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
Title : SW-846 Method 8260B
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.02 Max Peaks: 100
Stop Thrs : 0.005 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	4.395	111	116	120	rBV2	755	1396	0.11%	0.020%
2	4.442	120	125	127	rBV3	981	1377	0.11%	0.019%
3	4.761	183	186	188	rBV3	759	816	0.06%	0.011%
4	4.777	188	189	194	rBV5	808	1031	0.08%	0.014%
5	5.018	230	235	237	rBV3	708	772	0.06%	0.011%
6	5.059	240	243	246	rBV2	693	705	0.05%	0.010%
7	5.242	252	278	279	rBV2	11316	49013	3.78%	0.686%
8	5.258	279	281	286	rVV5	7171	13536	1.04%	0.189%
9	5.295	286	288	292	rVV5	6719	11356	0.88%	0.159%
10	5.337	292	296	301	rVB7	6056	11508	0.89%	0.161%
11	5.577	339	342	343	rVB3	1527	1278	0.10%	0.018%
12	5.656	356	357	360	rVB3	1155	892	0.07%	0.012%
13	5.703	364	366	373	rBV6	1003	1679	0.13%	0.023%
14	5.860	393	396	399	rBV5	1829	1972	0.15%	0.028%
15	5.938	407	411	417	rBV7	1113	1952	0.15%	0.027%
16	5.975	417	418	422	rVB3	1314	1446	0.11%	0.020%
17	6.006	422	424	426	rBV3	1302	983	0.08%	0.014%
18	6.451	508	509	513	rVB4	825	827	0.06%	0.012%
19	6.550	526	528	535	rVV5	1054	1552	0.12%	0.022%
20	6.592	535	536	541	rVV4	1132	1776	0.14%	0.025%
21	6.634	541	544	562	rVB8	2633	7800	0.60%	0.109%
22	6.916	591	598	601	rBV3	539	1070	0.08%	0.015%
23	7.570	708	723	758	rBV2	35306	197244	15.23%	2.759%
24	8.349	867	872	876	rVB3	578	901	0.07%	0.013%
25	8.961	988	989	998	rBV2	354	780	0.06%	0.011%
26	9.155	1017	1026	1036	rVB3	1117	2797	0.22%	0.039%
27	9.264	1039	1047	1049	rBV3	1028	1689	0.13%	0.024%
28	9.662	1118	1123	1134	rBV3	817	1965	0.15%	0.027%
29	9.803	1141	1150	1184	rBV2	459728	1053512	81.33%	14.736%
30	10.028	1192	1193	1200	rVB3	619	800	0.06%	0.011%
31	10.227	1222	1231	1260	rBV	209281	470671	36.34%	6.584%
32	10.488	1273	1281	1292	rBV2	5785	13220	1.02%	0.185%
33	10.614	1304	1305	1313	rVB2	658	997	0.08%	0.014%
34	10.713	1313	1324	1347	rBV	383948	795962	61.45%	11.134%
35	10.849	1348	1350	1359	rVB2	1132	1597	0.12%	0.022%
36	10.990	1371	1377	1386	rVB5	1646	3322	0.26%	0.046%
37	11.100	1390	1398	1407	rBV4	952	1961	0.15%	0.027%
38	11.696	1506	1512	1520	rBV3	2200	3972	0.31%	0.056%

39	12.429	1641	1652	1684	rBV	673208	1295364	100.00%	18.119%
40	12.701	1701	1704	1711	rVB4	471	766	0.06%	0.011%
41	12.831	1724	1729	1733	rVB4	1163	1251	0.10%	0.017%
42	14.050	1951	1962	1997	rBV	508106	954496	73.69%	13.351%
43	15.326	2197	2206	2241	rBV	514356	932604	72.00%	13.045%
44	15.828	2298	2302	2308	rBV3	799	1281	0.10%	0.018%
45	16.634	2444	2456	2484	rBV	646549	1126735	86.98%	15.760%
46	16.806	2486	2489	2491	rVB4	862	771	0.06%	0.011%
47	17.335	2589	2590	2597	rVV2	534	748	0.06%	0.010%
48	17.800	2676	2679	2686	rBV3	894	907	0.07%	0.013%
49	17.889	2690	2696	2698	rBV3	620	801	0.06%	0.011%
50	18.051	2719	2727	2730	rBV5	1212	2006	0.15%	0.028%
51	18.145	2737	2745	2750	rVB4	1012	1771	0.14%	0.025%
52	18.198	2750	2755	2757	rBV2	718	777	0.06%	0.011%
53	18.354	2781	2785	2786	rVV4	853	781	0.06%	0.011%
54	18.381	2787	2790	2797	rVV6	879	1521	0.12%	0.021%
55	18.459	2797	2805	2809	rVB4	894	1838	0.14%	0.026%
56	18.490	2809	2811	2816	rVB2	767	965	0.07%	0.013%
57	18.553	2816	2823	2826	rBV3	1005	1978	0.15%	0.028%
58	18.637	2829	2839	2842	rBV4	1704	4127	0.32%	0.058%
59	18.736	2855	2858	2865	rBV	1153	2200	0.17%	0.031%
60	18.841	2874	2878	2880	rBV2	968	1121	0.09%	0.016%
61	19.013	2898	2911	2920	rBV2	2140	7682	0.59%	0.107%
62	19.081	2923	2924	2932	rBV5	866	1328	0.10%	0.019%
63	19.134	2932	2934	2943	rVB5	990	1339	0.10%	0.019%
64	19.202	2943	2947	2952	rBV6	1677	2888	0.22%	0.040%
65	19.264	2952	2959	2961	rVV5	1434	2403	0.19%	0.034%
66	19.291	2961	2964	2969	rVB5	1842	1841	0.14%	0.026%
67	19.369	2970	2979	2985	rBV8	2463	5597	0.43%	0.078%
68	19.427	2988	2990	2995	rVB6	1177	1408	0.11%	0.020%
69	19.526	3006	3009	3011	rBV4	1321	1522	0.12%	0.021%
70	19.620	3021	3027	3028	rVB5	1249	1906	0.15%	0.027%
71	19.657	3028	3034	3036	rBV5	3012	4929	0.38%	0.069%
72	19.683	3036	3039	3047	rVV6	3170	5183	0.40%	0.072%
73	19.761	3051	3054	3056	rVB4	1142	896	0.07%	0.013%
74	19.835	3060	3068	3074	rBV7	2248	4941	0.38%	0.069%
75	19.882	3074	3077	3082	rVV6	1559	2315	0.18%	0.032%
76	19.918	3082	3084	3088	rVV4	1096	1406	0.11%	0.020%
77	19.955	3088	3091	3094	rVV5	925	1210	0.09%	0.017%
78	19.976	3094	3095	3099	rVV3	795	953	0.07%	0.013%
79	20.033	3103	3106	3108	rBV4	1033	1112	0.09%	0.016%
80	20.086	3113	3116	3120	rVV6	1130	1955	0.15%	0.027%
81	20.138	3122	3126	3131	rVV7	1327	2475	0.19%	0.035%
82	20.222	3131	3142	3147	rVB10	1937	6139	0.47%	0.086%
83	20.263	3147	3150	3154	rBV5	1271	1502	0.12%	0.021%
84	20.363	3164	3169	3173	rBV7	2136	3079	0.24%	0.043%
85	20.483	3189	3192	3194	rBV3	830	697	0.05%	0.010%
86	20.771	3239	3247	3254	rVV3	4437	10165	0.78%	0.142%
87	20.912	3267	3274	3288	rBV3	3089	10261	0.79%	0.144%
88	21.043	3294	3299	3301	rBV5	850	1150	0.09%	0.016%
89	21.100	3301	3310	3321	rVV5	3879	11483	0.89%	0.161%
90	21.189	3321	3327	3336	rVB8	1502	3866	0.30%	0.054%
91	21.315	3348	3351	3353	rBV4	1117	1583	0.12%	0.022%
92	21.336	3353	3355	3362	rVV6	1952	3270	0.25%	0.046%
93	21.388	3363	3365	3372	rVV5	1270	2133	0.16%	0.030%
94	21.519	3385	3390	3392	rVB5	1185	1513	0.12%	0.021%
95	21.555	3392	3397	3402	rBV7	989	1587	0.12%	0.022%

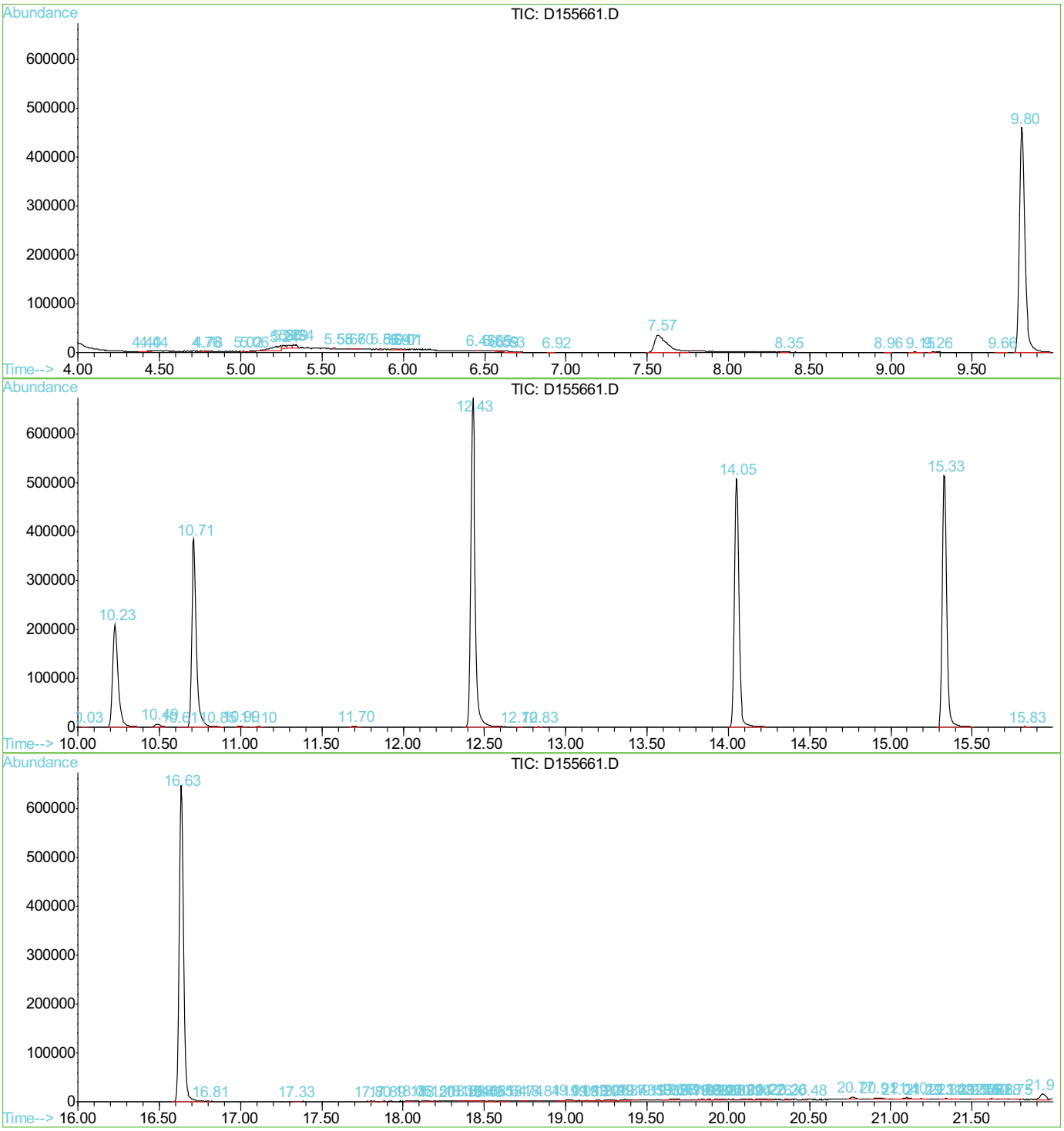
96	21.597	3402	3405	3406	rBV2	1230	837	0.06%	0.012%
97	21.623	3409	3410	3415	rVB4	1659	1629	0.13%	0.023%
98	21.676	3418	3420	3428	rVB7	852	1135	0.09%	0.016%
99	21.749	3431	3434	3445	rVB9	1709	2841	0.22%	0.040%
100	21.932	3462	3469	3478	rBV6	11694	28153	2.17%	0.394%

Sum of corrected areas: 7149248

D155661.D MD6218.M Wed Jun 03 12:59:02 2009 MSD

LSC Report - Integrated Chromatogram

```
File        : C:\HPCHEM\1\DATA\D155661.D
Operator    : thienn
Acquired    :  3 Jun 2009  10:14 am using AcqMethod MD6218
Instrument  :   MSD
Sample Name: mb1
Misc Info   : MS80953,VD6254,5,,100,5,1
Vial Number: 4
Quant File :MD6218.RES (RTE Integrator)
```



D155661.D MD6218.M Wed Jun 03 12:59:02 2009 MSD

Tentatively Identified Compound (LSC) summary

Operator ID: thienn Date Acquired: 3 Jun 2009 10:14 am
Data File: C:\HPCHEM\1\DATA\D155661.D
Name: mb1
Misc: MS80953,VD6254,5,,100,5,1
Method: C:\HPCHEM\1\METHODS\MD6218.M (RTE Integrator)
Title: SW-846 Method 8260B
Library Searched: C:\DATABASE\NIST98.L

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc

D155661.D MD6218.M Wed Jun 03 12:59:02 2009 MSD

New Jersey ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: JA19940
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading, NJ

Sample: JA19940-1 **Analyzed:** 03-JUN-09 by KD **Method:** ASTM 4643-00
ClientID: 7930 SUMP(PE-1)

Wet Weight (Total)	27.15	g
Tare Weight	17.85	g
Dry Weight (Total)	25.54	g
Solids, Percent	82.7	%

APPENDIX XI

Laboratory Analytical Data Package- Temporary Well—TK-7930-TW-1—October 26, 2009

EnviroTrac

New Jersey
ACCUTEST LABORATORIES

12/21/12

Technical Report for

EnviroTrac, Ltd.

Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Accutest Job Number: JA31597

Sampling Date: 10/28/09

Report to:

EnviroTrac

sarahd@envirotrac.com

ATTN: Sarah Dyson

Total number of pages in report: **160**

ACCREDITED IN ACCORDANCE WITH nelac

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.

Nancy Cole
Laboratory Director

Client Service contact: Matt Cordova 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), PA, RI, SC, TN, VA, WV

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Sections: 1 2 3 4 5 6 7 8 9

Table of Contents

-1-

Section 1: Sample Summary **3**
Section 2: Case Narrative/Conformance Summary **4**
Section 3: Summary of Hits **6**
Section 4: Sample Results **7**
4.1: JA31597-1: TK-7930-TW1 8
4.2: JA31597-2: FIELD BLANK 13
4.3: JA31597-3: TRIP BLANK 18
Section 5: Misc. Forms **20**
5.1: Chain of Custody 21
5.2: Sample Tracking Chronicle 23
5.3: Internal Chain of Custody 24
Section 6: GC/MS Volatiles - QC Data Summaries **26**
6.1: Method Blank Summary 27
6.2: Blank Spike Summary 29
6.3: Matrix Spike/Matrix Spike Duplicate Summary 31
6.4: Instrument Performance Checks (BFB) 33
6.5: Internal Standard Area Summaries 35
6.6: Surrogate Recovery Summaries 36
6.7: Initial and Continuing Calibration Summaries 37
Section 7: GC/MS Volatiles - Raw Data **48**
7.1: Samples 49
7.2: Method Blanks 70
Section 8: GC/MS Semi-volatiles - QC Data Summaries **77**
8.1: Method Blank Summary 78
8.2: Blank Spike Summary 81
8.3: Matrix Spike/Matrix Spike Duplicate Summary 84
8.4: Instrument Performance Checks (DFTPP) 87
8.5: Internal Standard Area Summaries 96
8.6: Surrogate Recovery Summaries 101
8.7: Initial and Continuing Calibration Summaries 103
Section 9: GC/MS Semi-volatiles - Raw Data **128**
9.1: Samples 129
9.2: Method Blanks 150

Accutest LabLink@704161 09:49 21-Dec-2012

Sample Summary

EnviroTrac, Ltd.

Job No: JA31597

Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JA31597-1	10/28/09	09:55	RD	10/29/09	AQ	Ground Water	TK-7930-TW1
JA31597-2	10/28/09	10:20	RD	10/29/09	AQ	Field Blank Water	FIELD BLANK
JA31597-3	10/28/09	10:20	RD	10/29/09	AQ	Trip Blank Water	TRIP BLANK

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	EnviroTrac, Ltd.	**Job No**	JA31597
Site:	Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ	**Report Date**	11/16/2009 10:59:02 A

On 10/29/2009, 1 Sample(s), 1 Trip Blank(s) and 1 Field Blank(s) were received at Accutest Laboratories at a temperature of 2.6 C. Samples were intact and properly preserved, unless noted below. An Accutest Job Number of JA31597 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

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

Volatiles by GCMS By Method SW846 8260B

Matrix: AQ **Batch ID:** V2C2892

- All samples were analyzed within the recommended method holding time.
- Sample(s) JA31630-4MS, JA31630-4MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270C

Matrix: AQ **Batch ID:** OP40707

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) JA31445-6MS, JA31445-6MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Blank Spike Recovery(s) for bis(2-Chloroethyl)ether are outside control limits.
- Sample(s) JA31597-2, OP40707-MB1, OP40707-BS1 have surrogates outside control limits. Probable cause due to matrix interference.
- OP40707-BS1 for bis(2-Chloroethyl)ether: Outside of in house control limits.
- OP40707-BS1 for 2-Fluorobiphenyl: Outside of in house control limits.
- OP40707-MB1 for Nitrobenzene-d5: Outside of in house control limits, but within reasonable method recovery limits.
- OP40707-MB1 for 2-Fluorobiphenyl: Outside of in house control limits, but within reasonable method recovery limits.
- OP40707-BS1 for Nitrobenzene-d5: Outside of in house control limits.
- JA31597-2 for 2-Fluorobiphenyl: Outside of in house control limits, but within reasonable method recovery limits.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix: AQ **Batch ID:** OP40707A

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) JA31445-6MS, JA31445-6MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Sample(s) OP40707A-MB1 have surrogates outside control limits. Probable cause due to matrix interference.
- OP40707A-MB1 for Nitrobenzene-d5: Outside of in house control limits.

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

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

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

Summary of Hits

Job Number: JA31597
Account: EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ
Collected: 10/28/09

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JA31597-1	**TK-7930-TW1**					
No hits reported in this sample.						
JA31597-2	**FIELD BLANK**					
Naphthalene		0.513	0.10	0.019	ug/l	SW846 8270C BY SIM
JA31597-3	**TRIP BLANK**					
No hits reported in this sample.						

New Jersey
ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest LabLink@704161 09:49 21-Dec-2012

Report of Analysis

Client Sample ID:	TK-7930-TW1		
Lab Sample ID:	JA31597-1	**Date Sampled:**	10/28/09
Matrix:	AQ - Ground Water	**Date Received:**	10/29/09
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2C63877.D	1	11/07/09	TLR	n/a	n/a	V2C2892
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.9	ug/l	
71-43-2	Benzene	ND	1.0	0.23	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.33	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	4.0	0.23	ug/l	
74-83-9	Bromomethane	ND	2.0	0.30	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	1.6	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.74	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.26	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.39	ug/l	
75-00-3	Chloroethane	ND	1.0	0.37	ug/l	
67-66-3	Chloroform	ND	1.0	0.23	ug/l	
74-87-3	Chloromethane	ND	1.0	0.29	ug/l	
110-82-7	Cyclohexane	ND	5.0	1.9	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	1.1	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.22	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	0.39	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.26	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.25	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.28	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	0.92	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.33	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.22	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.25	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.27	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
123-91-1	1,4-Dioxane	ND	130	94	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.27	ug/l	
76-13-1	Freon 113	ND	5.0	0.38	ug/l	

ND = Not detected MDL - Method Detection Limit
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:	TK-7930-TW1		
Lab Sample ID:	JA31597-1	**Date Sampled:**	10/28/09
Matrix:	AQ - Ground Water	**Date Received:**	10/29/09
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.0	1.4	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.57	ug/l	
79-20-9	Methyl Acetate	ND	5.0	1.5	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.35	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.23	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	0.86	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.30	ug/l	
100-42-5	Styrene	ND	5.0	0.58	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.24	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.27	ug/l	
108-88-3	Toluene	ND	1.0	0.30	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.47	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.56	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.26	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.23	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.24	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	0.54	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.44	ug/l	
	m,p-Xylene	ND	1.0	0.25	ug/l	
95-47-6	o-Xylene	ND	1.0	0.25	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.25	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		76-120%
17060-07-0	1,2-Dichloroethane-D4	111%		64-135%
2037-26-5	Toluene-D8	93%		76-117%
460-00-4	4-Bromofluorobenzene	89%		72-122%

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

ND = Not detected MDL - Method Detection Limit
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

Accutest LabLink@704161 09:49 21-Dec-2012

Report of Analysis

Client Sample ID:	TK-7930-TW1		
Lab Sample ID:	JA31597-1	**Date Sampled:**	10/28/09
Matrix:	AQ - Ground Water	**Date Received:**	10/29/09
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M15081.D	1	11/07/09	LP	10/31/09	OP40707	E3M664
Run #2							

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

BN TCL11 List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-86-2	Acetophenone	ND	5.0	0.40	ug/l	
1912-24-9	Atrazine	ND	5.0	0.39	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.40	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.35	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.25	ug/l	
92-52-4	1,1'-Biphenyl	ND	2.0	0.42	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.42	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.25	ug/l	
86-74-8	Carbazole	ND	2.0	0.17	ug/l	
105-60-2	Caprolactam	ND	2.0	0.20	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.25	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.31	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	2.0	0.39	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.35	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	2.0	0.22	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	2.0	0.33	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.30	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.30	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.19	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.40	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.17	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.23	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.37	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	20	0.67	ug/l	
67-72-1	Hexachloroethane	ND	5.0	0.26	ug/l	
78-59-1	Isophorone	ND	2.0	0.25	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.0	0.66	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.24	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.29	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.18	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.25	ug/l	

ND = Not detected MDL - Method Detection Limit
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:	TK-7930-TW1		
Lab Sample ID:	JA31597-1	**Date Sampled:**	10/28/09
Matrix:	AQ - Ground Water	**Date Received:**	10/29/09
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ		

BN TCL11 List

CAS No.	Compound	Result	RL	MDL	Units	Q
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.44	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	5.0	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	90%		25-112%
321-60-8	2-Fluorobiphenyl	88%		31-106%
1718-51-0	Terphenyl-d14	44%		14-122%

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

ND = Not detected MDL - Method Detection Limit
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

Accutest LabLink@704161 09:49 21-Dec-2012

Report of Analysis

Client Sample ID:	TK-7930-TW1		
Lab Sample ID:	JA31597-1	**Date Sampled:**	10/28/09
Matrix:	AQ - Ground Water	**Date Received:**	10/29/09
Method:	SW846 8270C BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4M13122.D	1	11/07/09	NAP	10/31/09	OP40707A	E4M606
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.029	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.039	ug/l	
120-12-7	Anthracene	ND	0.10	0.026	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.024	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.031	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.036	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.029	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.028	ug/l	
218-01-9	Chrysene	ND	0.10	0.022	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.023	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.024	ug/l	
86-73-7	Fluorene	ND	0.10	0.027	ug/l	
118-74-1	Hexachlorobenzene	ND	0.020	0.0099	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.029	ug/l	
91-20-3	Naphthalene	ND	0.10	0.019	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.036	ug/l	
129-00-0	Pyrene	ND	0.10	0.022	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	102%		18-119%
321-60-8	2-Fluorobiphenyl	79%		18-104%
1718-51-0	Terphenyl-d14	41%		13-109%

ND = Not detected MDL - Method Detection Limit
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

Accutest LabLink@704161 09:49 21-Dec-2012

Report of Analysis

Client Sample ID:	FIELD BLANK		
Lab Sample ID:	JA31597-2	**Date Sampled:**	10/28/09
Matrix:	AQ - Field Blank Water	**Date Received:**	10/29/09
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2C63879.D	1	11/07/09	TLR	n/a	n/a	V2C2892
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.9	ug/l	
71-43-2	Benzene	ND	1.0	0.23	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.33	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	4.0	0.23	ug/l	
74-83-9	Bromomethane	ND	2.0	0.30	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	1.6	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.74	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.26	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.39	ug/l	
75-00-3	Chloroethane	ND	1.0	0.37	ug/l	
67-66-3	Chloroform	ND	1.0	0.23	ug/l	
74-87-3	Chloromethane	ND	1.0	0.29	ug/l	
110-82-7	Cyclohexane	ND	5.0	1.9	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	1.1	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.22	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	0.39	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.26	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.25	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.28	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	0.92	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.33	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.22	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.25	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.27	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
123-91-1	1,4-Dioxane	ND	130	94	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.27	ug/l	
76-13-1	Freon 113	ND	5.0	0.38	ug/l	

ND = Not detected MDL - Method Detection Limit
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:	FIELD BLANK		
Lab Sample ID:	JA31597-2	**Date Sampled:**	10/28/09
Matrix:	AQ - Field Blank Water	**Date Received:**	10/29/09
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.0	1.4	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.57	ug/l	
79-20-9	Methyl Acetate	ND	5.0	1.5	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.35	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.23	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	0.86	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.30	ug/l	
100-42-5	Styrene	ND	5.0	0.58	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.24	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.27	ug/l	
108-88-3	Toluene	ND	1.0	0.30	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.47	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.56	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.26	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.23	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.24	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	0.54	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.44	ug/l	
	m,p-Xylene	ND	1.0	0.25	ug/l	
95-47-6	o-Xylene	ND	1.0	0.25	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.25	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%		76-120%
17060-07-0	1,2-Dichloroethane-D4	112%		64-135%
2037-26-5	Toluene-D8	100%		76-117%
460-00-4	4-Bromofluorobenzene	89%		72-122%

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

ND = Not detected MDL - Method Detection Limit
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

Accutest LabLink@704161 09:49 21-Dec-2012

Report of Analysis

Client Sample ID:	FIELD BLANK		
Lab Sample ID:	JA31597-2	**Date Sampled:**	10/28/09
Matrix:	AQ - Field Blank Water	**Date Received:**	10/29/09
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M15031.D	1	11/05/09	LP	10/31/09	OP40707	E3M662
Run #2							

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

BN TCL11 List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-86-2	Acetophenone	ND	5.0	0.40	ug/l	
1912-24-9	Atrazine	ND	5.0	0.39	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.40	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.35	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.25	ug/l	
92-52-4	1,1'-Biphenyl	ND	2.0	0.42	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.42	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.25	ug/l	
86-74-8	Carbazole	ND	2.0	0.17	ug/l	
105-60-2	Caprolactam	ND	2.0	0.20	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.25	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.31	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	2.0	0.39	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.35	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	2.0	0.22	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	2.0	0.33	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.30	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.30	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.19	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.40	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.17	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.23	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.37	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	20	0.67	ug/l	
67-72-1	Hexachloroethane	ND	5.0	0.26	ug/l	
78-59-1	Isophorone	ND	2.0	0.25	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.0	0.66	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.24	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.29	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.18	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.25	ug/l	

ND = Not detected MDL - Method Detection Limit
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:	FIELD BLANK		
Lab Sample ID:	JA31597-2	**Date Sampled:**	10/28/09
Matrix:	AQ - Field Blank Water	**Date Received:**	10/29/09
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ		

BN TCL11 List

CAS No.	Compound	Result	RL	MDL	Units	Q
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.44	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	5.0	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	104%		25-112%
321-60-8	2-Fluorobiphenyl	108% [a]		31-106%
1718-51-0	Terphenyl-d14	75%		14-122%

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

(a) Outside of in house control limits, but within reasonable method recovery limits.

ND = Not detected MDL - Method Detection Limit
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

Accutest LabLink@704161 09:49 21-Dec-2012

Report of Analysis

Client Sample ID:	FIELD BLANK		
Lab Sample ID:	JA31597-2	**Date Sampled:**	10/28/09
Matrix:	AQ - Field Blank Water	**Date Received:**	10/29/09
Method:	SW846 8270C BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4M13123.D	1	11/07/09	NAP	10/31/09	OP40707A	E4M606
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.029	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.039	ug/l	
120-12-7	Anthracene	ND	0.10	0.026	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.024	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.031	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.036	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.029	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.028	ug/l	
218-01-9	Chrysene	ND	0.10	0.022	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.023	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.024	ug/l	
86-73-7	Fluorene	ND	0.10	0.027	ug/l	
118-74-1	Hexachlorobenzene	ND	0.020	0.0099	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.029	ug/l	
91-20-3	Naphthalene	0.513	0.10	0.019	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.036	ug/l	
129-00-0	Pyrene	ND	0.10	0.022	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	114%		18-119%
321-60-8	2-Fluorobiphenyl	96%		18-104%
1718-51-0	Terphenyl-d14	64%		13-109%

ND = Not detected MDL - Method Detection Limit
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

Accutest LabLink@704161 09:49 21-Dec-2012

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JA31597-3	**Date Sampled:**	10/28/09
Matrix:	AQ - Trip Blank Water	**Date Received:**	10/29/09
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2C63880.D	1	11/07/09	TLR	n/a	n/a	V2C2892
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.9	ug/l	
71-43-2	Benzene	ND	1.0	0.23	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.33	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	4.0	0.23	ug/l	
74-83-9	Bromomethane	ND	2.0	0.30	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	1.6	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.74	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.26	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.39	ug/l	
75-00-3	Chloroethane	ND	1.0	0.37	ug/l	
67-66-3	Chloroform	ND	1.0	0.23	ug/l	
74-87-3	Chloromethane	ND	1.0	0.29	ug/l	
110-82-7	Cyclohexane	ND	5.0	1.9	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	1.1	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.22	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	0.39	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.26	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.25	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.28	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	0.92	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.33	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.22	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.25	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.27	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
123-91-1	1,4-Dioxane	ND	130	94	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.27	ug/l	
76-13-1	Freon 113	ND	5.0	0.38	ug/l	

ND = Not detected MDL - Method Detection Limit
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		
Lab Sample ID:	JA31597-3	**Date Sampled:**	10/28/09
Matrix:	AQ - Trip Blank Water	**Date Received:**	10/29/09
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.0	1.4	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.57	ug/l	
79-20-9	Methyl Acetate	ND	5.0	1.5	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.35	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.23	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	0.86	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.30	ug/l	
100-42-5	Styrene	ND	5.0	0.58	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.24	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.27	ug/l	
108-88-3	Toluene	ND	1.0	0.30	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.47	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.56	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.26	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.23	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.24	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	0.54	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.44	ug/l	
	m,p-Xylene	ND	1.0	0.25	ug/l	
95-47-6	o-Xylene	ND	1.0	0.25	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.25	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	111%		76-120%
17060-07-0	1,2-Dichloroethane-D4	115%		64-135%
2037-26-5	Toluene-D8	104%		76-117%
460-00-4	4-Bromofluorobenzene	90%		72-122%

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

ND = Not detected MDL - Method Detection Limit
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

New Jersey
ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

CHAIN OF CUSTODY

ACCUTEST Laboratories

GW FB WTB

2235 Route 130, Dayton NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # JA31597

Client / Reporting Information

Company Name	ENVIROTRAC
Address	400 CORPORATE CT
City	S. PLAINFIELD State NJ Zip
Project Contact	BILL GROELING E-mail
Phone #	
Sampler's Name	R. DELACRUZ

Project Information

Project Name	PORT READING REFINERY
Street	
City	State
Project #	
Fax #	
Client Purchase Order #	

Requested Analysis

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	8260 ☐ 624 ☐ 8021 ☐ 602 ☐ PAUG ☐ BTEX ☐ MTBE ☐ TBA ☐ NAP ☐ PALG ☐	8260 ☐ 624 ☐ TCL ☐ PPL ☐ STARS ☐ MTBE ☐ TBA ☐ NAP ☐ +10 ☐ +15 ☐	8270 ☐ 625 ☐ TCL ☐ PPL ☐ STARS ☐ ABN ☐ BN ☐ PAH ☐ PADF ☐ +TICs ☐	BN + 15	VO + 10							Matrix Codes: DW - Drinking Water, GW - Ground Water, WW - Water, SW - Surface Water, SO - Soil, SL - Sludge, OI - Oil, LIQ - Other Liquid, AIR - Air, SOL - Other Solid, WP - Wipe	LAB USE ONLY
-1	TK-7930-TW1		10-28	0955	RD	EW	5	3				2							X	X							2163
-2	FIELD BLANK		↓	1020	↓	↓	3	2				1							X	X							EX81
-3	TRIP BLANK		↓		↓	↓	2													X							

Turnaround Time (Business Days)

- ☒ Std. 15 Business Days
- ☐ 10 Day *RUSH*
- ☐ 5 Day *RUSH*
- ☐ 3 Day *EMERGENCY*
- ☐ 2 Day *EMERGENCY*
- ☐ 1 Day *EMERGENCY*
- ☐ Other

Approved By: / Date:

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

- ☐ Commercial "A"
- ☐ Commercial "B"
- ☒ NJ Reduced
- ☐ NJ Full
- ☐ Other _____
- ☐ FULL CLP
- ☐ NYASP Category A
- ☐ NYASP Category B
- ☐ State Forms
- ☐ EDD Format _____

Commercial "A" = Results Only

Comments / Remarks

• TB fill 10.27.09 @ 0630 10.29.09

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

Relinquished by Sampler:	Date Time:	Received by:	Relinquished by:	Date Time:	Received by:
1 [signature]	10-28	1 Robin Temp 10-29-9 12:55	Robin Temp 10-29-9	16:55	2 [signature]
Relinquished by: 3	Date Time:	Received by: 3	Relinquished by: 4	Date Time:	Received by: 4
Relinquished by: 5	Date Time:	Received by: 5	Custody Seal # NO SEAL	Preserved where applicable ☐	On Ice ☒ Cooler Temp. 2.6°C

A. 1 Cooler

RPP

5.1 5

JA31597: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JA31597 **Client:** **Immediate Client Services Action Required:** No

Date / Time Received: 10/29/2009 **Delivery Method:** **Client Service Action Required at Login:** No

Project: **No. Coolers:** 1 **Airbill #'s:**

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

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	Infared gun	
3. Cooler media:	Ice (bag)	

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

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

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

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

Comments

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

JA31597: Chain of Custody
Page 2 of 2

Internal Sample Tracking Chronicle

EnviroTrac, Ltd.

Job No: JA31597

Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JA31597-1	Collected: 28-OCT-09 09:55 By: RD		Received: 29-OCT-09 By: MPC			
TK-7930-TW1						
JA31597-1	SW846 8270C BY SIM	07-NOV-09 01:34	NAP	31-OCT-09	AW	B8270SIMNJ
JA31597-1	SW846 8260B	07-NOV-09 02:16	TLR			V8260TCL11+
JA31597-1	SW846 8270C	07-NOV-09 04:23	LP	31-OCT-09	AW	B8270NJTCL11+
JA31597-2	Collected: 28-OCT-09 10:20 By: RD		Received: 29-OCT-09 By: MPC			
FIELD BLANK						
JA31597-2	SW846 8270C	05-NOV-09 19:38	LP	31-OCT-09	AW	B8270NJTCL11+
JA31597-2	SW846 8270C BY SIM	07-NOV-09 01:56	NAP	31-OCT-09	AW	B8270SIMNJ
JA31597-2	SW846 8260B	07-NOV-09 03:17	TLR			V8260TCL11+
JA31597-3	Collected: 28-OCT-09 10:20 By: RD		Received: 29-OCT-09 By: MPC			
TRIP BLANK						
JA31597-3	SW846 8260B	07-NOV-09 03:48	TLR			V8260TCL11+

Accutest Internal Chain of Custody

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ
Received: 10/29/09

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JA31597-1.1	Secured Storage	Alan Wan	10/31/09 06:18	Retrieve from Storage
JA31597-1.1	Alan Wan		10/31/09 14:23	Depleted
JA31597-1.1.1	Alan Wan	Organics Prep	10/31/09 06:20	Extract from JA31597-1.1
JA31597-1.1.1	Organics Prep	Alan Wan	10/31/09 14:24	Extract from JA31597-1.1
JA31597-1.1.1	Alan Wan	Extract Storage	10/31/09 14:24	Return to Storage
JA31597-1.1.1	Extract Storage	Larisa Pejdah	11/05/09 16:54	Retrieve from Storage
JA31597-1.1.1	Larisa Pejdah	GCMS3M	11/05/09 16:54	Load on Instrument
JA31597-1.1.1	GCMS3M	Larisa Pejdah	11/06/09 13:23	Unload from Instrument
JA31597-1.1.1	Larisa Pejdah	Extract Freezer	11/06/09 13:24	Return to Storage
JA31597-1.1.1	Extract Freezer	Larisa Pejdah	11/06/09 21:57	Retrieve from Storage
JA31597-1.1.1	Larisa Pejdah	GCMS3M	11/06/09 21:57	Load on Instrument
JA31597-1.1.1	GCMS3M	Kristi Schollenberger	11/09/09 17:12	Unload from Instrument
JA31597-1.1.1	Kristi Schollenberger	Extract Freezer	11/09/09 17:12	Return to Storage
JA31597-1.1.1	Extract Freezer		12/11/09 09:00	Disposed
JA31597-1.1.2	Alan Wan	Organics Prep	10/31/09 06:26	Extract from JA31597-1.1
JA31597-1.1.2	Organics Prep	Alan Wan	10/31/09 14:25	Extract from JA31597-1.1
JA31597-1.1.2	Alan Wan	Extract Storage	10/31/09 14:25	Return to Storage
JA31597-1.1.2	Extract Storage	Nina Pandya	11/06/09 11:58	Retrieve from Storage
JA31597-1.1.2	Nina Pandya	GCMS4M	11/06/09 11:59	Load on Instrument
JA31597-1.1.2	GCMS4M	Nina Pandya	11/09/09 10:53	Unload from Instrument
JA31597-1.1.2	Nina Pandya	Extract Freezer	11/09/09 10:54	Return to Storage
JA31597-1.1.2	Extract Freezer		12/11/09 09:00	Disposed
JA31597-1.4	Secured Storage	Tara Reddington	11/06/09 11:33	Retrieve from Storage
JA31597-1.4	Tara Reddington	Secured Storage	11/06/09 17:31	Return to Storage
JA31597-1.4	Dave Hunkele		12/08/09 10:59	Disposed
JA31597-2.1	Secured Storage	Alan Wan	10/31/09 06:18	Retrieve from Storage
JA31597-2.1	Alan Wan		10/31/09 14:23	Depleted
JA31597-2.1.1	Alan Wan	Organics Prep	10/31/09 06:20	Extract from JA31597-2.1
JA31597-2.1.1	Organics Prep	Alan Wan	10/31/09 14:24	Extract from JA31597-2.1
JA31597-2.1.1	Alan Wan	Extract Storage	10/31/09 14:24	Return to Storage
JA31597-2.1.1	Extract Storage	Larisa Pejdah	11/05/09 16:54	Retrieve from Storage
JA31597-2.1.1	Larisa Pejdah	GCMS3M	11/05/09 16:54	Load on Instrument
JA31597-2.1.1	GCMS3M	Larisa Pejdah	11/06/09 13:23	Unload from Instrument
JA31597-2.1.1	Larisa Pejdah	Extract Freezer	11/06/09 13:24	Return to Storage
JA31597-2.1.1	Extract Freezer		12/11/09 09:00	Disposed
JA31597-2.1.2	Alan Wan	Organics Prep	10/31/09 06:26	Extract from JA31597-2.1
JA31597-2.1.2	Organics Prep	Alan Wan	10/31/09 14:25	Extract from JA31597-2.1
JA31597-2.1.2	Alan Wan	Extract Storage	10/31/09 14:25	Return to Storage

Accutest Internal Chain of Custody

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ
Received: 10/29/09

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JA31597-2.1.2	Extract Storage	Nina Pandya	11/06/09 11:58	Retrieve from Storage
JA31597-2.1.2	Nina Pandya	GCMS4M	11/06/09 11:59	Load on Instrument
JA31597-2.1.2	GCMS4M	Nina Pandya	11/09/09 10:53	Unload from Instrument
JA31597-2.1.2	Nina Pandya	Extract Freezer	11/09/09 10:54	Return to Storage
JA31597-2.1.2	Extract Freezer		12/11/09 09:00	Disposed
JA31597-2.4	Secured Storage	Tara Reddington	11/06/09 16:47	Retrieve from Storage
JA31597-2.4	Tara Reddington	GCMS2C	11/06/09 16:48	Load on Instrument
JA31597-2.4	GCMS2C	Tara Reddington	11/09/09 08:07	Unload from Instrument
JA31597-2.4	Tara Reddington	Secured Storage	11/09/09 08:07	Return to Storage
JA31597-2.4	Dave Hunkele		12/08/09 10:59	Disposed
JA31597-3.4	Secured Storage	Tara Reddington	11/06/09 16:47	Retrieve from Storage
JA31597-3.4	Tara Reddington	GCMS2C	11/06/09 16:48	Load on Instrument
JA31597-3.4	GCMS2C	Tara Reddington	11/09/09 08:07	Unload from Instrument
JA31597-3.4	Tara Reddington	Secured Storage	11/09/09 08:07	Return to Storage
JA31597-3.4	Dave Hunkele		12/08/09 10:59	Disposed

New Jersey ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2C2892-MB	2C63867.D	1	11/06/09	TLR	n/a	n/a	V2C2892

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

JA31597-1, JA31597-2, JA31597-3

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	2.9	ug/l	
71-43-2	Benzene	ND	1.0	0.23	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.33	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	4.0	0.23	ug/l	
74-83-9	Bromomethane	ND	2.0	0.30	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	1.6	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.74	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.26	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.39	ug/l	
75-00-3	Chloroethane	ND	1.0	0.37	ug/l	
67-66-3	Chloroform	ND	1.0	0.23	ug/l	
74-87-3	Chloromethane	ND	1.0	0.29	ug/l	
110-82-7	Cyclohexane	ND	5.0	1.9	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	1.1	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.22	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	0.39	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.26	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.25	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.28	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	0.92	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.33	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.22	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.25	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.27	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
123-91-1	1,4-Dioxane	ND	130	94	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.27	ug/l	
76-13-1	Freon 113	ND	5.0	0.38	ug/l	
591-78-6	2-Hexanone	ND	5.0	1.4	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.57	ug/l	
79-20-9	Methyl Acetate	ND	5.0	1.5	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.35	ug/l	

Method Blank Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2C2892-MB	2C63867.D	1	11/06/09	TLR	n/a	n/a	V2C2892

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

JA31597-1, JA31597-2, JA31597-3

CAS No.	Compound	Result	RL	MDL	Units	Q
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.23	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	0.86	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.30	ug/l	
100-42-5	Styrene	ND	5.0	0.58	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.24	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.27	ug/l	
108-88-3	Toluene	ND	1.0	0.30	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.47	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.56	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.26	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.23	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.24	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	0.54	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.44	ug/l	
	m,p-Xylene	ND	1.0	0.25	ug/l	
95-47-6	o-Xylene	ND	1.0	0.25	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.25	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	109%	76-120%
17060-07-0	1,2-Dichloroethane-D4	108%	64-135%
2037-26-5	Toluene-D8	99%	76-117%
460-00-4	4-Bromofluorobenzene	89%	72-122%

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

Blank Spike Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2C2892-BS	2C63868.D	1	11/06/09	TLR	n/a	n/a	V2C2892

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

JA31597-1, JA31597-2, JA31597-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	50	44.7	89	51-151
71-43-2	Benzene	50	46.8	94	75-122
74-97-5	Bromochloromethane	50	51.5	103	78-124
75-27-4	Bromodichloromethane	50	49.4	99	77-128
75-25-2	Bromoform	50	51.8	104	67-141
74-83-9	Bromomethane	50	54.2	108	53-152
78-93-3	2-Butanone (MEK)	50	48.0	96	64-130
75-15-0	Carbon disulfide	50	44.4	89	59-140
56-23-5	Carbon tetrachloride	50	49.8	100	75-148
108-90-7	Chlorobenzene	50	46.9	94	76-124
75-00-3	Chloroethane	50	56.6	113	54-147
67-66-3	Chloroform	50	51.3	103	77-124
74-87-3	Chloromethane	50	56.2	112	46-144
110-82-7	Cyclohexane	50	45.8	92	62-127
96-12-8	1,2-Dibromo-3-chloropropane	50	43.9	88	64-134
124-48-1	Dibromochloromethane	50	48.8	98	76-132
106-93-4	1,2-Dibromoethane	50	46.9	94	75-130
95-50-1	1,2-Dichlorobenzene	50	47.0	94	74-125
541-73-1	1,3-Dichlorobenzene	50	47.0	94	73-124
106-46-7	1,4-Dichlorobenzene	50	46.8	94	71-123
75-71-8	Dichlorodifluoromethane	50	42.7	85	42-152
75-34-3	1,1-Dichloroethane	50	53.3	107	72-124
107-06-2	1,2-Dichloroethane	50	47.7	95	66-150
75-35-4	1,1-Dichloroethene	50	47.1	94	61-132
156-59-2	cis-1,2-Dichloroethene	50	50.0	100	71-119
156-60-5	trans-1,2-Dichloroethene	50	49.0	98	71-123
78-87-5	1,2-Dichloropropane	50	47.3	95	75-120
10061-01-5	cis-1,3-Dichloropropene	50	47.4	95	77-124
10061-02-6	trans-1,3-Dichloropropene	50	44.9	90	75-132
123-91-1	1,4-Dioxane	1250	1270	102	57-147
100-41-4	Ethylbenzene	50	43.2	86	77-124
76-13-1	Freon 113	50	49.8	100	58-149
591-78-6	2-Hexanone	50	42.7	85	58-136
98-82-8	Isopropylbenzene	50	36.4	73	60-136
79-20-9	Methyl Acetate	50	47.2	94	57-139
108-87-2	Methylcyclohexane	50	46.4	93	73-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2C2892-BS	2C63868.D	1	11/06/09	TLR	n/a	n/a	V2C2892

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

JA31597-1, JA31597-2, JA31597-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
1634-04-4	Methyl Tert Butyl Ether	50	49.4	99	72-127
108-10-1	4-Methyl-2-pentanone(MIBK)	50	46.1	92	63-135
75-09-2	Methylene chloride	50	42.0	84	69-122
100-42-5	Styrene	50	45.2	90	78-126
79-34-5	1,1,2,2-Tetrachloroethane	50	41.6	83	66-125
127-18-4	Tetrachloroethene	50	44.5	89	70-136
108-88-3	Toluene	50	43.9	88	76-126
87-61-6	1,2,3-Trichlorobenzene	50	46.9	94	62-132
120-82-1	1,2,4-Trichlorobenzene	50	47.7	95	67-132
71-55-6	1,1,1-Trichloroethane	50	51.5	103	77-136
79-00-5	1,1,2-Trichloroethane	50	46.0	92	75-123
79-01-6	Trichloroethene	50	45.9	92	79-126
75-69-4	Trichlorofluoromethane	50	48.7	97	56-154
75-01-4	Vinyl chloride	50	57.9	116	56-146
	m,p-Xylene	100	89.9	90	77-125
95-47-6	o-Xylene	50	45.9	92	76-126
1330-20-7	Xylene (total)	150	136	91	77-125

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	109%	76-120%
17060-07-0	1,2-Dichloroethane-D4	105%	64-135%
2037-26-5	Toluene-D8	98%	76-117%
460-00-4	4-Bromofluorobenzene	88%	72-122%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JA31630-4MS	2C63871.D	25	11/06/09	TLR	n/a	n/a	V2C2892
JA31630-4MSD	2C63872.D	25	11/06/09	TLR	n/a	n/a	V2C2892
JA31630-4 [a]	2C63870.D	25	11/06/09	TLR	n/a	n/a	V2C2892

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

JA31597-1, JA31597-2, JA31597-3

CAS No.	Compound	JA31630-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		1250	1230	98	1180	94	4	44-157/20
71-43-2	Benzene	3020		1250	4270	100	3980	77	7	38-139/13
74-97-5	Bromochloromethane	ND		1250	1420	114	1410	113	1	70-129/11
75-27-4	Bromodichloromethane	ND		1250	1310	105	1270	102	3	70-135/13
75-25-2	Bromoform	ND		1250	1330	106	1310	105	2	53-139/13
74-83-9	Bromomethane	ND		1250	1400	112	1330	106	5	44-150/18
78-93-3	2-Butanone (MEK)	ND		1250	1300	104	1300	104	0	58-140/14
75-15-0	Carbon disulfide	ND		1250	1480	118	1430	114	3	34-136/21
56-23-5	Carbon tetrachloride	ND		1250	1450	116	1430	114	1	50-161/18
108-90-7	Chlorobenzene	ND		1250	1290	103	1280	102	1	65-128/12
75-00-3	Chloroethane	ND		1250	1450	116	1410	113	3	41-151/18
67-66-3	Chloroform	ND		1250	1410	113	1370	110	3	66-132/14
74-87-3	Chloromethane	ND		1250	1470	118	1380	110	6	35-149/22
110-82-7	Cyclohexane	79.7	J	1250	1560	118	1510	114	3	29-158/18
96-12-8	1,2-Dibromo-3-chloropropane	ND		1250	1120	90	1180	94	5	58-141/14
124-48-1	Dibromochloromethane	ND		1250	1350	108	1330	106	1	67-134/12
106-93-4	1,2-Dibromoethane	ND		1250	1300	104	1290	103	1	69-130/11
95-50-1	1,2-Dichlorobenzene	ND		1250	1220	98	1230	98	1	65-128/12
541-73-1	1,3-Dichlorobenzene	ND		1250	1230	98	1230	98	0	63-128/13
106-46-7	1,4-Dichlorobenzene	ND		1250	1230	98	1230	98	0	63-126/13
75-71-8	Dichlorodifluoromethane	ND		1250	1260	101	1260	101	0	24-170/24
75-34-3	1,1-Dichloroethane	ND		1250	1510	121	1450	116	4	59-132/15
107-06-2	1,2-Dichloroethane	ND		1250	1370	110	1330	106	3	59-153/15
75-35-4	1,1-Dichloroethene	ND		1250	1420	114	1400	112	1	41-144/17
156-59-2	cis-1,2-Dichloroethene	ND		1250	1370	110	1350	108	1	57-131/13
156-60-5	trans-1,2-Dichloroethene	ND		1250	1460	117	1430	114	2	55-131/15
78-87-5	1,2-Dichloropropane	ND		1250	1310	105	1270	102	3	67-125/12
10061-01-5	cis-1,3-Dichloropropene	ND		1250	1290	103	1160	93	11	68-126/13
10061-02-6	trans-1,3-Dichloropropene	ND		1250	1210	97	1150	92	5	68-134/13
123-91-1	1,4-Dioxane	ND		31300	30400	97	31500	101	4	52-148/22
100-41-4	Ethylbenzene	809		1250	2020	97	1930	90	5	37-143/13
76-13-1	Freon 113	ND		1250	1270	102	1260	101	1	33-159/19
591-78-6	2-Hexanone	ND		1250	1140	91	1090	87	4	53-145/17
98-82-8	Isopropylbenzene	33.3	J	1250	1190	93	1200	93	1	48-141/15
79-20-9	Methyl Acetate	ND		1250	1180	94	1220	98	3	46-147/18
108-87-2	Methylcyclohexane	28.2	J	1250	1250	98	1210	95	3	36-156/18

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JA31630-4MS	2C63871.D	25	11/06/09	TLR	n/a	n/a	V2C2892
JA31630-4MSD	2C63872.D	25	11/06/09	TLR	n/a	n/a	V2C2892
JA31630-4 [a]	2C63870.D	25	11/06/09	TLR	n/a	n/a	V2C2892

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

JA31597-1, JA31597-2, JA31597-3

CAS No.	Compound	JA31630-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
1634-04-4	Methyl Tert Butyl Ether	ND		1250	1380	110	1350	108	2	53-139/14
108-10-1	4-Methyl-2-pentanone(MIBK)	ND		1250	1250	100	1130	90	10	57-141/14
75-09-2	Methylene chloride	ND		1250	1210	97	1190	95	2	59-129/12
100-42-5	Styrene	ND		1250	1280	102	1250	100	2	60-135/13
79-34-5	1,1,2,2-Tetrachloroethane	ND		1250	1100	88	1100	88	0	62-126/13
127-18-4	Tetrachloroethene	ND		1250	1270	102	1280	102	1	48-145/15
108-88-3	Toluene	1660		1250	2740	86	2520	69	8	44-141/14
87-61-6	1,2,3-Trichlorobenzene	ND		1250	1170	94	1270	102	8	54-137/14
120-82-1	1,2,4-Trichlorobenzene	ND		1250	1260	101	1340	107	6	59-135/13
71-55-6	1,1,1-Trichloroethane	ND		1250	1470	118	1420	114	3	55-149/18
79-00-5	1,1,2-Trichloroethane	ND		1250	1200	96	1150	92	4	70-127/12
79-01-6	Trichloroethene	ND		1250	1310	105	1270	102	3	53-141/15
75-69-4	Trichlorofluoromethane	ND		1250	1280	102	1270	102	1	35-169/23
75-01-4	Vinyl chloride	ND		1250	1560	125	1540	123	1	34-151/20
	m,p-Xylene	1260		2500	3720	98	3590	93	4	32-146/13
95-47-6	o-Xylene	1280		1250	2500	98	2400	90	4	46-141/12
1330-20-7	Xylene (total)	2530		3750	6220	98	5990	92	4	36-144/13

CAS No.	Surrogate Recoveries	MS	MSD	JA31630-4	Limits
1868-53-7	Dibromofluoromethane	108%	107%		76-120%
17060-07-0	1,2-Dichloroethane-D4	104%	101%		64-135%
2037-26-5	Toluene-D8	97%	93%		76-117%
460-00-4	4-Bromofluorobenzene	86%	87%		72-122%

(a) Sample used for QC purposes only. Check failed low for acrolein.

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample: V2C2824-BFB
Lab File ID: 2C62451.D
Instrument ID: GCMS2C
Injection Date: 09/30/09
Injection Time: 12:06

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	9159	17.6		Pass
75	30.0 - 60.0% of mass 95	23365	45.0		Pass
95	Base peak, 100% relative abundance	51965	100.0		Pass
96	5.0 - 9.0% of mass 95	3409	6.6		Pass
173	Less than 2.0% of mass 174	259	0.5	(0.57) [a]	Pass
174	50.0 - 120.0% of mass 95	45650	87.8		Pass
175	5.0 - 9.0% of mass 174	3260	6.3	(7.1) [a]	Pass
176	95.0 - 101.0% of mass 174	44352	85.3	(97.2) [a]	Pass
177	5.0 - 9.0% of mass 176	2937	5.7	(6.6) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V2C2824-IC2824	2C62452.D	09/30/09	12:40	00:34	Initial cal 0.5
V2C2824-IC2824	2C62453.D	09/30/09	13:18	01:12	Initial cal 5
V2C2824-IC2824	2C62454.D	09/30/09	13:49	01:43	Initial cal 2
V2C2824-IC2824	2C62455.D	09/30/09	14:20	02:14	Initial cal 1
V2C2824-IC2824	2C62456.D	09/30/09	14:51	02:45	Initial cal 10
V2C2824-IC2824	2C62457.D	09/30/09	15:22	03:16	Initial cal 20
V2C2824-ICC2824	2C62458.D	09/30/09	15:53	03:47	Initial cal 50
V2C2824-IC2824	2C62459.D	09/30/09	16:24	04:18	Initial cal 200
V2C2824-IC2824	2C62460.D	09/30/09	16:55	04:49	Initial cal 100
V2C2824-ICV2824	2C62461.D	09/30/09	17:26	05:20	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample:	V2C2892-BFB	**Injection Date:**	11/06/09
Lab File ID:	2C63864.D	**Injection Time:**	19:36
Instrument ID:	GCMS2C		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	9263	22.3		Pass
75	30.0 - 60.0% of mass 95	21384	51.6		Pass
95	Base peak, 100% relative abundance	41456	100.0		Pass
96	5.0 - 9.0% of mass 95	2739	6.6		Pass
173	Less than 2.0% of mass 174	126	0.3	(0.42) [a]	Pass
174	50.0 - 120.0% of mass 95	29778	71.8		Pass
175	5.0 - 9.0% of mass 174	2253	5.4	(7.6) [a]	Pass
176	95.0 - 101.0% of mass 174	29162	70.3	(97.9) [a]	Pass
177	5.0 - 9.0% of mass 176	1893	4.6	(6.5) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V2C2892-CC2824	2C63865.D	11/06/09	20:07	00:31	Continuing cal 50
V2C2892-MB	2C63867.D	11/06/09	21:08	01:32	Method Blank
V2C2892-BS	2C63868.D	11/06/09	21:39	02:03	Blank Spike
JA31630-4	2C63870.D	11/06/09	22:40	03:04	(used for QC only; not part of job JA31597)
JA31630-4MS	2C63871.D	11/06/09	23:11	03:35	Matrix Spike
JA31630-4MSD	2C63872.D	11/06/09	23:42	04:06	Matrix Spike Duplicate
ZZZZZZ	2C63874R.D	11/07/09	00:43	05:07	(unrelated sample)
ZZZZZZ	2C63874.D	11/07/09	00:43	05:07	(unrelated sample)
ZZZZZZ	2C63875.D	11/07/09	01:14	05:38	(unrelated sample)
ZZZZZZ	2C63876.D	11/07/09	01:45	06:09	(unrelated sample)
JA31597-1	2C63877.D	11/07/09	02:16	06:40	TK-7930-TW1
JA31597-2	2C63879.D	11/07/09	03:17	07:41	FIELD BLANK
JA31597-3	2C63880.D	11/07/09	03:48	08:12	TRIP BLANK

Volatile Internal Standard Area Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Check Std:	V2C2892-CC2824	**Injection Date:**	11/06/09
Lab File ID:	2C63865.D	**Injection Time:**	20:07
Instrument ID:	GCMS2C	**Method:**	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	80649	8.70	168312	11.09	269086	12.00	221051	14.95	117916	17.10
Upper Limit [a]	161298	9.20	336624	11.59	538172	12.50	442102	15.45	235832	17.60
Lower Limit [b]	40325	8.20	84156	10.59	134543	11.50	110526	14.45	58958	16.60

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V2C2892-MB	86212	8.70	165646	11.09	267864	12.00	222807	14.95	112611	17.10
V2C2892-BS	80576	8.69	162686	11.09	263830	12.00	223306	14.95	117210	17.10
JA31630-4	88985	8.69	166570	11.09	271578	12.00	228817	14.95	117989	17.10
JA31630-4MS	84625	8.69	165237	11.09	266225	12.00	221970	14.95	120168	17.10
JA31630-4MSD	88838	8.69	174000	11.09	275619	12.00	218954	14.95	116480	17.10
ZZZZZZ	109989	8.69	176985	11.09	277698	12.00	227690	14.95	116800	17.10
ZZZZZZ	109989	8.69	176985	11.09	277698	12.00	227690	14.95	116800	17.10
ZZZZZZ	87874	8.70	177144	11.09	279196	12.00	229354	14.95	115403	17.10
ZZZZZZ	82033	8.69	165903	11.09	269852	12.00	232083	14.95	114999	17.10
JA31597-1	78291	8.69	159061	11.09	261470	12.00	221603	14.95	111004	17.10
JA31597-2	73321	8.69	154467	11.09	254864	12.00	211761	14.95	107498	17.10
JA31597-3	73640	8.70	146035	11.09	243960	12.00	212027	14.95	106534	17.10

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

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

Volatile Surrogate Recovery Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Method: SW846 8260B **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JA31597-1	2C63877.D	108.0	111.0	93.0	89.0
JA31597-2	2C63879.D	110.0	112.0	100.0	89.0
JA31597-3	2C63880.D	111.0	115.0	104.0	90.0
JA31630-4MS	2C63871.D	108.0	104.0	97.0	86.0
JA31630-4MSD	2C63872.D	107.0	101.0	93.0	87.0
V2C2892-BS	2C63868.D	109.0	105.0	98.0	88.0
V2C2892-MB	2C63867.D	109.0	108.0	99.0	89.0

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	76-120%
S2 = 1,2-Dichloroethane-D4	64-135%
S3 = Toluene-D8	76-117%
S4 = 4-Bromofluorobenzene	72-122%

Initial Calibration Summary

Job Number: JA31597 **Sample:** V2C2824-ICC2824
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 2C62458.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Response Factor Report ms2C

```
Method       : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title        : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Last Update  : Thu Oct 01 16:34:28 2009
Response via : Initial Calibration

Calibration Files
1   =2C62455.D   2   =2C62454.D   100 =2C62460.D   50  =2C62458.D
20  =2C62457.D   200 =2C62459.D   5   =2C62453.D   10  =2C62456.D
0.5 =2C62452.D       =

 Compound
           1     2     100   50    20    200   5     10    0.5     Avg    %RSD
-------------------------------------------------------------------------------

1) I   Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  tertiary butyl alcohol
                1.232 1.329 1.367 1.366 1.344 1.227 1.305         1.310    4.50
3)  1,4-dioxane
                0.105 0.133 0.122 0.123 0.121 0.099 0.108         0.116   10.53

4) I   pentafluorobenzene    ----------------ISTD---------------------
5)  FREON 115
                                                                  0.000#  -1.00
6)  FREON 23
                                                                  0.000#  -1.00
7)  FREON 143A
                                                                  0.000#  -1.00
8)  FREON 152A
                                                                  0.000#  -1.00
9)  CHLOROTRIFLUOROETHENE
                                                                  0.000#  -1.00
10)  chlorodifluoromethane
          0.619 0.722 0.641 0.697 0.650 0.728 0.715 0.629         0.675    6.65
11)  dichlorodifluoromethane
          0.512 0.649 0.747 0.792 0.782 0.763 0.711 0.776         0.716   13.26
12)  FREON 114
                                                                  0.000#  -1.00
13)  FREON 142B
                                                                  0.000#  -1.00
14)  chloromethane
          0.914 0.884 0.815 0.945 0.933 0.930 0.874 0.963 0.925   0.909    4.96
15)  vinyl chloride
          0.756 0.784 0.804 0.893 0.869 0.906 0.811 0.885 0.642   0.817   10.31
16)  bromomethane
          0.497 0.556 0.417 0.535 0.545       0.543 0.565 0.586   0.530    9.89
17)  chloroethane
          0.403 0.436 0.456 0.496 0.487 0.469 0.449 0.501         0.462    7.18
18)  trichlorofluoromethane
          0.758 0.785 0.830 0.863 0.851 0.879 0.837 0.877         0.835    5.20
19)  ethyl ether
          0.245 0.278 0.330 0.331 0.311 0.347 0.269 0.307         0.302   11.63
20)  FREON 123
                                                                  0.000#  -1.00
21)  FREON 141B
                                                                  0.000#  -1.00
22)  FREON 123A
                                                                  0.000#  -1.00
23)  acrolein
```

Initial Calibration Summary

Job Number: JA31597 **Sample:** V2C2824-ICC2824
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 2C62458.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

```
          0.121 0.120       0.118 0.111       0.102 0.111 0.092   0.111    9.44
24)  1,1-dichloroethene
          0.479 0.481 0.448 0.443 0.396 0.529 0.461 0.466         0.463    8.21
25)  acetone
                      0.165 0.174 0.175 0.162       0.192         0.174    6.59
26)  allyl chloride
          0.276 0.274 0.320 0.319 0.287 0.365 0.296 0.316         0.307    9.84
27)  acetonitrile
                      0.049 0.053 0.055 0.052       0.058         0.053    6.35
28)  iodomethane
          0.780 0.799 0.806 0.783 0.710 0.892 0.766 0.797 0.548   0.765   12.28
29)  iso-butyl alcohol
                      0.007 0.007 0.007 0.008 0.006 0.007         0.007#   8.77
30)  carbon disulfide
          2.066 1.870 1.712 1.736 1.539 2.020 1.820 1.785 1.570   1.791   10.01
31)  methylene chloride
          0.879 0.728 0.631 0.631 0.606 0.678 0.649 0.656         0.682   12.84
32)  methyl acetate
                      0.099 0.097 0.092 0.102 0.055 0.073         0.086   21.33
           ----- Linear regression -----  Coefficient =  1.0000
             Response Ratio = -0.00542 + 0.10277 *A

33)  methyl tert butyl ether
          1.808 1.658 1.700 1.728 1.651 1.767 1.534 1.702 1.493   1.671    6.14
34)  trans-1,2-dichloroethene
          0.575 0.541 0.523 0.522 0.473 0.598 0.525 0.542 0.384   0.520   11.91
35)  di-isopropyl ether
          2.145 2.305 2.034 2.177 2.097 2.191 2.063 2.090 2.016   2.124    4.27
36)  2-butanone
                      0.070 0.069 0.063 0.072       0.052         0.065   12.44
37)  1,1-dichloroethane
          1.093 1.006 1.002 1.027 0.943 1.125 0.951 1.049 0.694   0.988   12.67
38)  chloroprene
          0.734 0.835 0.838 0.894 0.798 0.953 0.826 0.779         0.832    8.14
39)  acrylonitrile
          0.151 0.177 0.212 0.216 0.206 0.218 0.174 0.202         0.194   12.43
40)  vinyl acetate
                      0.095 0.095 0.085 0.100       0.061         0.087   17.75
           ----- Linear regression -----  Coefficient =  0.9996
             Response Ratio = -0.00796 + 0.10132 *A

41)  ethyl tert-butyl ether
          1.799 2.031 1.953 2.064 1.967 2.089 1.902 1.919 1.586   1.923    8.05
42)  ethyl acetate
                      0.081 0.088 0.101 0.084 0.088 0.095         0.090    7.99
43)  2,2-dichloropropane
          0.891 0.856 0.750 0.779 0.708 0.889 0.812 0.814 0.647   0.794   10.37
44)  cis-1,2-dichloroethene
          0.645 0.584 0.591 0.589 0.542 0.651 0.562 0.595         0.595    6.25
45)  propionitrile
          0.060 0.069 0.087 0.088 0.085 0.088 0.073 0.084         0.079   13.51
46)  bromochloromethane
          0.213 0.233 0.273 0.272 0.253 0.291 0.238 0.262         0.254    9.96
47)  tetrahydrofuran
                0.276 0.202 0.217 0.217 0.210 0.215 0.226         0.223   10.98
48)  chloroform
          1.017 0.942 0.919 0.937 0.870 1.018 0.879 0.950 0.743   0.919    9.11
49)  t-butyl formate
          0.402 0.486 0.508 0.519 0.504 0.538 0.506 0.492         0.494    8.19
50)  dibromofluoromethane (s)
```

Initial Calibration Summary

Job Number: JA31597 **Sample:** V2C2824-ICC2824
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 2C62458.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

```
            0.468 0.488 0.516 0.518 0.513 0.550 0.482 0.508 0.462   0.501    5.61
51)  1,2-dichloroethane-d4 (s)
            0.586 0.568 0.573 0.609 0.622 0.606 0.601 0.602 0.559   0.592    3.60
52)  freon 113
                  0.374 0.392 0.397 0.354 0.428 0.397 0.341         0.383    7.65
53)  methacrylonitrile
                        0.334 0.340 0.319 0.352 0.246 0.319         0.318   11.83
54)  1,1,1-trichloroethane
            0.830 0.790 0.740 0.755 0.668 0.877 0.750 0.768 0.583   0.751   11.46
55)  Cyclohexane
            0.921 0.847 0.788 0.793 0.690 0.941 0.830 0.807         0.827    9.57
56)  tert amyl alcohol
            0.060 0.067 0.078 0.081 0.078 0.082 0.073 0.077         0.075   10.06

57) I   1,4-difluorobenzene   ----------------ISTD---------------------
58)  Di-isobutylene
                                                                    0.000#  -1.00
59)  epichlorohydrin
            0.026 0.035 0.036 0.038 0.038 0.038 0.035 0.036         0.035   11.51
60)  n-butyl alcohol
            0.008 0.010 0.012 0.012 0.011 0.012 0.011 0.010         0.011   11.41
61)  carbon tetrachloride
            0.419 0.400 0.393 0.385 0.342 0.463 0.404 0.387         0.399    8.52
62)  1,1-dichloropropene
            0.524 0.494 0.464 0.463 0.414 0.542 0.464 0.484 0.367   0.468   11.38
63)  hexane
            0.447 0.540 0.499 0.517 0.470 0.535 0.542 0.451         0.500    7.90
64)  tert amyl ethyl ether
            0.568 0.549 0.565 0.563 0.557 0.595 0.521 0.557 0.470   0.549    6.45
65)  iso-octane
                                                                    0.000#  -1.00
66)  benzene
            1.647 1.494 1.414 1.433 1.332 1.533 1.414 1.465 1.246   1.442    7.96
67)  tert-amyl methyl ether
            1.148 1.267 1.157 1.197 1.181 1.185 1.181 1.153 1.056   1.169    4.72
68)  heptane
            0.236 0.291 0.263 0.274 0.253 0.287 0.293 0.234         0.266    8.91
69)  isopropyl acetate
            0.757 0.784 0.743 0.778 0.763 0.764 0.708 0.741 0.699   0.749    3.91
70)  1,2-dichloroethane
            0.422 0.408 0.434 0.450 0.442 0.451 0.403 0.453         0.433    4.58
71)  trichloroethene
            0.368 0.347 0.343 0.342 0.312 0.391 0.345 0.352         0.350    6.47
72)  2-nitropropane
                        0.019 0.019 0.019 0.019 0.021 0.015         0.019    9.97
73)  2-chloroethyl vinyl ether
            0.223 0.256 0.267 0.286 0.281 0.254 0.259 0.266         0.262    7.39
74)  methyl methacrylate
                  0.214 0.286 0.287 0.273 0.290 0.227 0.267         0.263   11.67
75)  1,2-dichloropropane
            0.398 0.367 0.370 0.379 0.358 0.394 0.349 0.386         0.375    4.60
76)  dibromomethane
            0.198 0.188 0.214 0.214 0.206 0.222 0.190 0.209         0.205    5.95
77)  methylcyclohexane
            0.572 0.695 0.612 0.633 0.570 0.664 0.660 0.546         0.619    8.59
78)  bromodichloromethane
            0.415 0.403 0.440 0.441 0.407 0.475 0.386 0.429         0.424    6.57
79)  cis-1,3-dichloropropene
            0.570 0.570 0.597 0.606 0.568 0.636 0.538 0.593 0.474   0.572    8.10
80)  toluene-d8 (s)
```

```
            1.382 1.324 1.268 1.288 1.294 1.319 1.292 1.239 1.464   1.319    5.11
 81)  4-methyl-2-pentanone
                  0.110 0.143 0.148 0.144 0.146 0.124 0.140         0.136   10.51
 82)  toluene
            0.945 0.861 0.842 0.856 0.786 0.918 0.836 0.878 0.669   0.844    9.49
 83)  3-methyl-1-butanol
            0.011 0.016 0.016 0.016 0.016 0.016 0.016 0.015         0.015   11.27
 84)  trans-1,3-dichloropropene
            0.503 0.478 0.533 0.541 0.510 0.556 0.476 0.523 0.379   0.500   10.55
 85)  ethyl methacrylate
                  0.291 0.389 0.388 0.364 0.403 0.314 0.358         0.358   11.56
 86)  1,1,2-trichloroethane
            0.254 0.241 0.262 0.262 0.257 0.273 0.236 0.260         0.256    4.74
 87)  2-hexanone
                  0.105 0.142 0.143 0.139 0.128 0.116 0.135         0.130   11.01

 88) I   chlorobenzene-d5      ----------------ISTD---------------------
 89)  tetrachloroethene
            0.364 0.336 0.320 0.319 0.286 0.359 0.327 0.327         0.330    7.39
 90)  1,3-dichloropropane
            0.637 0.563 0.596 0.615 0.594 0.594 0.556 0.611 0.462   0.581    8.80
 91)  butyl acetate
            0.197 0.253 0.261 0.273 0.269 0.257 0.253 0.262         0.253    9.40
 92)  3,3-dimethyl-1-butanol
            0.032 0.038 0.039 0.037 0.037 0.038 0.037 0.033 0.040   0.037    6.65
 93)  dibromochloromethane
            0.303 0.316 0.394 0.375 0.341 0.407 0.314 0.343         0.349   11.17
 94)  1,2-dibromoethane
            0.339 0.332 0.369 0.364 0.352 0.369 0.328 0.357 0.252   0.340   10.71
 95)  BUTYL ETHER
                                                                    0.000#  -1.00
 96)  chlorobenzene
            1.195 1.103 1.081 1.080 1.013 1.139 1.036 1.090 0.922   1.073    7.25
 97)  1,1,1,2-tetrachloroethane
            0.395 0.353 0.378 0.379 0.350 0.396 0.345 0.369         0.371    5.35
 98)  ethylbenzene
            2.116 1.920 1.762 1.800 1.687 1.855 1.797 1.886 1.591   1.824    8.17
 99)  m,p-xylene
            0.802 0.714 0.672 0.694 0.649 0.681 0.699 0.723 0.604   0.693    7.83
100)  o-xylene
            0.751 0.710 0.684 0.703 0.653 0.697 0.677 0.720 0.593   0.688    6.52
101)  styrene
            1.144 1.082 1.194 1.211 1.137 1.174 1.085 1.201 0.855   1.120    9.81
102)  bromoform
                  0.190 0.269 0.251 0.225 0.278 0.200 0.219         0.233   14.61

103) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
104)  isopropylbenzene
            4.042 3.690 3.461 3.517 3.245 3.734 3.503 3.671 3.049   3.546    8.13
105)  4-bromofluorobenzene (s)
            1.224 1.325 1.102 1.128 1.123 1.136 1.106 1.103 1.481   1.192   11.00
106)  cyclohexanone
            0.046 0.048 0.043 0.037 0.048 0.038 0.063 0.038         0.045   18.85
             ----- Linear regression -----  Coefficient =  0.9955
               Response Ratio = 0.01698 + 0.03820 *A

107)  bromobenzene
            1.017 0.901 0.923 0.936 0.875 0.949 0.878 0.950 0.761   0.910    7.78
108)  1,1,2,2-tetrachloroethane
            0.948 0.924 0.952 0.968 0.926 0.957 0.882 0.960 0.846   0.929    4.38
```

6.7.1

6

Initial Calibration Summary

Job Number: JA31597 **Sample:** V2C2824-ICC2824
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 2C62458.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

```
109)  trans-1,4-dichloro-2-butene
                        0.121 0.119 0.110 0.126 0.094 0.103         0.112   10.86
110)  1,2,3-trichloropropane
                  0.175 0.202 0.213 0.209 0.196 0.191 0.217         0.200    7.23
111)  n-propylbenzene
            4.962 4.408 4.061 4.211 3.918 4.250 4.259 4.453 3.829   4.261    7.85
112)  2-chlorotoluene
            0.975 0.870 0.867 0.875 0.806 0.917 0.860 0.914 0.714   0.867    8.52
113)  4-chlorotoluene
            2.915 2.618 2.504 2.547 2.358 2.658 2.485 2.620 2.149   2.539    8.33
114)  1,3,5-trimethylbenzene
            3.318 2.949 2.870 2.923 2.756 3.023 2.922 3.071 2.726   2.951    6.00
115)  tert-butylbenzene
            3.049 2.674 2.577 2.553 2.345 2.785 2.481 2.605 2.281   2.594    8.88
116)  pentachloroethane
            0.496 0.495 0.570 0.551 0.503 0.608 0.477 0.525         0.528    8.48
117)  1,2,4-trimethylbenzene
            3.455 3.099 3.025 3.052 2.871 3.158 2.938 3.142 2.606   3.039    7.61
118)  sec-butylbenzene
            4.610 4.183 3.885 3.884 3.630 4.119 3.874 4.006 3.529   3.969    8.03
119)  1,3-dichlorobenzene
            1.939 1.809 1.786 1.781 1.661 1.854 1.693 1.808 1.571   1.767    6.20
120)  p-isopropyltoluene
            3.626 3.337 3.235 3.208 2.994 3.449 3.184 3.281 2.901   3.246    6.74
121)  1,4-dichlorobenzene
            2.020 1.864 1.821 1.817 1.716 1.869 1.725 1.833 1.640   1.812    6.05
122)  1,2-dichlorobenzene
            1.942 1.758 1.768 1.774 1.674 1.798 1.666 1.765 1.628   1.753    5.26
123)  n-butylbenzene
            1.973 1.867 1.761 1.770 1.668 1.834 1.775 1.787 1.465   1.766    7.97
124)  1,2-dibromo-3-chloropropane
                  0.127 0.162 0.164 0.160 0.162 0.133 0.151         0.151   10.12
125)  1,3,5-trichlorobenzene
            1.582 1.490 1.515 1.504 1.393 1.542 1.374 1.462 1.449   1.479    4.55
126)  1,2,4-trichlorobenzene
            1.199 1.144 1.277 1.252 1.146 1.287 1.060 1.156 1.177   1.189    6.17
127)  hexachlorobutadiene
            0.757 0.731 0.686 0.664 0.615 0.713 0.677 0.646 0.680   0.686    6.33
128)  naphthalene
            2.317 2.250 2.590 2.534 2.366 2.472 2.093 2.284 2.870   2.420    9.41
129)  1,2,3-trichlorobenzene
            1.033 0.962 1.085 1.040 0.966 1.067 0.922 0.960 1.285   1.036   10.49
130)  hexachloroethane
            0.407 0.429 0.534 0.487 0.425 0.596 0.445 0.439         0.470   13.80
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M2C2824.M         Thu Oct 01 16:47:31 2009   MS2C
```

6.7.1

6

Initial Calibration Verification

Job Number: JA31597 **Sample:** V2C2824-ICV2824
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 2C62461.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\2C62461.D Vial: 11
Acq On : 30 Sep 2009 5:26 pm Operator: jordanl
Sample : icv2824-50 Inst : ms2C
Misc : MS86417,V2C2824,W,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Last Update : Thu Oct 01 16:34:28 2009
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	111	0.00	8.71
2		tertiary butyl alcohol	1.310	1.359	-3.7	110	0.00	8.84
3		1,4-dioxane	0.116	0.138	-19.0	126	0.00	12.70
4	I	pentafluorobenzene	1.000	1.000	0.0	113	0.00	11.10
5		FREON 115		----------NA----------				
6		FREON 23		----------NA----------				
7		FREON 143A		----------NA----------				
8		FREON 152A		----------NA----------				
9		CHLOROTRIFLUOROETHENE		----------NA----------				
10		chlorodifluoromethane	0.675	0.596	11.7	97	0.00	4.64
11		dichlorodifluoromethane	0.716	0.608	15.1	87	0.00	4.60
12		FREON 114		----------NA----------				
13		FREON 142B		----------NA----------				
14		chloromethane	0.909	0.785	13.6	94	0.00	5.04
15		vinyl chloride	0.817	0.804	1.6	102	0.00	5.34
16		bromomethane	0.530	0.455	14.2	96	0.00	6.15
17		chloroethane	0.462	0.470	-1.7	107	0.00	6.37
18		trichlorofluoromethane	0.835	0.837	-0.2	110	0.00	6.89
19		ethyl ether	0.302	0.331	-9.6	113	0.00	7.40
20		FREON 123		----------NA----------				
21		FREON 141B		----------NA----------				
22		FREON 123A		----------NA----------				
23		acrolein	0.111	0.132	-18.9	127	0.00	7.73
24		1,1-dichloroethene	0.463	0.442	4.5	113	0.00	7.90
25		acetone	0.174	0.166	4.6	108	0.00	8.02
26		allyl chloride	0.307	0.322	-4.9	114	0.00	8.52
27		acetonitrile	0.053	0.050	5.7	107	0.00	8.52
28		iodomethane	0.765	0.823	-7.6	119	0.00	8.23
29		iso-butyl alcohol	0.007	0.007#	0.0	109	0.00	11.38
30		carbon disulfide	1.791	1.582	11.7	103	0.00	8.36
31		methylene chloride	0.682	0.623	8.7	112	0.00	8.75
		----------	True	Calc.	% Drift	----------		
32		methyl acetate	50.000	49.610	0.8	113	0.00	8.52
		----------	AvgRF	CCRF	% Dev	----------		
33		methyl tert butyl ether	1.671	1.681	-0.6	110	0.00	9.08
34		trans-1,2-dichloroethene	0.520	0.507	2.5	110	0.00	9.14
35		di-isopropyl ether	2.124	1.966	7.4	102	0.00	9.72
36		2-butanone	0.065	0.068	-4.6	111	0.00	10.56
37		1,1-dichloroethane	0.988	1.004	-1.6	111	0.00	9.78

Initial Calibration Verification

Job Number: JA31597 **Sample:** V2C2824-ICV2824
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 2C62461.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

38		chloroprene	0.832	0.776	6.7	98	0.00	9.88
39		acrylonitrile	0.194	0.210	-8.2	110	0.00	9.13
		----------	True	Calc.	% Drift	----------		
40		vinyl acetate	50.000	48.246	3.5	106	0.00	9.77
		----------	AvgRF	CCRF	% Dev	----------		
41		ethyl tert-butyl ether	1.923	1.892	1.6	104	0.00	10.23
42		ethyl acetate	0.090	0.083	7.8	107	0.00	10.56
43		2,2-dichloropropane	0.794	0.747	5.9	109	0.00	10.56
44		cis-1,2-dichloroethene	0.595	0.604	-1.5	116	0.00	10.58
45		propionitrile	0.079	0.084	-6.3	108	0.00	10.68
46		bromochloromethane	0.254	0.274	-7.9	114	0.00	10.91
47		tetrahydrofuran	0.223	0.209	6.3	109	0.00	10.95
48		chloroform	0.919	0.929	-1.1	112	0.00	10.96
49		t-butyl formate	0.494	0.492	0.4	107	0.00	10.98
50	S	dibromofluoromethane (s)	0.501	0.516	-3.0	113	0.00	11.17
51	S	1,2-dichloroethane-d4 (s)	0.592	0.574	3.0	107	0.00	11.59
52		freon 113	0.383	0.356	7.0	101	0.00	7.83
53		methacrylonitrile	0.318	0.326	-2.5	109	0.00	10.86
54		1,1,1-trichloroethane	0.751	0.725	3.5	109	0.00	11.21
55		Cyclohexane	0.827	0.734	11.2	105	0.00	11.26
56		tert amyl alcohol	0.075	0.078	-4.0	109	0.00	11.53
57	I	1,4-difluorobenzene	1.000	1.000	0.0	109	0.00	12.01
58		Di-isobutylene		----------NA----------				
59		epichlorohydrin	0.035	0.037	-5.7	105	0.00	13.21
60		n-butyl alcohol	0.011	0.012	-9.1	113	0.00	12.14
61		carbon tetrachloride	0.399	0.388	2.8	110	0.00	11.40
62		1,1-dichloropropene	0.468	0.462	1.3	109	0.00	11.38
63		hexane	0.500	0.452	9.6	96	0.00	9.44
64		tert amyl ethyl ether	0.549	0.571	-4.0	111	0.00	12.46
65		iso-octane		----------NA----------				
66		benzene	1.442	1.420	1.5	108	0.00	11.65
67		tert-amyl methyl ether	1.169	1.147	1.9	105	0.00	11.66
68		heptane	0.266	0.233	12.4	93	0.00	11.78
69		isopropyl acetate	0.749	0.731	2.4	103	0.00	11.56
70		1,2-dichloroethane	0.433	0.435	-0.5	106	0.00	11.68
71		trichloroethene	0.350	0.343	2.0	110	0.00	12.34
72		2-nitropropane	0.019	0.019	0.0	108	0.00	13.39
73		2-chloroethyl vinyl ether	0.262	0.270	-3.1	103	0.00	13.07
74		methyl methacrylate	0.263	0.251	4.6	96	0.00	12.58
75		1,2-dichloropropane	0.375	0.376	-0.3	108	0.00	12.59
76		dibromomethane	0.205	0.215	-4.9	110	0.00	12.76
77		methylcyclohexane	0.619	0.561	9.4	97	0.00	12.52
78		bromodichloromethane	0.424	0.449	-5.9	112	0.00	12.87
79		cis-1,3-dichloropropene	0.572	0.603	-5.4	109	0.00	13.29
80	S	toluene-d8 (s)	1.319	1.281	2.9	109	0.00	13.54
81		4-methyl-2-pentanone	0.136	0.144	-5.9	106	0.00	13.37
82		toluene	0.844	0.833	1.3	106	0.00	13.62
83		3-methyl-1-butanol	0.015	0.016	-6.7	110	0.00	13.39
84		trans-1,3-dichloropropene	0.500	0.529	-5.8	107	0.00	13.81
85		ethyl methacrylate	0.358	0.462	-29.1#	130	0.00	13.77
86		1,1,2-trichloroethane	0.256	0.265	-3.5	110	0.00	14.01
87		2-hexanone	0.130	0.142	-9.2	109	0.00	14.15
88	I	chlorobenzene-d5	1.000	1.000	0.0	107	0.00	14.95
89		tetrachloroethene	0.330	0.320	3.0	107	0.00	14.16
90		1,3-dichloropropane	0.581	0.616	-6.0	107	0.00	14.18
91		butyl acetate	0.253	0.263	-4.0	103	0.00	14.20

Initial Calibration Verification

Job Number: JA31597 **Sample:** V2C2824-ICV2824
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 2C62461.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

92		3,3-dimethyl-1-butanol	0.037	0.039	-5.4	113	0.00	14.30
93		dibromochloromethane	0.349	0.376	-7.7	107	0.00	14.43
94		1,2-dibromoethane	0.340	0.370	-8.8	109	0.00	14.58
95		BUTYL ETHER		----------NA----------				
96		chlorobenzene	1.073	1.112	-3.6	110	0.00	14.99
97		1,1,1,2-tetrachloroethane	0.371	0.383	-3.2	108	0.00	15.04
98		ethylbenzene	1.824	1.784	2.2	106	0.00	15.02
99		m,p-xylene	0.693	0.698	-0.7	107	0.00	15.11
100		o-xylene	0.688	0.712	-3.5	108	0.00	15.50
101		styrene	1.120	1.203	-7.4	106	0.00	15.52
102		bromoform	0.233	0.262	-12.4	111	0.00	15.79
103	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	105	0.00	17.10
104		isopropylbenzene	3.546	3.079	13.2	92	0.00	15.81
105	S	4-bromofluorobenzene (s)	1.192	1.152	3.4	108	0.00	16.02
		----------	True	Calc.	% Drift	----------		
106		cyclohexanone	500.000	389.692	22.1#	89	0.00	16.00
		----------	AvgRF	CCRF	% Dev	----------		
107		bromobenzene	0.910	0.961	-5.6	108	0.00	16.21
108		1,1,2,2-tetrachloroethane	0.929	0.973	-4.7	106	0.00	16.11
109		trans-1,4-dichloro-2-bute	0.112	0.137	-22.3#	121	0.00	16.15
110		1,2,3-trichloropropane	0.200	0.237	-18.5	118	0.00	16.19
111		n-propylbenzene	4.261	4.203	1.4	105	0.00	16.19
112		2-chlorotoluene	0.867	0.902	-4.0	109	0.00	16.34
113		4-chlorotoluene	2.539	2.599	-2.4	108	0.00	16.43
114		1,3,5-trimethylbenzene	2.951	2.932	0.6	106	0.00	16.32
115		tert-butylbenzene	2.594	2.646	-2.0	109	0.00	16.65
116		pentachloroethane	0.528	0.589	-11.6	113	0.00	16.75
117		1,2,4-trimethylbenzene	3.039	3.090	-1.7	107	0.00	16.69
118		sec-butylbenzene	3.969	4.006	-0.9	109	0.00	16.85
119		1,3-dichlorobenzene	1.767	1.869	-5.8	111	0.00	17.05
120		p-isopropyltoluene	3.246	3.385	-4.3	111	0.00	16.95
121		1,4-dichlorobenzene	1.812	1.899	-4.8	110	0.00	17.13
122		1,2-dichlorobenzene	1.753	1.832	-4.5	109	0.00	17.52
123		n-butylbenzene	1.766	1.820	-3.1	108	0.00	17.35
124		1,2-dibromo-3-chloropropa	0.151	0.170	-12.6	109	0.00	18.29
125		1,3,5-trichlorobenzene	1.479	1.494	-1.0	105	0.00	18.46
126		1,2,4-trichlorobenzene	1.189	1.310	-10.2	110	0.00	19.13
127		hexachlorobutadiene	0.686	0.676	1.5	107	0.00	19.22
128		naphthalene	2.420	2.677	-10.6	111	0.00	19.42
129		1,2,3-trichlorobenzene	1.036	1.150	-11.0	117	0.00	19.66
130		hexachloroethane	0.470	0.555	-18.1	120	0.00	17.76

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2C62458.D M2C2824.M Thu Oct 01 16:41:00 2009 MS2C

6.7.2

6

Continuing Calibration Summary

Job Number: JA31597 **Sample:** V2C2892-CC2824
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 2C63865.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\2C63865.D Vial: 23
Acq On : 6 Nov 2009 8:07 pm Operator: tarar1
Sample : cc2824-50 Inst : ms2C
Misc : MS87958,V2C2892,W,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Last Update : Mon Nov 02 14:49:47 2009
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	96	-0.02	8.70
2		tertiary butyl alcohol	1.310	1.339	-2.2	94	-0.01	8.83
3		1,4-dioxane	0.116	0.114	1.7	90	-0.01	12.69
4	I	pentafluorobenzene	1.000	1.000	0.0	105	0.00	11.09
5		FREON 115		----------NA----------				
6		FREON 23		----------NA----------				
7		FREON 143A		----------NA----------				
8		FREON 152A		----------NA----------				
9		CHLOROTRIFLUOROETHENE		----------NA----------				
10		chlorodifluoromethane	0.675	0.659	2.4	100	0.00	4.63
11		dichlorodifluoromethane	0.716	0.675	5.7	90	0.00	4.61
12		FREON 114		----------NA----------				
13		FREON 142B		----------NA----------				
14		chloromethane	0.909	1.012	-11.3	113	-0.01	5.03
15		vinyl chloride	0.817	0.964	-18.0	114	-0.02	5.33
16		bromomethane	0.530	0.572	-7.9	113	0.00	6.14
17		chloroethane	0.462	0.513	-11.0	109	0.00	6.36
18		trichlorofluoromethane	0.835	0.823	1.4	100	0.00	6.88
19		ethyl ether	0.302	0.346	-14.6	110	-0.02	7.39
20		FREON 123		----------NA----------				
21		FREON 141B		----------NA----------				
22		FREON 123A		----------NA----------				
23		acrolein	0.111	0.071	36.0#	63	-0.01	7.73
24		1,1-dichloroethene	0.463	0.529	-14.3	126	0.00	7.89
25		acetone	0.174	0.154	11.5	94	-0.02	8.00
26		allyl chloride	0.307	0.359	-16.9	119	-0.01	8.51
27		acetonitrile	0.053	0.055	-3.8	110	-0.02	8.51
28		iodomethane	0.765	0.899	-17.5	121	0.00	8.23
29		iso-butyl alcohol	0.007	0.008#	-14.3	109	-0.01	11.38
30		carbon disulfide	1.791	2.121	-18.4	129	-0.01	8.36
31		methylene chloride	0.682	0.640	6.2	107	0.00	8.74
		----------	True	Calc.	% Drift	----------		
32		methyl acetate	50.000	47.584	4.8	101	-0.02	8.51
		----------	AvgRF	CCRF	% Dev	----------		
33		methyl tert butyl ether	1.671	1.802	-7.8	110	-0.02	9.07
34		trans-1,2-dichloroethene	0.520	0.601	-15.6	121	0.00	9.14
35		di-isopropyl ether	2.124	2.065	2.8	100	-0.01	9.71
36		2-butanone	0.065	0.066	-1.5	101	0.00	10.55
37		1,1-dichloroethane	0.988	1.151	-16.5	118	-0.01	9.77

Continuing Calibration Summary

Job Number: JA31597 **Sample:** V2C2892-CC2824
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 2C63865.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

38		chloroprene	0.832	0.846	-1.7	100	0.00	9.87
39		acrylonitrile	0.194	0.228	-17.5	112	-0.02	9.12
		----------	True	Calc.	% Drift	----------		
40		vinyl acetate	50.000	44.315	11.4	90	-0.01	9.76
		----------	AvgRF	CCRF	% Dev	----------		
41		ethyl tert-butyl ether	1.923	2.003	-4.2	102	-0.01	10.21
42		ethyl acetate	0.090	0.076	15.6	91	-0.02	10.54
43		2,2-dichloropropane	0.794	0.902	-13.6	122	0.00	10.56
44		cis-1,2-dichloroethene	0.595	0.639	-7.4	114	0.00	10.57
45		propionitrile	0.079	0.090	-13.9	107	-0.01	10.67
46		bromochloromethane	0.254	0.284	-11.8	110	-0.01	10.90
47		tetrahydrofuran	0.223	0.209	6.3	102	0.00	10.94
48		chloroform	0.919	1.010	-9.9	114	-0.01	10.95
49		t-butyl formate	0.494	0.528	-6.9	107	-0.01	10.97
50	S	dibromofluoromethane (s)	0.501	0.538	-7.4	109	0.00	11.16
51	S	1,2-dichloroethane-d4 (s)	0.592	0.606	-2.4	105	0.00	11.59
52		freon 113	0.383	0.415	-8.4	110	0.00	7.83
53		methacrylonitrile	0.318	0.318	0.0	99	-0.01	10.85
54		1,1,1-trichloroethane	0.751	0.859	-14.4	120	-0.01	11.20
55		Cyclohexane	0.827	0.985	-19.1	131	0.00	11.26
56		tert amyl alcohol		----------NA----------				
57	I	1,4-difluorobenzene	1.000	1.000	0.0	106	-0.01	12.00
58		Di-isobutylene		----------NA----------				
59		epichlorohydrin	0.035	0.032	8.6	90	-0.01	13.20
60		n-butyl alcohol	0.011	0.010	9.1	94	-0.01	12.13
61		carbon tetrachloride	0.399	0.460	-15.3	126	0.00	11.40
62		1,1-dichloropropene	0.468	0.509	-8.8	117	0.00	11.38
63		hexane	0.500	0.503	-0.6	103	0.00	9.43
64		tert amyl ethyl ether		----------NA----------				
65		iso-octane		----------NA----------				
66		benzene	1.442	1.519	-5.3	112	-0.01	11.64
67		tert-amyl methyl ether	1.169	1.133	3.1	100	0.00	11.65
68		heptane	0.266	0.270	-1.5	104	-0.01	11.77
69		isopropyl acetate	0.749	0.599	20.0#	81	-0.01	11.55
70		1,2-dichloroethane	0.433	0.448	-3.5	105	0.00	11.67
71		trichloroethene	0.350	0.354	-1.1	110	0.00	12.33
72		2-nitropropane	0.019	0.016	15.8	88	0.00	13.38
73		2-chloroethyl vinyl ether	0.262	0.210	19.8	78	0.00	13.07
74		methyl methacrylate	0.263	0.226	14.1	84	0.00	12.57
75		1,2-dichloropropane	0.375	0.382	-1.9	107	0.00	12.59
76		dibromomethane	0.205	0.211	-2.9	104	-0.01	12.75
77		methylcyclohexane	0.619	0.634	-2.4	106	0.00	12.52
78		bromodichloromethane	0.424	0.434	-2.4	104	-0.01	12.86
79		cis-1,3-dichloropropene	0.572	0.580	-1.4	101	0.00	13.28
80	S	toluene-d8 (s)	1.319	1.263	4.2	104	0.00	13.54
81		4-methyl-2-pentanone	0.136	0.130	4.4	93	0.00	13.36
82		toluene	0.844	0.817	3.2	101	-0.01	13.61
83		3-methyl-1-butanol	0.015	0.015	0.0	96	-0.01	13.38
84		trans-1,3-dichloropropene	0.500	0.483	3.4	95	0.00	13.80
85		ethyl methacrylate	0.358	0.379	-5.9	104	0.00	13.76
86		1,1,2-trichloroethane	0.256	0.243	5.1	98	0.00	14.01
87		2-hexanone	0.130	0.112	13.8	83	0.00	14.15
88	I	chlorobenzene-d5	1.000	1.000	0.0	101	0.00	14.95
89		tetrachloroethene	0.330	0.341	-3.3	108	0.00	14.15
90		1,3-dichloropropane	0.581	0.579	0.3	95	-0.01	14.17
91		butyl acetate	0.253	0.215	15.0	80	0.00	14.19

Continuing Calibration Summary

Job Number: JA31597 **Sample:** V2C2892-CC2824
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 2C63865.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

92		3,3-dimethyl-1-butanol	0.037	0.034	8.1	93	0.00	14.30
93		dibromochloromethane	0.349	0.381	-9.2	103	-0.01	14.42
94		1,2-dibromoethane	0.340	0.351	-3.2	98	0.00	14.57
95		BUTYL ETHER		----------NA----------				
96		chlorobenzene	1.073	1.088	-1.4	102	0.00	14.98
97		1,1,1,2-tetrachloroethane	0.371	0.382	-3.0	102	0.00	15.03
98		ethylbenzene	1.824	1.782	2.3	100	0.00	15.01
99		m,p-xylene	0.693	0.692	0.1	101	0.00	15.11
100		o-xylene	0.688	0.675	1.9	97	0.00	15.50
101		styrene	1.120	1.114	0.5	93	0.00	15.51
102		bromoform	0.233	0.256	-9.9	103	0.00	15.78
103	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	108	0.00	17.10
104		isopropylbenzene	3.546	3.271	7.8	100	0.00	15.80
105	S	4-bromofluorobenzene (s)	1.192	1.030	13.6	98	0.00	16.01
		----------	True	Calc.	% Drift	----------		
106		cyclohexanone	500.000	336.227	32.8#	79	0.00	16.00
		----------	AvgRF	CCRF	% Dev	----------		
107		bromobenzene	0.910	0.896	1.5	103	0.00	16.20
108		1,1,2,2-tetrachloroethane	0.929	0.806	13.2	90	0.00	16.11
109		trans-1,4-dichloro-2-bute	0.112	0.096	14.3	86	0.00	16.14
110		1,2,3-trichloropropane	0.200	0.189	5.5	96	0.00	16.18
111		n-propylbenzene	4.261	3.861	9.4	99	0.00	16.18
112		2-chlorotoluene	0.867	0.826	4.7	102	0.00	16.34
113		4-chlorotoluene	2.539	2.314	8.9	98	0.00	16.43
114		1,3,5-trimethylbenzene	2.951	2.723	7.7	100	0.00	16.31
115		tert-butylbenzene	2.594	2.379	8.3	100	0.00	16.64
116		pentachloroethane	0.528	0.544	-3.0	106	0.00	16.74
117		1,2,4-trimethylbenzene	3.039	2.768	8.9	98	0.00	16.68
118		sec-butylbenzene	3.969	3.620	8.8	100	0.00	16.84
119		1,3-dichlorobenzene	1.767	1.741	1.5	105	0.00	17.05
120		p-isopropyltoluene	3.246	3.059	5.8	103	0.00	16.95
121		1,4-dichlorobenzene	1.812	1.772	2.2	105	0.00	17.12
122		1,2-dichlorobenzene	1.753	1.725	1.6	105	0.00	17.51
123		n-butylbenzene	1.766	1.596	9.6	97	0.00	17.35
124		1,2-dibromo-3-chloropropa	0.151	0.137	9.3	90	0.00	18.29
125		1,3,5-trichlorobenzene	1.479	1.535	-3.8	110	0.00	18.46
126		1,2,4-trichlorobenzene	1.189	1.262	-6.1	109	0.00	19.12
127		hexachlorobutadiene	0.686	0.746	-8.7	121	0.00	19.22
128		naphthalene	2.420	2.264	6.4	96	0.00	19.42
129		1,2,3-trichlorobenzene	1.036	1.028	0.8	107	0.00	19.66
130		hexachloroethane	0.470	0.525	-11.7	116	0.00	17.76

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2C62458.D M2C2824.M Tue Nov 10 14:14:56 2009 MS2C

6.7.3

6

New Jersey
ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2C63877.D Vial: 35
Acq On : 7 Nov 2009 2:16 am Operator: tarar1
Sample : ja31597-1 Inst : ms2C
Misc : MS88065,V2C2892,W,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 07 02:41:37 2009 Quant Results File: M2C2824.RES

Quant Method : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Last Update : Mon Nov 02 14:49:47 2009
Response via : Initial Calibration
DataAcq Meth : M2C2824

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.69	65	78291	500.00 ug/L	-0.02
4) pentafluorobenzene	11.09	168	159061	50.00 ug/L	0.00
57) 1,4-difluorobenzene	12.00	114	261470	50.00 ug/L	-0.01
88) chlorobenzene-d5	14.95	117	221603	50.00 ug/L	0.00
103) 1,4-dichlorobenzene-d4	17.10	152	111004	50.00 ug/L	0.00

System Monitoring Compounds

50) dibromofluoromethane (s)	11.16	113	85917	53.95 ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery = 107.90%		
51) 1,2-dichloroethane-d4 (s)	11.59	65	104258	55.37 ug/L	0.00
Spiked Amount 50.000	Range 64 - 135		Recovery = 110.74%		
80) toluene-d8 (s)	13.54	98	321898	46.67 ug/L	0.00
Spiked Amount 50.000	Range 76 - 117		Recovery = 93.34%		
105) 4-bromofluorobenzene (s)	16.01	95	117285	44.32 ug/L	0.00
Spiked Amount 50.000	Range 72 - 122		Recovery = 88.64%		

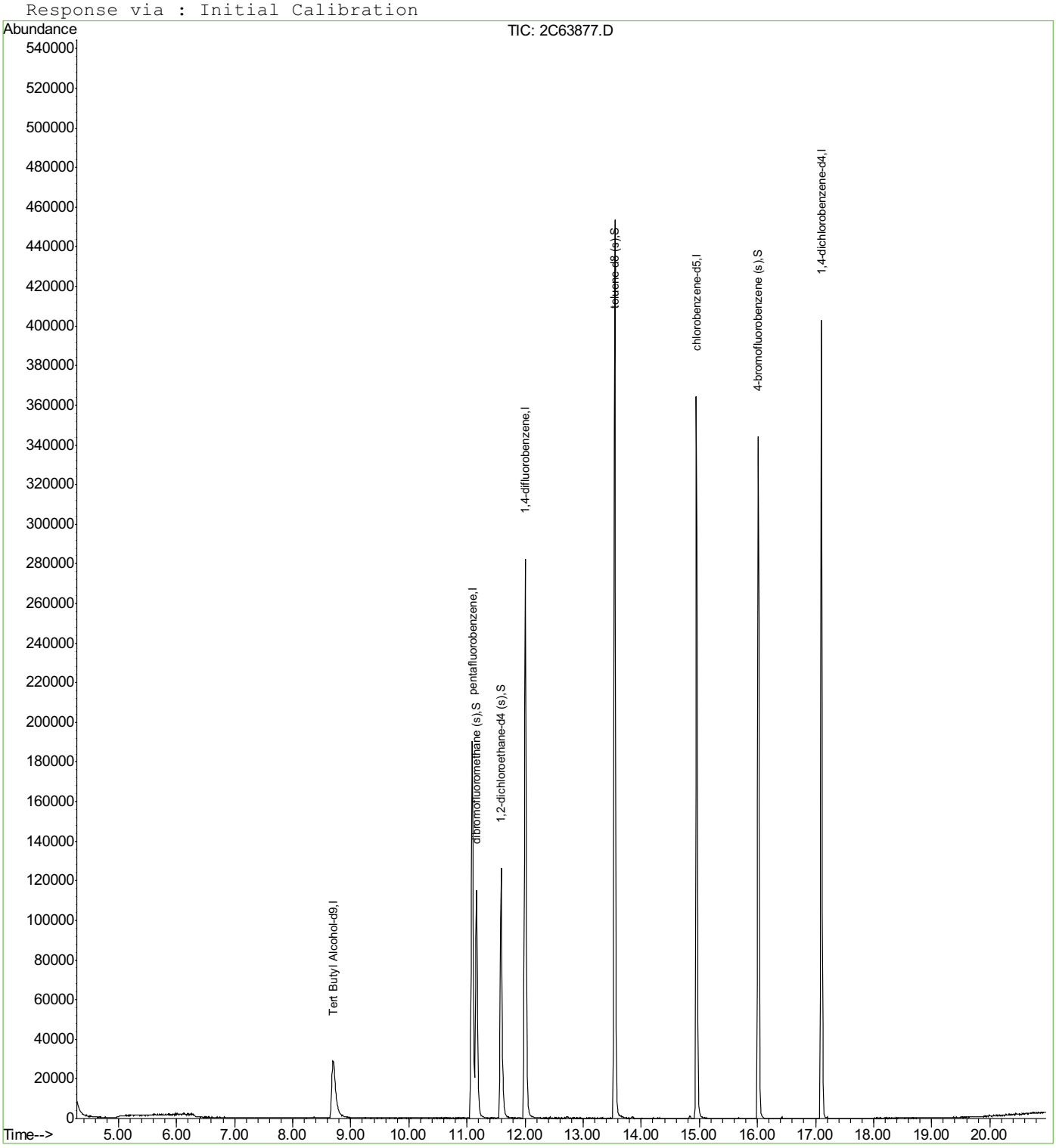
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2C63877.D Vial: 35
Acq On : 7 Nov 2009 2:16 am Operator: tarar1
Sample : ja31597-1 Inst : ms2C
Misc : MS88065,V2C2892,W,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 10 14:29 2009 Quant Results File: M2C2824.RES

Method : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Last Update : Mon Nov 02 14:49:47 2009
Response via : Initial Calibration



LSC Area Percent Report

Data File : C:\MSDCHEM\1\DATA\2C63877.D Vial: 35
Acq On : 7 Nov 2009 2:16 am Operator: tarar1
Sample : ja31597-1 Inst : ms2C
Misc : MS88065,V2C2892,W,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.06 Max Peaks: 100
Stop Thrs : 0.04 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	4.526	46	47	73	rVB	599	1789	0.22%	0.040%
2	5.066	132	150	157	rBV2	853	4829	0.58%	0.109%
3	5.129	157	162	167	rVV2	563	921	0.11%	0.021%
4	5.810	289	292	304	rBV2	496	1293	0.16%	0.029%
5	6.015	329	331	335	rVB2	593	432	0.05%	0.010%
6	6.046	335	337	344	rBV3	460	840	0.10%	0.019%
7	6.193	363	365	370	rBV2	615	538	0.06%	0.012%
8	6.235	370	373	375	rBV	398	370	0.04%	0.008%
9	6.350	392	395	401	rVB	382	533	0.06%	0.012%
10	6.827	482	486	490	rVV	377	536	0.06%	0.012%
11	6.885	494	497	500	rVV	302	347	0.04%	0.008%
12	6.916	500	503	506	rVV2	290	402	0.05%	0.009%
13	6.937	506	507	514	rVV2	311	532	0.06%	0.012%
14	6.995	514	518	525	rVV2	292	712	0.09%	0.016%
15	7.063	525	531	541	rVB2	260	627	0.08%	0.014%
16	7.907	691	692	699	rBV	219	370	0.04%	0.008%
17	8.259	758	759	766	rVV2	213	379	0.05%	0.009%
18	8.369	775	780	786	rVB3	460	768	0.09%	0.017%
19	8.479	799	801	807	rBV2	256	406	0.05%	0.009%
20	8.589	816	822	824	rVB	263	430	0.05%	0.010%
21	8.694	830	842	879	rBV2	28892	136859	16.53%	3.089%
22	8.946	889	890	895	rVB	299	335	0.04%	0.008%
23	9.008	900	902	904	rBV2	463	384	0.05%	0.009%
24	9.035	904	907	910	rBV2	377	406	0.05%	0.009%
25	9.108	914	921	928	rVB	245	707	0.09%	0.016%
26	9.176	928	934	936	rVB2	227	386	0.05%	0.009%
27	9.239	941	946	949	rVB2	242	434	0.05%	0.010%
28	9.276	949	953	955	rBV	228	326	0.04%	0.007%
29	9.328	955	963	967	rVB2	272	788	0.10%	0.018%
30	9.360	967	969	974	rBV	278	455	0.05%	0.010%
31	9.402	974	977	982	rVV2	245	425	0.05%	0.010%
32	9.701	1029	1034	1037	rBV2	278	418	0.05%	0.009%
33	9.774	1046	1048	1055	rVB	281	511	0.06%	0.012%
34	9.832	1055	1059	1061	rBV	265	332	0.04%	0.007%
35	9.973	1082	1086	1090	rBV2	300	406	0.05%	0.009%
36	10.068	1103	1104	1110	rBV2	274	321	0.04%	0.007%
37	10.188	1122	1127	1130	rVB2	252	321	0.04%	0.007%
38	10.288	1142	1146	1151	rBV2	268	376	0.05%	0.008%

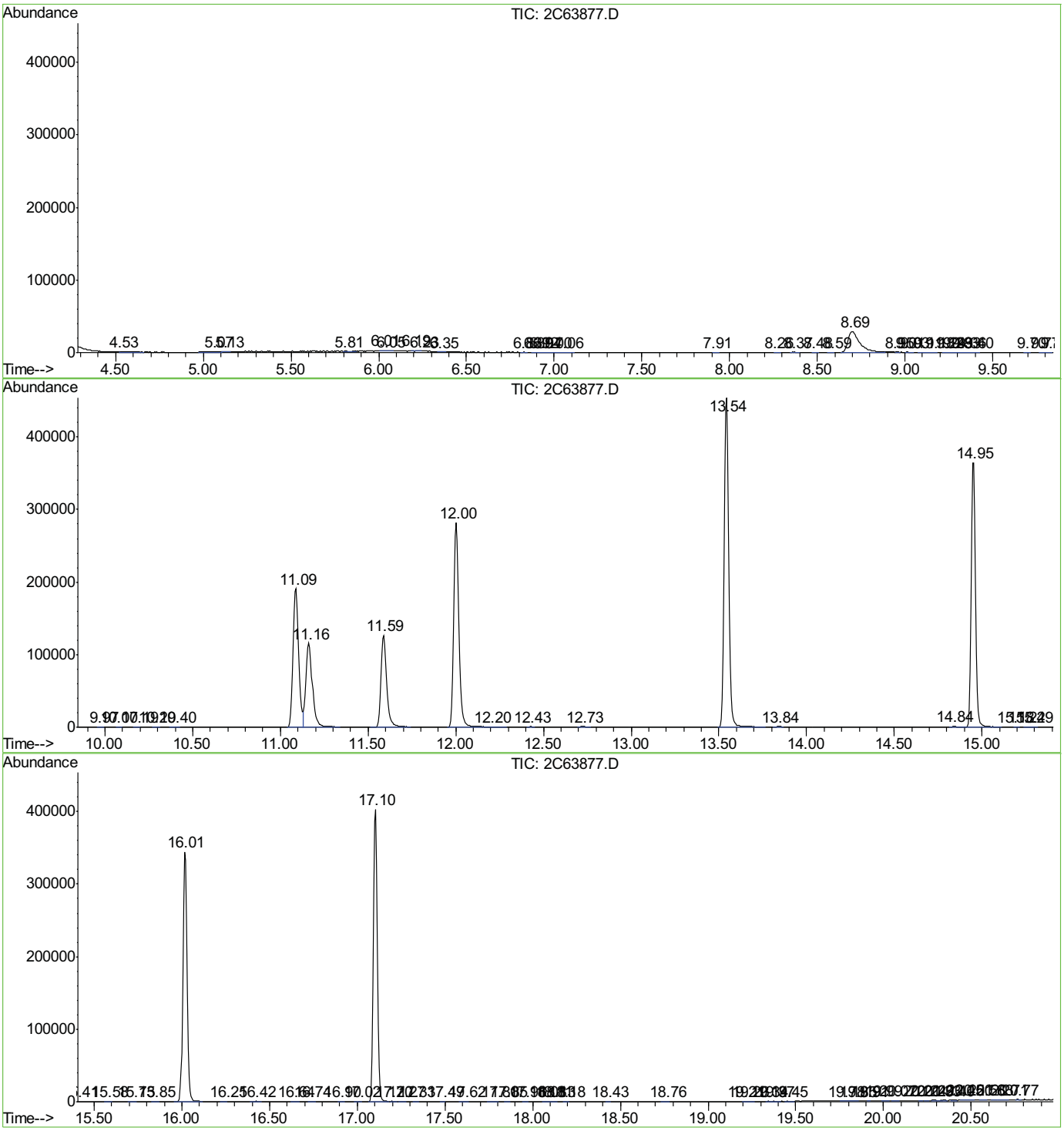
39	10.403	1161	1168	1173	rVB3	378	821	0.10%	0.019%
40	11.090	1289	1299	1307	rBV	190462	435386	52.60%	9.827%
41	11.163	1307	1313	1347	rVB2	115207	280890	33.93%	6.340%
42	11.588	1379	1394	1424	rBV	126181	289622	34.99%	6.537%
43	12.002	1463	1473	1510	rBV	282120	583170	70.45%	13.163%
44	12.201	1510	1511	1528	rVB	392	972	0.12%	0.022%
45	12.427	1550	1554	1559	rVB	629	644	0.08%	0.015%
46	12.726	1605	1611	1620	rVB2	636	1275	0.15%	0.029%
47	13.544	1757	1767	1809	rBV	453683	827800	100.00%	18.684%
48	13.843	1817	1824	1829	rVB3	807	1301	0.16%	0.029%
49	14.839	2009	2014	2025	rVB2	1329	2311	0.28%	0.052%
50	14.949	2025	2035	2066	rBV	364355	626336	75.66%	14.137%
51	15.185	2079	2080	2086	rBB	213	356	0.04%	0.008%
52	15.242	2090	2091	2097	rVB	202	328	0.04%	0.007%
53	15.290	2097	2100	2106	rBB	213	430	0.05%	0.010%
54	15.410	2119	2123	2127	rBV	205	448	0.05%	0.010%
55	15.578	2151	2155	2160	rBV	214	453	0.05%	0.010%
56	15.730	2176	2184	2186	rBV	216	564	0.07%	0.013%
57	15.845	2202	2206	2211	rBV	197	444	0.05%	0.010%
58	16.013	2227	2238	2258	rBB	344408	550954	66.56%	12.435%
59	16.254	2277	2284	2285	rVB	202	379	0.05%	0.009%
60	16.422	2309	2316	2322	rBB	709	1154	0.14%	0.026%
61	16.642	2354	2358	2363	rBB	199	439	0.05%	0.010%
62	16.737	2372	2376	2381	rBB	201	433	0.05%	0.010%
63	16.904	2405	2408	2413	rBB	211	395	0.05%	0.009%
64	17.020	2422	2430	2431	rBB	183	362	0.04%	0.008%
65	17.104	2438	2446	2461	rBV	403072	641539	77.50%	14.480%
66	17.198	2462	2464	2470	rVB	775	808	0.10%	0.018%
67	17.271	2471	2478	2479	rBB	222	327	0.04%	0.007%
68	17.329	2486	2489	2493	rBB	183	322	0.04%	0.007%
69	17.492	2516	2520	2522	rBV	194	323	0.04%	0.007%
70	17.618	2537	2544	2547	rBB	243	480	0.06%	0.011%
71	17.801	2567	2579	2580	rBB	199	673	0.08%	0.015%
72	17.853	2586	2589	2593	rBB	216	329	0.04%	0.007%
73	17.964	2605	2610	2612	rBB	181	322	0.04%	0.007%
74	18.079	2627	2632	2634	rBB	385	515	0.06%	0.012%
75	18.110	2634	2638	2639	rBV	370	384	0.05%	0.009%
76	18.126	2639	2641	2644	rVB	356	390	0.05%	0.009%
77	18.184	2650	2652	2657	rBV2	377	560	0.07%	0.013%
78	18.430	2696	2699	2702	rBV2	225	338	0.04%	0.008%
79	18.760	2756	2762	2766	rBV2	253	617	0.07%	0.014%
80	19.206	2845	2847	2851	rVB2	228	341	0.04%	0.008%
81	19.232	2851	2852	2858	rBV2	292	417	0.05%	0.009%
82	19.342	2870	2873	2876	rBV2	288	341	0.04%	0.008%
83	19.374	2876	2879	2887	rBV2	225	468	0.06%	0.011%
84	19.453	2891	2894	2902	rBV2	286	827	0.10%	0.019%
85	19.778	2951	2956	2965	rBV2	227	596	0.07%	0.013%
86	19.846	2965	2969	2971	rBV2	303	408	0.05%	0.009%
87	19.914	2980	2982	2984	rBV2	370	367	0.04%	0.008%
88	19.993	2996	2997	3005	rVV3	496	556	0.07%	0.013%
89	20.071	3007	3012	3016	rBV2	368	514	0.06%	0.012%
90	20.208	3036	3038	3041	rBV3	455	485	0.06%	0.011%
91	20.244	3042	3045	3048	rVV3	479	627	0.08%	0.014%
92	20.286	3050	3053	3059	rVB4	544	984	0.12%	0.022%
93	20.328	3059	3061	3068	rBV	454	871	0.11%	0.020%
94	20.402	3072	3075	3079	rVB2	576	705	0.09%	0.016%
95	20.454	3082	3085	3089	rVV4	656	805	0.10%	0.018%

96	20.506	3089	3095	3097	rVB5	443	621	0.08%	0.014%
97	20.580	3102	3109	3111	rBV4	557	1067	0.13%	0.024%
98	20.627	3115	3118	3121	rVB4	503	511	0.06%	0.012%
99	20.706	3121	3133	3135	rBV6	696	1741	0.21%	0.039%
100	20.769	3142	3145	3149	rBV3	563	433	0.05%	0.010%

Sum of corrected areas: 4430523

LSC Report - Integrated Chromatogram

File : C:\MSDCHEM\1\DATA\2C63877.D
Operator : tarar1
Acquired : 7 Nov 2009 2:16 am using AcqMethod M2C2824
Instrument : ms2C
Sample Name: ja31597-1
Misc Info : MS88065,V2C2892,W,,,,1
Vial Number: 35
Quant File :M2C2824.RES (RTE Integrator)



Tentatively Identified Compound (LSC) summary

Operator ID: tarar1 Date Acquired: 7 Nov 2009 2:16 am
Data File: C:\MSDCHEM\1\DATA\2C63877.D
Name: ja31597-1
Misc: MS88065,V2C2892,W,,,,1
Method: C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title: SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Library Searched: C:\DATABASE\NBS75K.L

TIC	Top Hit name	RT	EstConc	Units	Response	Internal Standard #	RT	Resp	Conc

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2C63879.D Vial: 37
Acq On : 7 Nov 2009 3:17 am Operator: tarar1
Sample : ja31597-2 Inst : ms2C
Misc : MS88065,V2C2892,W,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 07 03:43:15 2009 Quant Results File: M2C2824.RES

Quant Method : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Last Update : Mon Nov 02 14:49:47 2009
Response via : Initial Calibration
DataAcq Meth : M2C2824

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.69	65	73321	500.00 ug/L	-0.02
4) pentafluorobenzene	11.09	168	154467	50.00 ug/L	0.00
57) 1,4-difluorobenzene	12.00	114	254864	50.00 ug/L	-0.01
88) chlorobenzene-d5	14.95	117	211761	50.00 ug/L	0.00
103) 1,4-dichlorobenzene-d4	17.10	152	107498	50.00 ug/L	0.00

System Monitoring Compounds

50) dibromofluoromethane (s)	11.16	113	85143	55.06 ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery = 110.12%		
51) 1,2-dichloroethane-d4 (s)	11.59	65	102336	55.96 ug/L	0.00
Spiked Amount 50.000	Range 64 - 135		Recovery = 111.92%		
80) toluene-d8 (s)	13.54	98	335584	49.92 ug/L	0.00
Spiked Amount 50.000	Range 76 - 117		Recovery = 99.84%		
105) 4-bromofluorobenzene (s)	16.01	95	114522	44.69 ug/L	0.00
Spiked Amount 50.000	Range 72 - 122		Recovery = 89.38%		

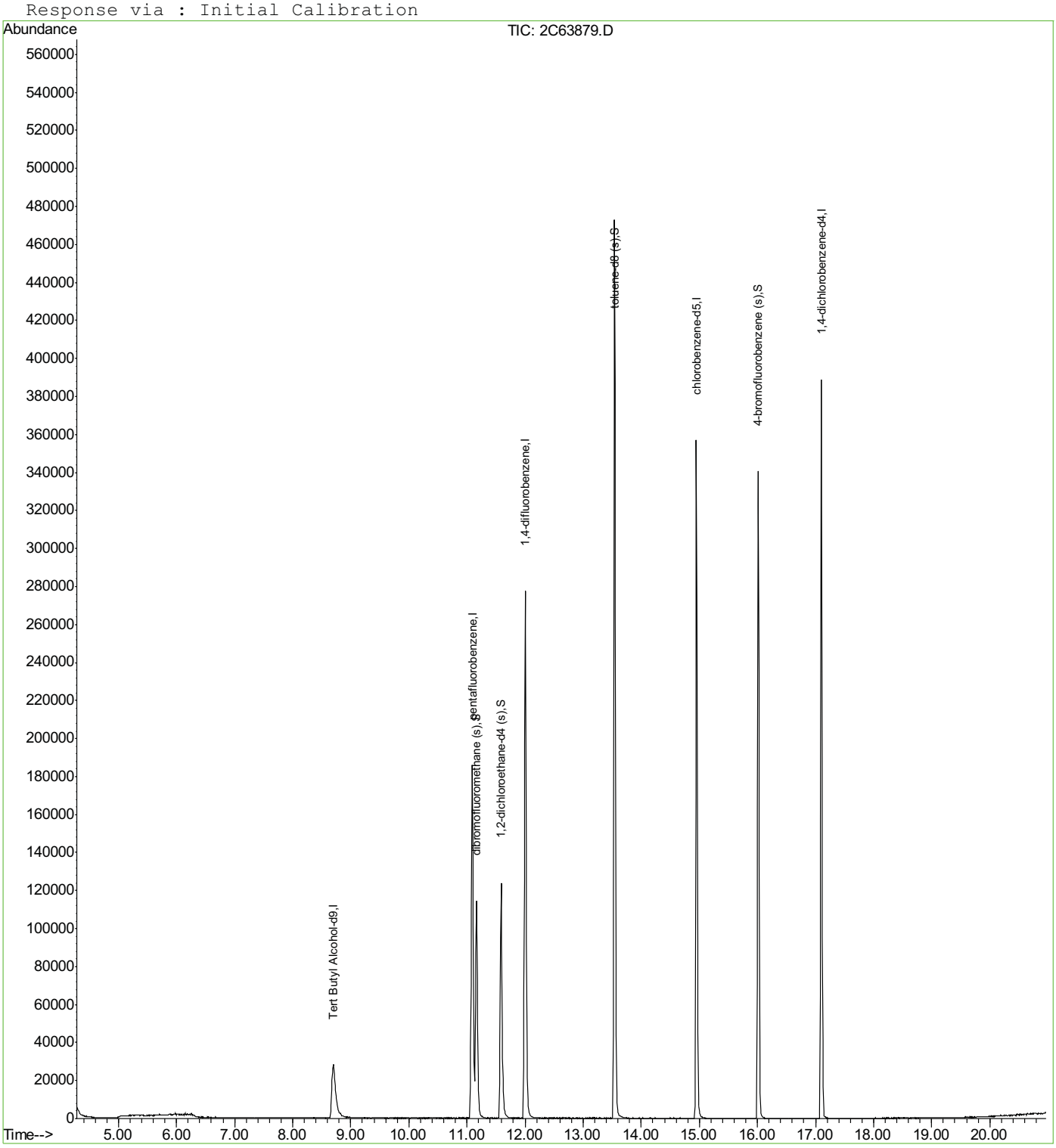
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2C63879.D Vial: 37
Acq On : 7 Nov 2009 3:17 am Operator: tarar1
Sample : ja31597-2 Inst : ms2C
Misc : MS88065,V2C2892,W,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 10 14:29 2009 Quant Results File: M2C2824.RES

Method : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Last Update : Mon Nov 02 14:49:47 2009
Response via : Initial Calibration



LSC Area Percent Report

Data File : C:\MSDCHEM\1\DATA\2C63879.D Vial: 37
Acq On : 7 Nov 2009 3:17 am Operator: tarar1
Sample : ja31597-2 Inst : ms2C
Misc : MS88065,V2C2892,W,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.06 Max Peaks: 100
Stop Thrs : 0.04 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	5.029	130	143	145	rBV2	778	2264	0.26%	0.052%
2	5.244	181	184	191	rVB3	481	665	0.08%	0.015%
3	5.297	191	194	200	rBV2	491	568	0.07%	0.013%
4	5.344	201	203	215	rVV2	336	454	0.05%	0.010%
5	5.648	259	261	266	rVB2	315	388	0.04%	0.009%
6	5.805	279	291	295	rBV2	421	1289	0.15%	0.029%
7	5.989	324	326	343	rVB4	696	1881	0.22%	0.043%
8	6.130	350	353	354	rBV2	457	288	0.03%	0.007%
9	6.188	360	364	368	rBV2	617	1097	0.13%	0.025%
10	6.219	368	370	374	rVV2	861	1116	0.13%	0.026%
11	6.256	374	377	396	rVB	1986	5125	0.59%	0.117%
12	6.392	401	403	411	rVB	235	294	0.03%	0.007%
13	6.801	478	481	485	rBV	303	427	0.05%	0.010%
14	6.922	503	504	512	rVV2	273	481	0.06%	0.011%
15	7.252	565	567	575	rBV	246	375	0.04%	0.009%
16	7.404	591	596	605	rBV	271	415	0.05%	0.009%
17	7.923	691	695	702	rBV	250	413	0.05%	0.009%
18	8.343	771	775	782	rBV	270	419	0.05%	0.010%
19	8.406	782	787	791	rVB2	255	309	0.04%	0.007%
20	8.615	825	827	831	rBV	262	353	0.04%	0.008%
21	8.699	831	843	881	rBV2	28232	133809	15.46%	3.060%
22	9.014	901	903	907	rVB	418	390	0.05%	0.009%
23	9.071	910	914	917	rBV2	221	311	0.04%	0.007%
24	9.145	925	928	932	rBV	235	312	0.04%	0.007%
25	9.328	956	963	966	rVB2	284	524	0.06%	0.012%
26	9.423	979	981	986	rVV2	215	311	0.04%	0.007%
27	9.491	990	994	998	rVV	219	393	0.05%	0.009%
28	9.517	998	999	1008	rVB2	245	534	0.06%	0.012%
29	9.617	1012	1018	1020	rVB	291	398	0.05%	0.009%
30	9.638	1020	1022	1025	rBV	289	296	0.03%	0.007%
31	9.664	1025	1027	1031	rBV	234	295	0.03%	0.007%
32	9.722	1036	1038	1046	rVB2	227	351	0.04%	0.008%
33	9.800	1046	1053	1054	rVB	243	342	0.04%	0.008%
34	9.821	1054	1057	1061	rBV2	250	338	0.04%	0.008%
35	10.393	1164	1166	1175	rBV3	413	503	0.06%	0.012%
36	11.090	1288	1299	1307	rBV	185875	424255	49.03%	9.703%
37	11.163	1307	1313	1347	rVB	114345	274081	31.68%	6.269%
38	11.588	1381	1394	1435	rBV	123788	285012	32.94%	6.519%

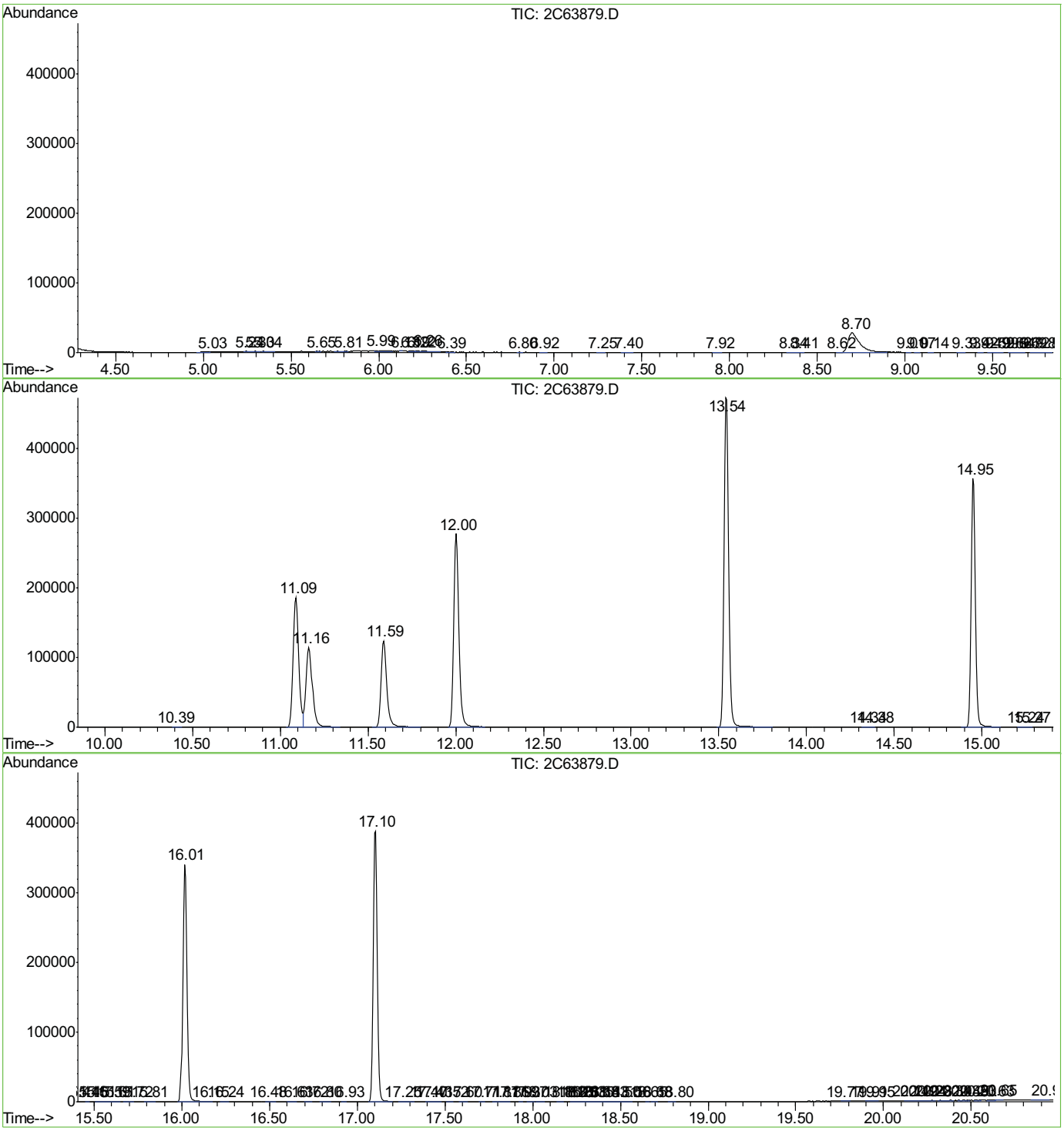
39	12.002	1464	1473	1504	rBV	277528	573651	66.30%	13.120%
40	13.539	1756	1766	1817	rVB	473040	865270	100.00%	19.790%
41	14.341	1914	1919	1921	rVB	235	393	0.05%	0.009%
42	14.383	1921	1927	1928	rBV	243	471	0.05%	0.011%
43	14.949	2022	2035	2065	rBV	356952	602022	69.58%	13.769%
44	15.237	2083	2090	2092	rBB	192	452	0.05%	0.010%
45	15.274	2092	2097	2100	rBV	209	471	0.05%	0.011%
46	15.410	2120	2123	2127	rVB	208	347	0.04%	0.008%
47	15.463	2130	2133	2135	rBV	226	312	0.04%	0.007%
48	15.510	2141	2142	2149	rVB	201	402	0.05%	0.009%
49	15.589	2149	2157	2160	rBV	228	626	0.07%	0.014%
50	15.615	2160	2162	2169	rVB	201	446	0.05%	0.010%
51	15.720	2172	2182	2183	rBV	209	650	0.08%	0.015%
52	15.809	2194	2199	2207	rBV	201	704	0.08%	0.016%
53	16.013	2231	2238	2261	rBB	340675	535264	61.86%	12.242%
54	16.155	2261	2265	2269	rBB	179	316	0.04%	0.007%
55	16.239	2277	2281	2287	rBB	224	460	0.05%	0.011%
56	16.480	2326	2327	2338	rBB	192	548	0.06%	0.013%
57	16.632	2350	2356	2360	rBB	193	451	0.05%	0.010%
58	16.721	2368	2373	2377	rBB	179	318	0.04%	0.007%
59	16.800	2385	2388	2398	rBB	196	633	0.07%	0.014%
60	16.926	2409	2412	2415	rBB	223	292	0.03%	0.007%
61	17.104	2438	2446	2465	rBV	389000	621046	71.77%	14.204%
62	17.251	2471	2474	2488	rBV	216	880	0.10%	0.020%
63	17.397	2500	2502	2506	rBB	211	301	0.03%	0.007%
64	17.429	2506	2508	2518	rBB	188	608	0.07%	0.014%
65	17.518	2523	2525	2531	rBV	231	448	0.05%	0.010%
66	17.597	2537	2540	2546	rVB	212	419	0.05%	0.010%
67	17.707	2558	2561	2565	rVB	237	307	0.04%	0.007%
68	17.806	2573	2580	2588	rBB	201	792	0.09%	0.018%
69	17.864	2588	2591	2593	rBV	206	304	0.04%	0.007%
70	17.927	2601	2603	2606	rBV	213	289	0.03%	0.007%
71	17.969	2610	2611	2619	rBB	237	478	0.06%	0.011%
72	18.027	2620	2622	2630	rBV	339	599	0.07%	0.014%
73	18.158	2643	2647	2651	rBB	320	430	0.05%	0.010%
74	18.231	2658	2661	2662	rBV	355	329	0.04%	0.008%
75	18.247	2662	2664	2666	rVV	346	323	0.04%	0.007%
76	18.263	2666	2667	2671	rVB	355	333	0.04%	0.008%
77	18.310	2671	2676	2678	rBV	319	422	0.05%	0.010%
78	18.346	2678	2683	2685	rVV2	277	386	0.04%	0.009%
79	18.378	2685	2689	2690	rVV2	262	289	0.03%	0.007%
80	18.425	2690	2698	2702	rVV2	226	573	0.07%	0.013%
81	18.498	2702	2712	2716	rBV2	239	764	0.09%	0.017%
82	18.556	2716	2723	2725	rBV	215	486	0.06%	0.011%
83	18.651	2739	2741	2744	rBV2	261	362	0.04%	0.008%
84	18.682	2745	2747	2753	rVB	242	403	0.05%	0.009%
85	18.803	2764	2770	2773	rBV	287	610	0.07%	0.014%
86	19.767	2952	2954	2963	rBV2	224	388	0.04%	0.009%
87	19.909	2978	2981	2987	rVB	386	651	0.08%	0.015%
88	19.951	2987	2989	2993	rBV	344	509	0.06%	0.012%
89	20.145	3021	3026	3033	rBV3	350	782	0.09%	0.018%
90	20.192	3033	3035	3038	rBV2	570	350	0.04%	0.008%
91	20.244	3038	3045	3049	rBV4	558	1070	0.12%	0.024%
92	20.276	3049	3051	3055	rVB2	728	628	0.07%	0.014%
93	20.323	3057	3060	3067	rBV3	702	1273	0.15%	0.029%
94	20.386	3067	3072	3075	rBV3	706	1126	0.13%	0.026%
95	20.433	3079	3081	3083	rVB2	504	421	0.05%	0.010%

96	20.486	3083	3091	3092	rBV2	721	1240	0.14%	0.028%
97	20.528	3096	3099	3104	rBV3	553	838	0.10%	0.019%
98	20.632	3110	3119	3120	rBV5	640	1542	0.18%	0.035%
99	20.648	3120	3122	3129	rVV5	686	1105	0.13%	0.025%
100	20.942	3158	3178	3179	rBV7	645	2655	0.31%	0.061%

Sum of corrected areas: 4372334

LSC Report - Integrated Chromatogram

File : C:\MSDCHEM\1\DATA\2C63879.D
Operator : tarar1
Acquired : 7 Nov 2009 3:17 am using AcqMethod M2C2824
Instrument : ms2C
Sample Name: ja31597-2
Misc Info : MS88065,V2C2892,W,,,,1
Vial Number: 37
Quant File :M2C2824.RES (RTE Integrator)



Tentatively Identified Compound (LSC) summary

Operator ID: tarar1 Date Acquired: 7 Nov 2009 3:17 am
Data File: C:\MSDCHEM\1\DATA\2C63879.D
Name: ja31597-2
Misc: MS88065,V2C2892,W,,,,1
Method: C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title: SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Library Searched: C:\DATABASE\NBS75K.L

TIC	Top Hit name	RT	EstConc	Units	Response	Internal Standard #	RT	Resp	Conc

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2C63880.D Vial: 38
Acq On : 7 Nov 2009 3:48 am Operator: tarar1
Sample : ja31597-3 Inst : ms2C
Misc : MS88065,V2C2892,W,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 07 04:14:03 2009 Quant Results File: M2C2824.RES

Quant Method : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Last Update : Mon Nov 02 14:49:47 2009
Response via : Initial Calibration
DataAcq Meth : M2C2824

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.70	65	73640	500.00 ug/L	-0.02
4) pentafluorobenzene	11.09	168	146035	50.00 ug/L	0.00
57) 1,4-difluorobenzene	12.00	114	243960	50.00 ug/L	-0.01
88) chlorobenzene-d5	14.95	117	212027	50.00 ug/L	0.00
103) 1,4-dichlorobenzene-d4	17.10	152	106534	50.00 ug/L	0.00

System Monitoring Compounds

50) dibromofluoromethane (s)	11.16	113	81232	55.56 ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery = 111.12%		
51) 1,2-dichloroethane-d4 (s)	11.59	65	99806	57.73 ug/L	0.00
Spiked Amount 50.000	Range 64 - 135		Recovery = 115.46%		
80) toluene-d8 (s)	13.54	98	333942	51.89 ug/L	0.00
Spiked Amount 50.000	Range 76 - 117		Recovery = 103.78%		
105) 4-bromofluorobenzene (s)	16.01	95	114741	45.18 ug/L	0.00
Spiked Amount 50.000	Range 72 - 122		Recovery = 90.36%		

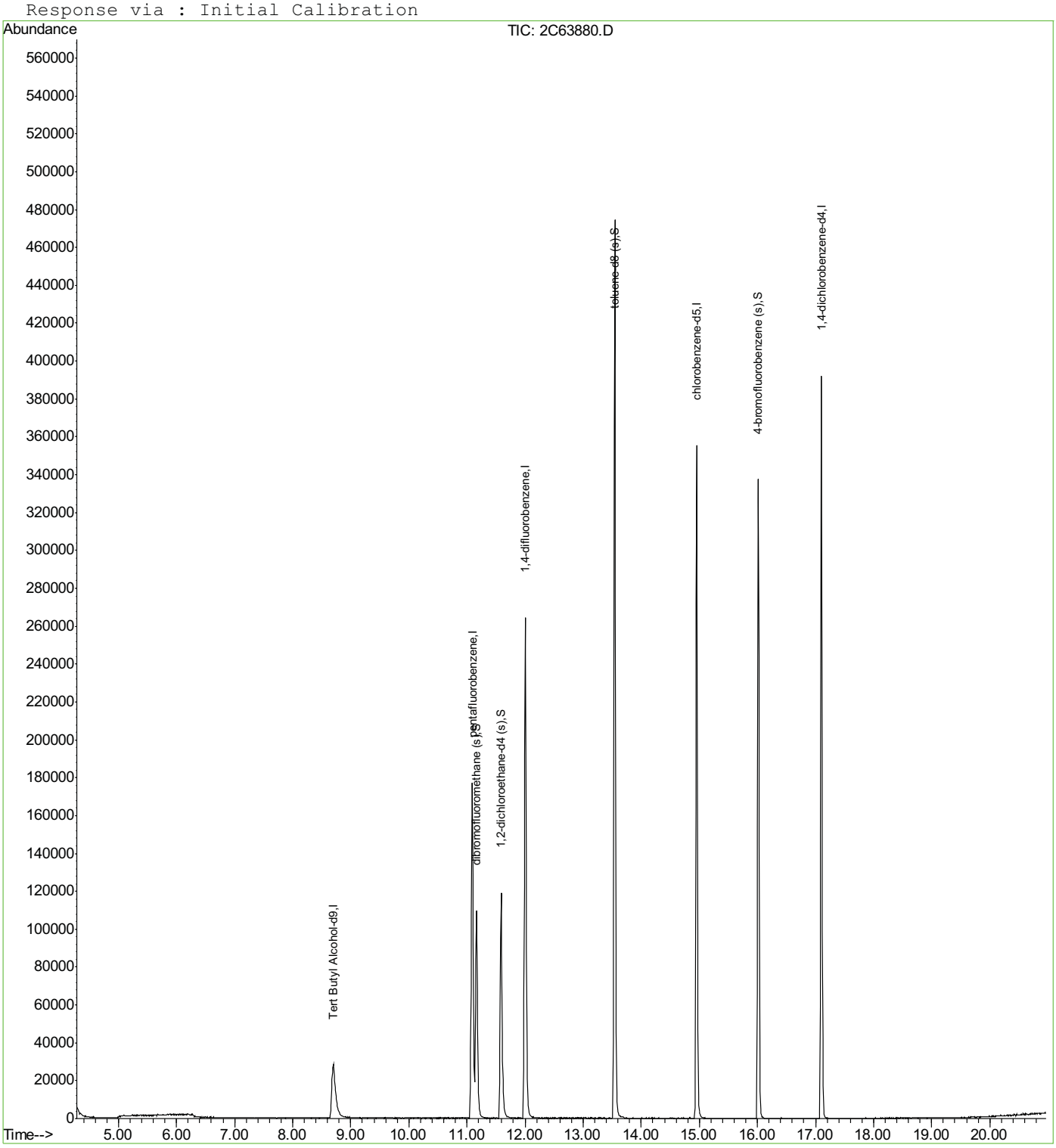
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2C63880.D Vial: 38
Acq On : 7 Nov 2009 3:48 am Operator: tarar1
Sample : ja31597-3 Inst : ms2C
Misc : MS88065,V2C2892,W,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 10 14:30 2009 Quant Results File: M2C2824.RES

Method : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Last Update : Mon Nov 02 14:49:47 2009
Response via : Initial Calibration



LSC Area Percent Report

Data File : C:\MSDCHEM\1\DATA\2C63880.D Vial: 38
Acq On : 7 Nov 2009 3:48 am Operator: tarar1
Sample : ja31597-3 Inst : ms2C
Misc : MS88065,V2C2892,W,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.06 Max Peaks: 100
Stop Thrs : 0.04 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	4.987	129	135	136	rBV	463	516	0.06%	0.012%
2	5.024	136	142	144	rVV2	775	1047	0.12%	0.024%
3	5.066	144	150	152	rVV2	574	1086	0.13%	0.025%
4	5.102	154	157	167	rVV2	475	1237	0.14%	0.029%
5	5.244	179	184	192	rBV2	486	776	0.09%	0.018%
6	5.344	200	203	206	rVB2	510	424	0.05%	0.010%
7	5.391	206	212	219	rVB2	626	924	0.11%	0.021%
8	5.569	245	246	250	rBV	456	381	0.04%	0.009%
9	5.669	264	265	272	rBV2	564	836	0.10%	0.019%
10	5.716	272	274	282	rBV2	418	656	0.08%	0.015%
11	5.868	302	303	305	rBV2	644	383	0.04%	0.009%
12	5.941	313	317	319	rBV2	421	668	0.08%	0.016%
13	6.020	330	332	337	rVB2	502	664	0.08%	0.015%
14	6.120	350	351	355	rBV	733	700	0.08%	0.016%
15	6.151	355	357	359	rVB	452	333	0.04%	0.008%
16	6.251	374	376	378	rBV	353	331	0.04%	0.008%
17	7.027	521	524	527	rVB2	227	287	0.03%	0.007%
18	7.582	624	630	636	rBV	246	413	0.05%	0.010%
19	7.692	645	651	657	rVB	145	310	0.04%	0.007%
20	8.259	755	759	762	rVB	236	302	0.03%	0.007%
21	8.395	783	785	793	rVB	288	298	0.03%	0.007%
22	8.699	828	843	889	rBV	28181	133799	15.48%	3.110%
23	9.082	912	916	922	rVB2	251	550	0.06%	0.013%
24	9.155	927	930	934	rVB	239	290	0.03%	0.007%
25	9.223	938	943	945	rBV	253	310	0.04%	0.007%
26	9.328	956	963	966	rBV2	232	474	0.05%	0.011%
27	9.465	984	989	990	rBV2	237	356	0.04%	0.008%
28	10.398	1166	1167	1171	rBV2	380	310	0.04%	0.007%
29	11.090	1287	1299	1307	rBV	177006	404503	46.80%	9.403%
30	11.163	1307	1313	1340	rVB	109416	263212	30.46%	6.118%
31	11.588	1383	1394	1423	rBV	118987	276068	31.94%	6.417%
32	12.002	1462	1473	1507	rBV	264207	551139	63.77%	12.811%
33	13.544	1756	1767	1800	rVV	474709	864239	100.00%	20.089%
34	13.727	1800	1802	1808	rVB2	432	809	0.09%	0.019%
35	13.780	1808	1812	1816	rBV	254	539	0.06%	0.013%
36	14.954	2027	2036	2061	rBV	355640	605075	70.01%	14.065%
37	15.185	2077	2080	2084	rBB	207	349	0.04%	0.008%
38	15.248	2089	2092	2099	rBV	214	589	0.07%	0.014%

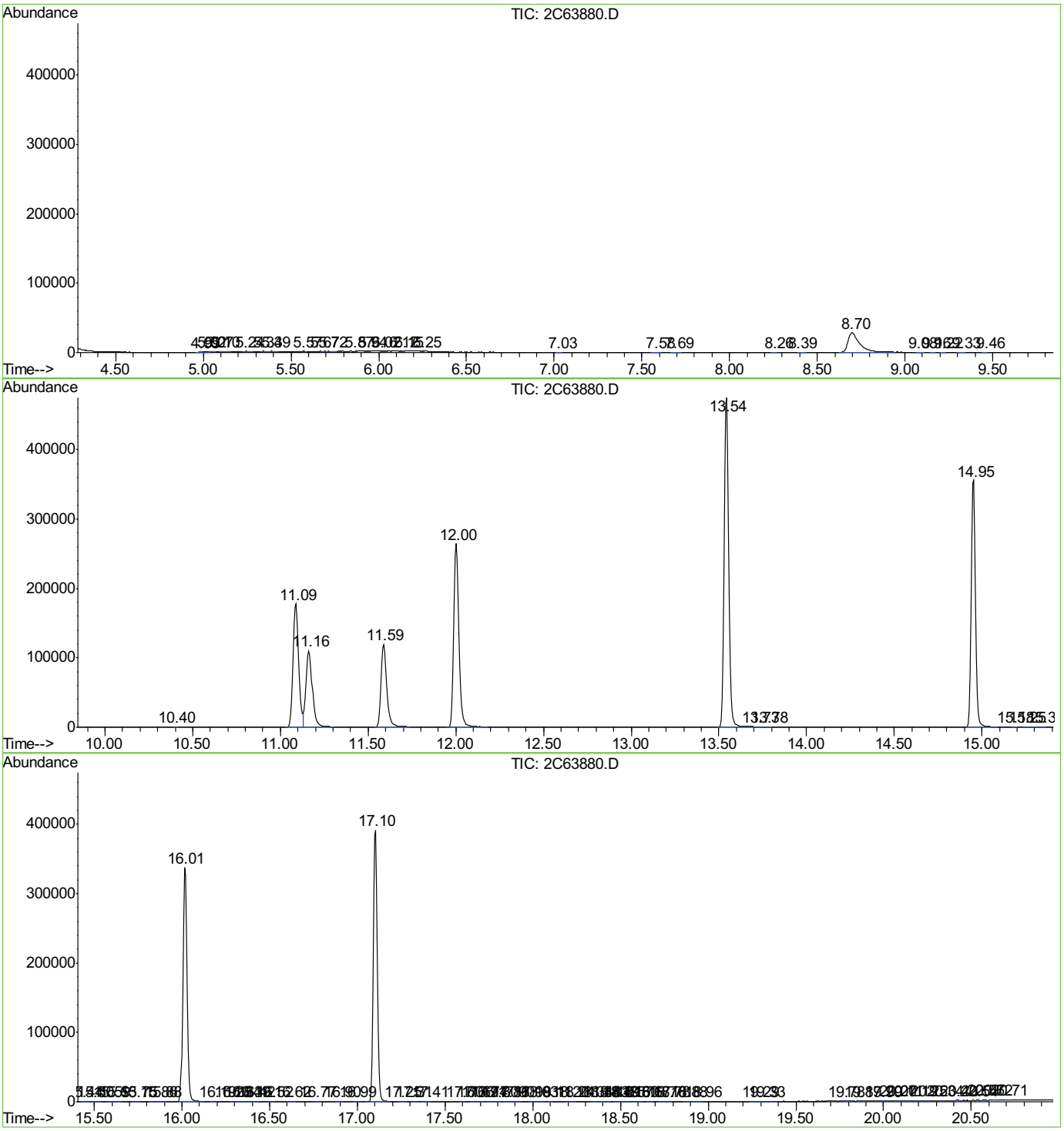
39	15.352	2099	2112	2114	rVB	218	824	0.10%	0.019%
40	15.436	2125	2128	2135	rBB	211	516	0.06%	0.012%
41	15.499	2137	2140	2148	rBB	199	551	0.06%	0.013%
42	15.588	2155	2157	2162	rBB	217	370	0.04%	0.009%
43	15.625	2162	2164	2170	rBV	211	458	0.05%	0.011%
44	15.746	2180	2187	2190	rBB	220	458	0.05%	0.011%
45	15.856	2200	2208	2210	rBV	197	537	0.06%	0.012%
46	15.882	2210	2213	2219	rVB	200	447	0.05%	0.010%
47	16.013	2231	2238	2260	rBB	337819	536314	62.06%	12.467%
48	16.191	2266	2272	2274	rBB	185	365	0.04%	0.008%
49	16.281	2288	2289	2296	rBB	215	389	0.05%	0.009%
50	16.338	2296	2300	2305	rBB	230	386	0.04%	0.009%
51	16.391	2305	2310	2312	rBV	215	379	0.04%	0.009%
52	16.417	2312	2315	2319	rVB	530	439	0.05%	0.010%
53	16.516	2329	2334	2336	rBV	183	359	0.04%	0.008%
54	16.621	2349	2354	2359	rBB	217	443	0.05%	0.010%
55	16.768	2378	2382	2387	rBB	218	401	0.05%	0.009%
56	16.904	2402	2408	2411	rBV	189	427	0.05%	0.010%
57	16.994	2421	2425	2430	rBV	187	431	0.05%	0.010%
58	17.104	2434	2446	2462	rBV	392036	620704	71.82%	14.428%
59	17.250	2471	2474	2479	rBV	199	373	0.04%	0.009%
60	17.313	2484	2486	2493	rBB	193	459	0.05%	0.011%
61	17.408	2495	2504	2506	rBB	224	540	0.06%	0.013%
62	17.602	2537	2541	2543	rBV	205	348	0.04%	0.008%
63	17.665	2549	2553	2557	rBB	210	388	0.04%	0.009%
64	17.691	2557	2558	2564	rBV	206	403	0.05%	0.009%
65	17.743	2565	2568	2574	rVB	209	465	0.05%	0.011%
66	17.801	2574	2579	2583	rBB	200	442	0.05%	0.010%
67	17.864	2585	2591	2593	rBB	303	428	0.05%	0.010%
68	17.895	2593	2597	2604	rBV	216	609	0.07%	0.014%
69	17.990	2612	2615	2618	rBV	195	332	0.04%	0.008%
70	18.032	2618	2623	2630	rVB	342	705	0.08%	0.016%
71	18.105	2633	2637	2639	rBV	213	348	0.04%	0.008%
72	18.205	2653	2656	2658	rVB	362	300	0.03%	0.007%
73	18.236	2658	2662	2664	rBV	378	454	0.05%	0.011%
74	18.341	2680	2682	2685	rBV	354	434	0.05%	0.010%
75	18.383	2685	2690	2694	rVV2	356	598	0.07%	0.014%
76	18.430	2694	2699	2702	rVV2	343	554	0.06%	0.013%
77	18.493	2705	2711	2713	rVB	294	451	0.05%	0.010%
78	18.509	2713	2714	2723	rBV2	272	626	0.07%	0.015%
79	18.572	2723	2726	2729	rBV	267	327	0.04%	0.008%
80	18.603	2729	2732	2736	rBV	247	371	0.04%	0.009%
81	18.671	2740	2745	2747	rBV2	247	434	0.05%	0.010%
82	18.755	2753	2761	2762	rVB2	250	525	0.06%	0.012%
83	18.781	2762	2766	2768	rBV2	291	464	0.05%	0.011%
84	18.881	2781	2785	2793	rVB2	271	694	0.08%	0.016%
85	18.965	2793	2801	2802	rBV2	226	538	0.06%	0.013%
86	19.290	2852	2863	2865	rVV2	164	389	0.05%	0.009%
87	19.327	2865	2870	2883	rVV2	184	612	0.07%	0.014%
88	19.778	2954	2956	2964	rVB2	344	403	0.05%	0.009%
89	19.872	2968	2974	2977	rBV2	423	606	0.07%	0.014%
90	19.993	2994	2997	3003	rVB3	268	401	0.05%	0.009%
91	20.071	3010	3012	3017	rVB2	281	290	0.03%	0.007%
92	20.108	3017	3019	3028	rBV2	416	674	0.08%	0.016%
93	20.192	3033	3035	3043	rVV2	443	806	0.09%	0.019%
94	20.249	3043	3046	3050	rVB2	638	530	0.06%	0.012%
95	20.339	3060	3063	3065	rVB2	507	396	0.05%	0.009%

96	20.417	3075	3078	3085	rBV5	795	1535	0.18%	0.036%
97	20.538	3098	3101	3104	rBV2	520	499	0.06%	0.012%
98	20.575	3104	3108	3112	rBV2	833	798	0.09%	0.019%
99	20.622	3116	3117	3126	rVB5	537	769	0.09%	0.018%
100	20.706	3131	3133	3137	rVB2	449	300	0.03%	0.007%

Sum of corrected areas: 4301999

LSC Report - Integrated Chromatogram

File : C:\MSDCHEM\1\DATA\2C63880.D
Operator : tarar1
Acquired : 7 Nov 2009 3:48 am using AcqMethod M2C2824
Instrument : ms2C
Sample Name: ja31597-3
Misc Info : MS88065,V2C2892,W,,,,1
Vial Number: 38
Quant File :M2C2824.RES (RTE Integrator)



Tentatively Identified Compound (LSC) summary

Operator ID: tarar1 Date Acquired: 7 Nov 2009 3:48 am
Data File: C:\MSDCHEM\1\DATA\2C63880.D
Name: ja31597-3
Misc: MS88065,V2C2892,W,,,,1
Method: C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title: SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Library Searched: C:\DATABASE\NBS75K.L

TIC	Top Hit name	RT	EstConc	Units	Response	Internal Standard #	RT	Resp	Conc

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2C63867.D Vial: 25
Acq On : 6 Nov 2009 9:08 pm Operator: tarar1
Sample : mb Inst : ms2C
Misc : MS88078,V2C2892,W,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 06 21:34:18 2009 Quant Results File: M2C2824.RES

Quant Method : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Last Update : Mon Nov 02 14:49:47 2009
Response via : Initial Calibration
DataAcq Meth : M2C2824

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Tert Butyl Alcohol-d9	8.70	65	86212	500.00 ug/L	-0.02
4) pentafluorobenzene	11.09	168	165646	50.00 ug/L	0.00
57) 1,4-difluorobenzene	12.00	114	267864	50.00 ug/L	-0.01
88) chlorobenzene-d5	14.95	117	222807	50.00 ug/L	0.00
103) 1,4-dichlorobenzene-d4	17.10	152	112611	50.00 ug/L	0.00

System Monitoring Compounds

50) dibromofluoromethane (s)	11.16	113	90097	54.33 ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery = 108.66%		
51) 1,2-dichloroethane-d4 (s)	11.59	65	105624	53.86 ug/L	0.00
Spiked Amount 50.000	Range 64 - 135		Recovery = 107.72%		
80) toluene-d8 (s)	13.54	98	351368	49.73 ug/L	0.00
Spiked Amount 50.000	Range 76 - 117		Recovery = 99.46%		
105) 4-bromofluorobenzene (s)	16.01	95	119665	44.58 ug/L	0.00
Spiked Amount 50.000	Range 72 - 122		Recovery = 89.16%		

Target Compounds Qvalue

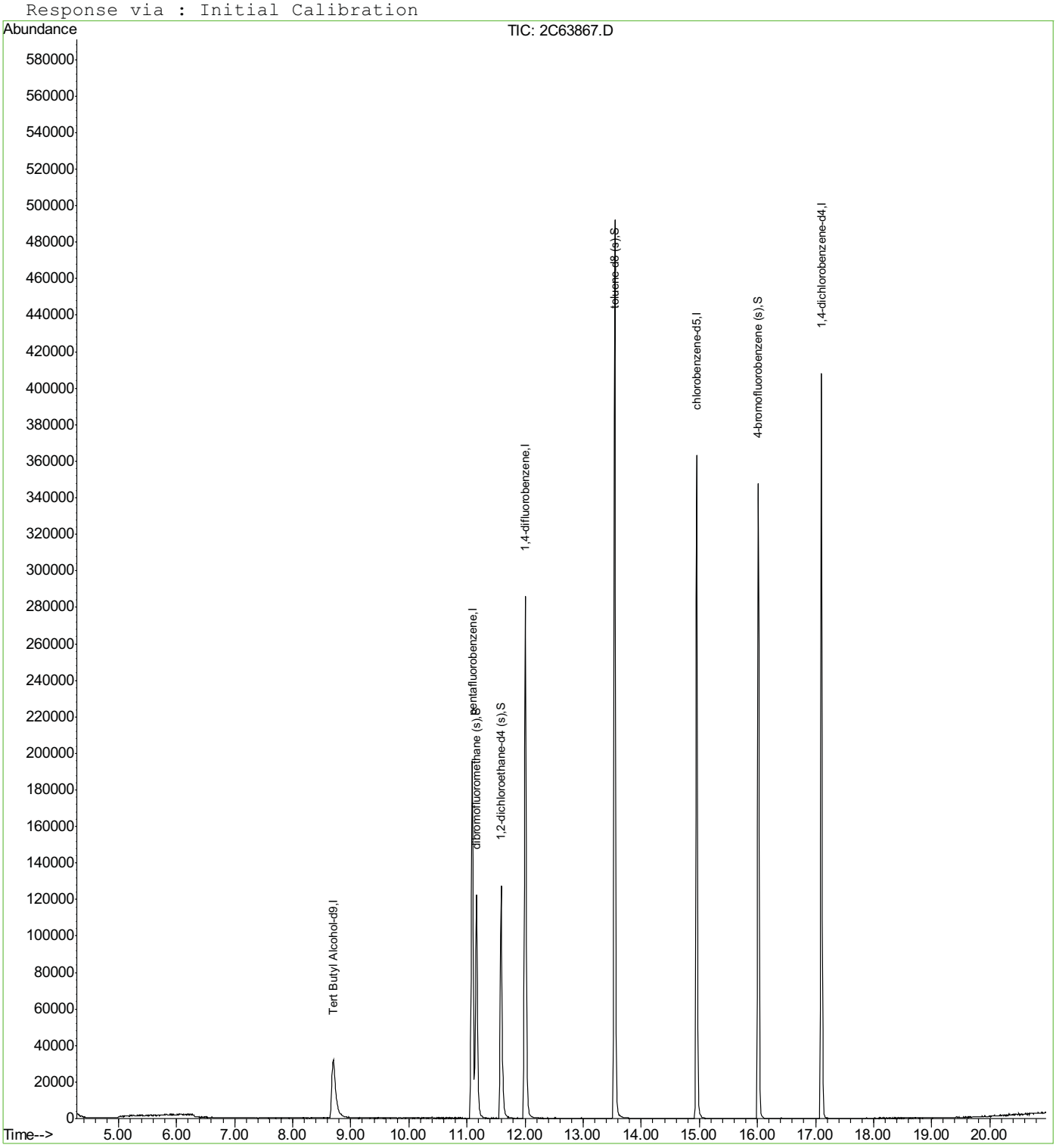
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\2C63867.D
Acq On : 6 Nov 2009 9:08 pm
Sample : mb
Misc : MS88078,V2C2892,W,,,,1
MS Integration Params: rteint.p
Quant Time: Nov 10 14:16 2009

Vial: 25
Operator: tarar1
Inst : ms2C
Multiplr: 1.00
Quant Results File: M2C2824.RES

Method : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Last Update : Mon Nov 02 14:49:47 2009
Response via : Initial Calibration



LSC Area Percent Report

Data File : C:\MSDCHEM\1\DATA\2C63867.D Vial: 25
Acq On : 6 Nov 2009 9:08 pm Operator: tarar1
Sample : mb Inst : ms2C
Misc : MS88078,V2C2892,W,,,,1 Multiplr: 1.00
MS Integration Params: LSCINT.P

Method : C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title : SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 100 Area counts
Start Thrs: 0.06 Max Peaks: 100
Stop Thrs : 0.04 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Signal : TIC

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	5.039	129	145	147	rBV	987	2874	0.32%	0.063%
2	5.071	147	151	154	rVV2	352	611	0.07%	0.013%
3	5.422	216	218	226	rBV3	500	771	0.09%	0.017%
4	5.475	226	228	230	rVB2	643	425	0.05%	0.009%
5	5.501	230	233	239	rBV2	602	1008	0.11%	0.022%
6	5.564	239	245	248	rVV2	606	857	0.10%	0.019%
7	5.627	254	257	261	rBV2	389	465	0.05%	0.010%
8	5.674	264	266	273	rVB2	677	934	0.10%	0.020%
9	5.716	273	274	281	rBV2	538	990	0.11%	0.022%
10	5.794	287	289	295	rBV2	480	540	0.06%	0.012%
11	5.910	306	311	313	rBV	638	911	0.10%	0.020%
12	6.151	355	357	360	rVV2	453	439	0.05%	0.010%
13	6.177	360	362	364	rVB	519	443	0.05%	0.010%
14	6.230	370	372	378	rVV	640	902	0.10%	0.020%
15	6.266	378	379	397	rVB3	1569	4141	0.46%	0.091%
16	6.434	410	411	416	rVB	340	431	0.05%	0.009%
17	6.534	429	430	442	rBV2	298	673	0.07%	0.015%
18	6.749	466	471	474	rBV2	240	376	0.04%	0.008%
19	6.827	480	486	491	rVB2	256	457	0.05%	0.010%
20	6.864	491	493	499	rVB	287	495	0.05%	0.011%
21	6.922	499	504	506	rVB2	264	445	0.05%	0.010%
22	7.000	512	519	524	rVB2	268	546	0.06%	0.012%
23	7.525	615	619	623	rVV2	266	445	0.05%	0.010%
24	7.556	623	625	630	rVB	345	422	0.05%	0.009%
25	8.070	717	723	730	rBV2	261	672	0.07%	0.015%
26	8.269	756	761	765	rVB	343	528	0.06%	0.012%
27	8.421	785	790	792	rBV2	247	409	0.05%	0.009%
28	8.458	795	797	802	rVV2	230	388	0.04%	0.008%
29	8.495	802	804	812	rVB2	256	621	0.07%	0.014%
30	8.599	823	824	830	rBV2	261	453	0.05%	0.010%
31	8.699	830	843	891	rVV	31966	152839	16.95%	3.341%
32	8.966	893	894	902	rVV2	394	781	0.09%	0.017%
33	9.014	902	903	919	rVB3	400	1123	0.12%	0.025%
34	9.129	919	925	926	rVB	247	433	0.05%	0.009%
35	9.166	929	932	935	rBV	255	368	0.04%	0.008%
36	9.396	964	976	977	rBV	254	777	0.09%	0.017%
37	9.501	990	996	999	rBV2	285	606	0.07%	0.013%
38	9.580	1006	1011	1014	rBV2	263	438	0.05%	0.010%

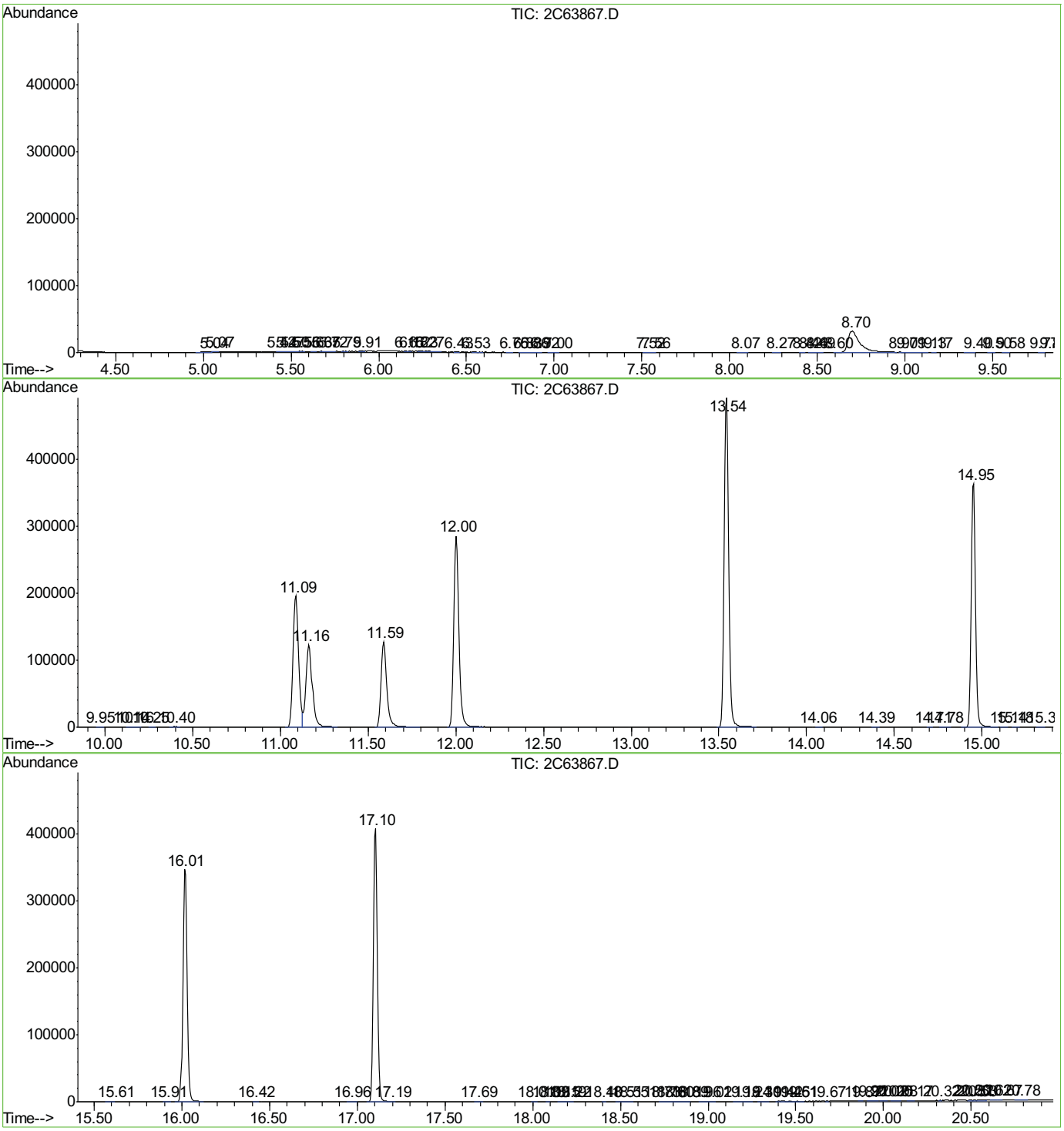
39	9.769	1045	1047	1053	rVB	219	416	0.05%	0.009%
40	9.826	1053	1058	1068	rVB2	264	901	0.10%	0.020%
41	9.952	1081	1082	1090	rBV2	206	512	0.06%	0.011%
42	10.141	1114	1118	1121	rVV	279	406	0.05%	0.009%
43	10.162	1121	1122	1131	rVB2	254	555	0.06%	0.012%
44	10.251	1138	1139	1146	rBV	206	448	0.05%	0.010%
45	10.398	1161	1167	1173	rVB4	649	1252	0.14%	0.027%
46	11.090	1287	1299	1306	rBV	195907	441690	48.97%	9.656%
47	11.163	1306	1313	1344	rVV	122384	297309	32.96%	6.500%
48	11.588	1384	1394	1434	rVB	127355	294005	32.60%	6.428%
49	12.002	1463	1473	1502	rBV	285892	590588	65.48%	12.912%
50	13.544	1756	1767	1800	rBV	492297	901927	100.00%	19.718%
51	14.057	1864	1865	1871	rBV	229	462	0.05%	0.010%
52	14.388	1925	1928	1933	rBV	240	487	0.05%	0.011%
53	14.713	1985	1990	1991	rBV	211	363	0.04%	0.008%
54	14.781	1998	2003	2011	rBB	234	679	0.08%	0.015%
55	14.954	2022	2036	2062	rBB	363406	624875	69.28%	13.661%
56	15.143	2064	2072	2073	rBB	235	462	0.05%	0.010%
57	15.179	2077	2079	2086	rBB	219	454	0.05%	0.010%
58	15.353	2104	2112	2113	rBB	217	436	0.05%	0.010%
59	15.615	2152	2162	2163	rBB	203	528	0.06%	0.012%
60	15.914	2215	2219	2224	rBB	201	398	0.04%	0.009%
61	16.013	2228	2238	2259	rBB	347657	561222	62.22%	12.270%
62	16.417	2312	2315	2319	rBB	655	629	0.07%	0.014%
63	16.962	2415	2419	2426	rBB	211	445	0.05%	0.010%
64	17.104	2436	2446	2462	rBV	408110	647688	71.81%	14.160%
65	17.193	2462	2463	2468	rVB	412	452	0.05%	0.010%
66	17.686	2553	2557	2563	rBB	201	451	0.05%	0.010%
67	18.011	2615	2619	2622	rBB	336	425	0.05%	0.009%
68	18.089	2631	2634	2636	rBV	359	373	0.04%	0.008%
69	18.152	2644	2646	2649	rVB	387	383	0.04%	0.008%
70	18.189	2649	2653	2655	rBB	365	455	0.05%	0.010%
71	18.215	2655	2658	2662	rBV2	377	626	0.07%	0.014%
72	18.399	2692	2693	2697	rBV2	383	466	0.05%	0.010%
73	18.509	2707	2714	2717	rBV2	409	1043	0.12%	0.023%
74	18.546	2717	2721	2726	rBV	248	566	0.06%	0.012%
75	18.729	2754	2756	2760	rBV2	271	388	0.04%	0.008%
76	18.755	2760	2761	2767	rVB	262	418	0.05%	0.009%
77	18.802	2767	2770	2777	rVB2	322	551	0.06%	0.012%
78	18.886	2777	2786	2788	rBV2	270	841	0.09%	0.018%
79	18.960	2797	2800	2810	rVB	256	764	0.08%	0.017%
80	19.023	2810	2812	2816	rBV2	247	375	0.04%	0.008%
81	19.180	2835	2842	2843	rBV	287	549	0.06%	0.012%
82	19.243	2843	2854	2856	rVV2	279	837	0.09%	0.018%
83	19.301	2861	2865	2874	rVV	163	516	0.06%	0.011%
84	19.421	2881	2888	2893	rVB2	419	872	0.10%	0.019%
85	19.463	2893	2896	2901	rVB	370	513	0.06%	0.011%
86	19.510	2901	2905	2912	rBV2	268	755	0.08%	0.017%
87	19.673	2935	2936	2939	rBV2	377	402	0.04%	0.009%
88	19.872	2970	2974	2976	rBV	362	361	0.04%	0.008%
89	19.909	2980	2981	2993	rBV3	539	1297	0.14%	0.028%
90	20.019	2994	3002	3003	rVV3	291	574	0.06%	0.013%
91	20.050	3006	3008	3011	rVV2	481	472	0.05%	0.010%
92	20.076	3011	3013	3018	rVV2	688	693	0.08%	0.015%
93	20.166	3024	3030	3032	rBV2	540	696	0.08%	0.015%
94	20.323	3058	3060	3062	rBV2	551	404	0.04%	0.009%
95	20.496	3090	3093	3095	rBV3	772	607	0.07%	0.013%

96	20.512	3095	3096	3099	rVV2	449	395	0.04%	0.009%
97	20.533	3099	3100	3110	rVV5	523	1061	0.12%	0.023%
98	20.617	3114	3116	3121	rVB4	640	919	0.10%	0.020%
99	20.674	3121	3127	3128	rBV3	748	1085	0.12%	0.024%
100	20.779	3141	3147	3155	rBV6	678	2308	0.26%	0.050%

Sum of corrected areas: 4574067

LSC Report - Integrated Chromatogram

```
File        : C:\MSDCHEM\1\DATA\2C63867.D
Operator    : tarar1
Acquired    :  6 Nov 2009   9:08 pm using AcqMethod M2C2824
Instrument  :   ms2C
Sample Name: mb
Misc Info   : MS88078,V2C2892,W,,,,1
Vial Number: 25
Quant File :M2C2824.RES (RTE Integrator)
```



Tentatively Identified Compound (LSC) summary

Operator ID: tarar1 Date Acquired: 6 Nov 2009 9:08 pm
Data File: C:\MSDCHEM\1\DATA\2C63867.D
Name: mb
Misc: MS88078,V2C2892,W,,,,1
Method: C:\MSDCHEM\1\METHODS\M2C2824.M (RTE Integrator)
Title: SW846 8260B, Column ZB624 60mX0.25mmX1.4um
Library Searched: C:\DATABASE\NBS75K.L

TIC Top Hit name	RT	EstConc	Units	Response	Internal Standard #	RT	Resp	Conc

New Jersey
ACCUTEST LABORATORIES

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (DFTPP)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP40707-MB1	3M15026.D	1	11/05/09	LP	10/31/09	OP40707	E3M662

The QC reported here applies to the following samples: **Method:** SW846 8270C

JA31597-1, JA31597-2

CAS No.	Compound	Result	RL	MDL	Units	Q
98-86-2	Acetophenone	ND	5.0	0.40	ug/l	
1912-24-9	Atrazine	ND	5.0	0.39	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.40	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.35	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.25	ug/l	
92-52-4	1,1'-Biphenyl	ND	2.0	0.42	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.42	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.25	ug/l	
86-74-8	Carbazole	ND	2.0	0.17	ug/l	
105-60-2	Caprolactam	ND	2.0	0.20	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.25	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.31	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	2.0	0.39	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.35	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	2.0	0.22	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	2.0	0.33	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	5.0	0.30	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.30	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.19	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.40	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.17	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.23	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	1.6	2.0	0.33	ug/l	J
87-68-3	Hexachlorobutadiene	ND	1.0	0.37	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	20	0.67	ug/l	
67-72-1	Hexachloroethane	ND	5.0	0.26	ug/l	
78-59-1	Isophorone	ND	2.0	0.25	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.0	0.66	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.24	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.29	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.18	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.25	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.44	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	5.0	0.48	ug/l	

Method Blank Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP40707-MB1	3M15026.D	1	11/05/09	LP	10/31/09	OP40707	E3M662

The QC reported here applies to the following samples: **Method:** SW846 8270C

JA31597-1, JA31597-2

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	114%* [a]	25-112%
321-60-8	2-Fluorobiphenyl	110%* [a]	31-106%
1718-51-0	Terphenyl-d14	76%	14-122%

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

(a) Outside of in house control limits, but within reasonable method recovery limits.

Method Blank Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP40707A-MB1	4M13107.D	1	11/06/09	NAP	10/31/09	OP40707A	E4M606

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

JA31597-1, JA31597-2

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.029	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.039	ug/l	
120-12-7	Anthracene	ND	0.10	0.026	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.024	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.031	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.036	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.029	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.028	ug/l	
218-01-9	Chrysene	ND	0.10	0.022	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.023	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.024	ug/l	
86-73-7	Fluorene	ND	0.10	0.027	ug/l	
118-74-1	Hexachlorobenzene	ND	0.020	0.0099	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.029	ug/l	
91-20-3	Naphthalene	ND	0.10	0.019	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.036	ug/l	
129-00-0	Pyrene	ND	0.10	0.022	ug/l	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	122%* [a]	18-119%
321-60-8	2-Fluorobiphenyl	103%	18-104%
1718-51-0	Terphenyl-d14	66%	13-109%

(a) Outside of in house control limits.

Blank Spike Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP40707-BS1	3M15027.D	1	11/05/09	LP	10/31/09	OP40707	E3M662

The QC reported here applies to the following samples: **Method:** SW846 8270C

JA31597-1, JA31597-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
98-86-2	Acetophenone	50	50.2	100	46-113
1912-24-9	Atrazine	50	53.6	107	55-127
100-52-7	Benzaldehyde	50	45.3	91	31-130
101-55-3	4-Bromophenyl phenyl ether	50	53.3	107	55-121
85-68-7	Butyl benzyl phthalate	50	43.8	88	55-132
92-52-4	1,1'-Biphenyl	50	43.6	87	43-107
91-58-7	2-Chloronaphthalene	50	40.1	80	39-108
106-47-8	4-Chloroaniline	50	41.4	83	34-103
86-74-8	Carbazole	50	47.3	95	63-122
105-60-2	Caprolactam	50	0.91	2	1-99
111-91-1	bis(2-Chloroethoxy)methane	50	49.3	99	43-119
111-44-4	bis(2-Chloroethyl)ether	50	64.3	129* [a]	36-124
108-60-1	bis(2-Chloroisopropyl)ether	50	42.9	86	40-106
7005-72-3	4-Chlorophenyl phenyl ether	50	46.8	94	50-117
121-14-2	2,4-Dinitrotoluene	50	45.2	90	56-124
606-20-2	2,6-Dinitrotoluene	50	45.9	92	55-128
91-94-1	3,3'-Dichlorobenzidine	50	44.4	89	42-116
132-64-9	Dibenzofuran	50	44.3	89	53-109
84-74-2	Di-n-butyl phthalate	50	47.6	95	58-130
117-84-0	Di-n-octyl phthalate	50	40.3	81	55-133
84-66-2	Diethyl phthalate	50	44.1	88	52-123
131-11-3	Dimethyl phthalate	50	37.6	75	44-126
117-81-7	bis(2-Ethylhexyl)phthalate	50	46.0	92	57-134
87-68-3	Hexachlorobutadiene	50	34.3	69	11-100
77-47-4	Hexachlorocyclopentadiene	100	46.7	47	5-120
67-72-1	Hexachloroethane	50	32.3	65	13-88
78-59-1	Isophorone	50	50.3	101	43-120
91-57-6	2-Methylnaphthalene	50	41.7	83	33-103
88-74-4	2-Nitroaniline	50	52.3	105	48-132
99-09-2	3-Nitroaniline	50	30.7	61	48-115
100-01-6	4-Nitroaniline	50	36.1	72	51-125
98-95-3	Nitrobenzene	50	43.2	86	41-114
621-64-7	N-Nitroso-di-n-propylamine	50	50.7	101	41-121
86-30-6	N-Nitrosodiphenylamine	50	44.7	89	54-136
95-94-3	1,2,4,5-Tetrachlorobenzene	50	43.7	87	18-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP40707-BS1	3M15027.D	1	11/05/09	LP	10/31/09	OP40707	E3M662

The QC reported here applies to the following samples: **Method:** SW846 8270C

JA31597-1, JA31597-2

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	125%* [a]	25-112%
321-60-8	2-Fluorobiphenyl	117%* [a]	31-106%
1718-51-0	Terphenyl-d14	56%	14-122%

(a) Outside of in house control limits.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP40707A-BS12	4M13108.D	1	11/06/09	NAP	10/31/09	OP40707A	E4M606

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

JA31597-1, JA31597-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
83-32-9	Acenaphthene	1	0.961	96	42-105
208-96-8	Acenaphthylene	1	0.773	77	36-99
120-12-7	Anthracene	1	0.998	100	44-111
56-55-3	Benzo(a)anthracene	1	1.05	105	33-130
50-32-8	Benzo(a)pyrene	1	0.810	81	35-117
205-99-2	Benzo(b)fluoranthene	1	1.07	107	26-145
191-24-2	Benzo(g,h,i)perylene	1	0.711	71	29-130
207-08-9	Benzo(k)fluoranthene	1	0.731	73	33-142
218-01-9	Chrysene	1	0.875	88	41-127
53-70-3	Dibenzo(a,h)anthracene	1	0.684	68	27-135
206-44-0	Fluoranthene	1	0.793	79	40-112
86-73-7	Fluorene	1	0.859	86	45-104
118-74-1	Hexachlorobenzene	1	0.679	68	30-110
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.826	83	32-131
91-20-3	Naphthalene	1	0.844	84	21-120
85-01-8	Phenanthrene	1	0.858	86	38-114
129-00-0	Pyrene	1	0.849	85	38-124

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	113%	18-119%
321-60-8	2-Fluorobiphenyl	96%	18-104%
1718-51-0	Terphenyl-d14	61%	13-109%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP40707-MS	3M15033.D	1	11/05/09	LP	10/31/09	OP40707	E3M662
OP40707-MSD	3M15034.D	1	11/05/09	LP	10/31/09	OP40707	E3M662
JA31445-6	3M15032.D	1	11/05/09	LP	10/31/09	OP40707	E3M662

The QC reported here applies to the following samples: **Method:** SW846 8270C

JA31597-1, JA31597-2

CAS No.	Compound	JA31445-6 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
98-86-2	Acetophenone	ND		100	71.0	71	82.0	82	14	25-127/35
1912-24-9	Atrazine	ND		100	86.2	86	95.4	95	10	40-133/27
100-52-7	Benzaldehyde	ND		100	65.6	66	77.1	77	16	9-151/37
101-55-3	4-Bromophenyl phenyl ether	ND		100	82.2	82	88.0	88	7	47-123/28
85-68-7	Butyl benzyl phthalate	ND		100	71.5	72	74.5	75	4	47-137/27
92-52-4	1,1'-Biphenyl	ND		100	68.2	68	75.5	76	10	36-113/32
91-58-7	2-Chloronaphthalene	ND		100	67.4	67	74.7	75	10	35-110/32
106-47-8	4-Chloroaniline	ND		100	62.9	63	69.1	69	9	22-98/36
86-74-8	Carbazole	ND		100	73.8	74	81.9	82	10	54-127/26
105-60-2	Caprolactam	ND		100	1.9	2	2.2	2	15	1-103/43
111-91-1	bis(2-Chloroethoxy)methane	ND		100	72.9	73	82.0	82	12	33-116/36
111-44-4	bis(2-Chloroethyl)ether	ND		100	94.7	95	107	107	12	24-124/34
108-60-1	bis(2-Chloroisopropyl)ether	ND		100	66.5	67	73.7	74	10	31-104/35
7005-72-3	4-Chlorophenyl phenyl ether	ND		100	74.2	74	78.8	79	6	42-119/28
121-14-2	2,4-Dinitrotoluene	ND		100	72.7	73	76.9	77	6	45-129/28
606-20-2	2,6-Dinitrotoluene	ND		100	71.7	72	79.4	79	10	46-132/29
91-94-1	3,3'-Dichlorobenzidine	ND		100	72.2	72	75.9	76	5	17-119/36
132-64-9	Dibenzofuran	1.2	J	100	72.2	71	78.7	78	9	44-114/30
84-74-2	Di-n-butyl phthalate	ND		100	77.8	78	82.0	82	5	49-134/26
117-84-0	Di-n-octyl phthalate	ND		100	66.1	66	66.7	67	1	46-140/25
84-66-2	Diethyl phthalate	ND		100	71.5	72	75.9	76	6	46-123/27
131-11-3	Dimethyl phthalate	ND		100	63.3	63	63.6	64	0	39-123/32
117-81-7	bis(2-Ethylhexyl)phthalate	ND		100	76.5	77	77.2	77	1	49-141/27
87-68-3	Hexachlorobutadiene	ND		100	69.7	70	77.3	77	10	15-99/39
77-47-4	Hexachlorocyclopentadiene	ND		200	80.3	40	87.4	44	8	4-124/39
67-72-1	Hexachloroethane	ND		100	61.6	62	71.5	72	15	16-86/39
78-59-1	Isophorone	ND		100	75.2	75	84.4	84	12	33-117/36
91-57-6	2-Methylnaphthalene	5.4		100	74.8	69	82.2	77	9	22-117/37
88-74-4	2-Nitroaniline	ND		100	81.7	82	90.6	91	10	37-135/29
99-09-2	3-Nitroaniline	ND		100	43.4	43	51.7	52	17	34-115/28
100-01-6	4-Nitroaniline	ND		100	45.9	46	53.1	53	15	36-128/30
98-95-3	Nitrobenzene	ND		100	62.6	63	73.4	73	16	30-116/37
621-64-7	N-Nitroso-di-n-propylamine	ND		100	77.5	78	86.9	87	11	32-118/35
86-30-6	N-Nitrosodiphenylamine	ND		100	76.2	76	81.8	82	7	42-145/27
95-94-3	1,2,4,5-Tetrachlorobenzene	ND		100	77.0	77	83.6	84	8	23-131/18

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP40707-MS	3M15033.D	1	11/05/09	LP	10/31/09	OP40707	E3M662
OP40707-MSD	3M15034.D	1	11/05/09	LP	10/31/09	OP40707	E3M662
JA31445-6	3M15032.D	1	11/05/09	LP	10/31/09	OP40707	E3M662

The QC reported here applies to the following samples: **Method:** SW846 8270C

JA31597-1, JA31597-2

CAS No.	Surrogate Recoveries	MS	MSD	JA31445-6	Limits
4165-60-0	Nitrobenzene-d5	95%	107%	103%	25-112%
321-60-8	2-Fluorobiphenyl	94%	99%	105%	31-106%
1718-51-0	Terphenyl-d14	58%	50%	50%	14-122%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP40707A-MS	3M15033.D	1	11/05/09	LP	10/31/09	OP40707A	E3M662
OP40707A-MSD	3M15034.D	1	11/05/09	LP	10/31/09	OP40707A	E3M662
JA31445-6	4M13111.D	1	11/06/09	NAP	10/31/09	OP40707A	E4M606

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

JA31597-1, JA31597-2

CAS No.	Compound	JA31445-6 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	2.17		100	67.4	65	74.7	73	10	33-117/32
208-96-8	Acenaphthylene	ND		100	60.0	60	65.7	66	9	32-107/31
120-12-7	Anthracene	0.214		100	67.8	68	72.0	72	6	44-126/28
56-55-3	Benzo(a)anthracene	ND		100	70.8	71	72.4	72	2	45-127/30
50-32-8	Benzo(a)pyrene	ND		100	68.3	68	68.9	69	1	40-131/31
205-99-2	Benzo(b)fluoranthene	ND		100	56.8	57	56.4	56	1	36-134/32
191-24-2	Benzo(g,h,i)perylene	ND		100	72.6	73	76.2	76	5	37-134/32
207-08-9	Benzo(k)fluoranthene	ND		100	85.7	86	89.2	89	4	37-135/34
218-01-9	Chrysene	ND		100	67.8	68	68.4	68	1	46-125/28
53-70-3	Dibenzo(a,h)anthracene	ND		100	74.8	75	76.5	77	2	36-139/31
206-44-0	Fluoranthene	ND		100	71.3	71	73.8	74	3	41-130/29
86-73-7	Fluorene	2.33		100	72.4	70	79.5	77	9	38-124/31
118-74-1	Hexachlorobenzene	ND		100	84.9	85	87.9	88	3	42-120/28
193-39-5	Indeno(1,2,3-cd)pyrene	ND		100	80.3	80	82.1	82	2	37-137/33
91-20-3	Naphthalene	1.24		100	63.8	63	71.9	71	12	16-114/35
85-01-8	Phenanthrene	0.967		100	69.3	68	73.4	72	6	44-125/29
129-00-0	Pyrene	ND		100	63.8	64	65.9	66	3	39-134/29

CAS No.	Surrogate Recoveries	MS	MSD	JA31445-6	Limits
4165-60-0	Nitrobenzene-d5	95%	107%	101%	18-119%
321-60-8	2-Fluorobiphenyl	94%	99%	84%	18-104%
1718-51-0	Terphenyl-d14	58%	50%	42%	13-109%

* = Outside of Control Limits.

Instrument Performance Check (DFTPP)

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample: E3M630-DFTPP
Lab File ID: 3M14189.D
Instrument ID: GCMS3M
Injection Date: 09/28/09
Injection Time: 23:53

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	65200	33.5		Pass
68	Less than 2.0% of mass 69	1251	0.64	(1.5) [a]	Pass
69	Mass 69 relative abundance	82121	42.2		Pass
70	Less than 2.0% of mass 69	0	0.0	(0.0) [a]	Pass
127	40.0 - 60.0% of mass 198	105741	54.3		Pass
197	Less than 1.0% of mass 198	0	0.0		Pass
198	Base peak, 100% relative abundance	194560	100.0		Pass
199	5.0 - 9.0% of mass 198	13096	6.7		Pass
275	10.0 - 30.0% of mass 198	47696	24.5		Pass
365	1.0 - 100.0% of mass 198	6512	3.3		Pass
441	Present, but less than mass 443	17672	9.1	(84.9) [b]	Pass
442	40.0 - 100.0% of mass 198	111264	57.2		Pass
443	17.0 - 23.0% of mass 442	20810	10.7	(18.7) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3M630-IC630	3M14190.D	09/29/09	00:14	00:21	Initial cal 100
E3M630-IC630	3M14191.D	09/29/09	00:42	00:49	Initial cal 80
E3M630-ICC630	3M14192.D	09/29/09	01:09	01:16	Initial cal 50
E3M630-IC630	3M14193.D	09/29/09	01:37	01:44	Initial cal 25
E3M630-IC630	3M14194.D	09/29/09	02:05	02:12	Initial cal 10
E3M630-IC630	3M14195.D	09/29/09	02:32	02:39	Initial cal 5
E3M630-IC630	3M14196.D	09/29/09	03:00	03:07	Initial cal 2
E3M630-IC630	3M14197.D	09/29/09	03:28	03:35	Initial cal 1

Instrument Performance Check (DFTPP)

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample: E3M631-DFTPP
Lab File ID: 3M14198.D
Instrument ID: GCMS3M
Injection Date: 09/29/09
Injection Time: 08:59

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	211099	31.2		Pass
68	Less than 2.0% of mass 69	4533	0.67	(1.7) [a]	Pass
69	Mass 69 relative abundance	266863	39.4		Pass
70	Less than 2.0% of mass 69	285	0.04	(0.11) [a]	Pass
127	40.0 - 60.0% of mass 198	348738	51.5		Pass
197	Less than 1.0% of mass 198	3197	0.47		Pass
198	Base peak, 100% relative abundance	676650	100.0		Pass
199	5.0 - 9.0% of mass 198	47328	7.0		Pass
275	10.0 - 30.0% of mass 198	165373	24.4		Pass
365	1.0 - 100.0% of mass 198	21025	3.1		Pass
441	Present, but less than mass 443	66653	9.9	(80.3) [b]	Pass
442	40.0 - 100.0% of mass 198	431274	63.7		Pass
443	17.0 - 23.0% of mass 442	83021	12.3	(19.3) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3M631-IC631	3M14199.D	09/29/09	09:12	00:13	Initial cal 100
E3M631-IC631	3M14205.D	09/29/09	09:40	00:41	Initial cal 2
E3M631-IC631	3M14200.D	09/29/09	10:13	01:14	Initial cal 80
E3M631-IC631	3M14204.D	09/29/09	10:40	01:41	Initial cal 5
E3M631-IC631	3M14201.D	09/29/09	11:09	02:10	Initial cal 50
E3M631-IC631	3M14206.D	09/29/09	11:37	02:38	Initial cal 1
E3M631-ICC631	3M14202.D	09/29/09	12:05	03:06	Initial cal 25
E3M631-IC631	3M14203.D	09/29/09	12:32	03:33	Initial cal 10
E3M631-ICV631	3M14207.D	09/29/09	13:00	04:01	Initial cal verification 50
E3M631-ICV631	3M14208.D	09/29/09	13:28	04:29	Initial cal verification 50
E3M631-ICV631	3M14209.D	09/29/09	13:56	04:57	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample: E3M662-DFTPP
Lab File ID: 3M15023.D
Instrument ID: GCMS3M
Injection Date: 11/05/09
Injection Time: 13:37

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	60697	50.9		Pass
68	Less than 2.0% of mass 69	0	0.0	(0.0) [a]	Pass
69	Mass 69 relative abundance	74880	62.8		Pass
70	Less than 2.0% of mass 69	427	0.36	(0.57) [a]	Pass
127	40.0 - 60.0% of mass 198	67922	57.0		Pass
197	Less than 1.0% of mass 198	0	0.0		Pass
198	Base peak, 100% relative abundance	119256	100.0		Pass
199	5.0 - 9.0% of mass 198	8008	6.7		Pass
275	10.0 - 30.0% of mass 198	29122	24.4		Pass
365	1.0 - 100.0% of mass 198	3951	3.3		Pass
441	Present, but less than mass 443	16782	14.1	(85.9) [b]	Pass
442	40.0 - 100.0% of mass 198	99488	83.4		Pass
443	17.0 - 23.0% of mass 442	19544	16.4	(19.6) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3M662-CC630	3M15024.D	11/05/09	15:56	02:19	Continuing cal 25
E3M662-CC630	3M15025.D	11/05/09	16:53	03:16	Continuing cal 50
OP40707-MB1	3M15026.D	11/05/09	17:21	03:44	Method Blank
OP40707-BS1	3M15027.D	11/05/09	17:48	04:11	Blank Spike
ZZZZZZ	3M15028.D	11/05/09	18:16	04:39	(unrelated sample)
ZZZZZZ	3M15029.D	11/05/09	18:43	05:06	(unrelated sample)
ZZZZZZ	3M15030.D	11/05/09	19:10	05:33	(unrelated sample)
JA31597-2	3M15031.D	11/05/09	19:38	06:01	FIELD BLANK
JA31445-6	3M15032.D	11/05/09	20:05	06:28	(used for QC only; not part of job JA31597)
OP40707-MS	3M15033.D	11/05/09	20:32	06:55	Matrix Spike
OP40707A-MS	3M15033.D	11/05/09	20:32	06:55	Matrix Spike
OP40707A-MSD	3M15034.D	11/05/09	21:00	07:23	Matrix Spike Duplicate
OP40707-MSD	3M15034.D	11/05/09	21:00	07:23	Matrix Spike Duplicate
ZZZZZZ	3M15035.D	11/05/09	21:27	07:50	(unrelated sample)
ZZZZZZ	3M15036.D	11/05/09	21:54	08:17	(unrelated sample)
ZZZZZZ	3M15037.D	11/05/09	22:22	08:45	(unrelated sample)
ZZZZZZ	3M15038.D	11/05/09	22:49	09:12	(unrelated sample)
ZZZZZZ	3M15039.D	11/05/09	23:17	09:40	(unrelated sample)
ZZZZZZ	3M15040.D	11/05/09	23:44	10:07	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample: E3M662-DFTPP
Lab File ID: 3M15023.D
Instrument ID: GCMS3M
Injection Date: 11/05/09
Injection Time: 13:37

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	3M15041.D	11/06/09	00:12	10:35	(unrelated sample)
ZZZZZZ	3M15042.D	11/06/09	00:39	11:02	(unrelated sample)
ZZZZZZ	3M15043.D	11/06/09	01:07	11:30	(unrelated sample)
ZZZZZZ	3M15044.D	11/06/09	01:34	11:57	(unrelated sample)
OP40680-MB1	3M15050.D	11/06/09	13:41	24:04	Method Blank
OP40680-BS1	3M15051.D	11/06/09	14:08	24:31	Blank Spike
OP40752-MB1	3M15052.D	11/06/09	14:36	24:59	Method Blank

Instrument Performance Check (DFTPP)

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample: E3M664-DFTPP
Lab File ID: 3M15062.D
Instrument ID: GCMS3M
Injection Date: 11/06/09
Injection Time: 19:53

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	70506	49.9		Pass
68	Less than 2.0% of mass 69	0	0.0	(0.0) [a]	Pass
69	Mass 69 relative abundance	84303	59.7		Pass
70	Less than 2.0% of mass 69	472	0.33	(0.56) [a]	Pass
127	40.0 - 60.0% of mass 198	79766	56.5		Pass
197	Less than 1.0% of mass 198	0	0.0		Pass
198	Base peak, 100% relative abundance	141269	100.0		Pass
199	5.0 - 9.0% of mass 198	9581	6.8		Pass
275	10.0 - 30.0% of mass 198	34973	24.8		Pass
365	1.0 - 100.0% of mass 198	4953	3.5		Pass
441	Present, but less than mass 443	19610	13.9	(84.7) [b]	Pass
442	40.0 - 100.0% of mass 198	121714	86.2		Pass
443	17.0 - 23.0% of mass 442	23154	16.4	(19.0) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3M664-CC630	3M15063.D	11/06/09	20:06	00:13	Continuing cal 25
E3M664-CC631	3M15064.D	11/06/09	20:37	00:44	Continuing cal 50
OP40751-MB1	3M15065.D	11/06/09	21:04	01:11	Method Blank
OP40751-BS1	3M15066.D	11/06/09	21:32	01:39	Blank Spike
ZZZZZZ	3M15067.D	11/06/09	22:00	02:07	(unrelated sample)
JA31630-1	3M15068.D	11/06/09	22:27	02:34	(used for QC only; not part of job JA31597)
ZZZZZZ	3M15069.D	11/06/09	22:55	03:02	(unrelated sample)
ZZZZZZ	3M15070.D	11/06/09	23:22	03:29	(unrelated sample)
ZZZZZZ	3M15072.D	11/07/09	00:17	04:24	(unrelated sample)
ZZZZZZ	3M15073.D	11/07/09	00:44	04:51	(unrelated sample)
ZZZZZZ	3M15074.D	11/07/09	01:11	05:18	(unrelated sample)
ZZZZZZ	3M15075.D	11/07/09	01:38	05:45	(unrelated sample)
ZZZZZZ	3M15077.D	11/07/09	02:33	06:40	(unrelated sample)
OP40751-MS	3M15078.D	11/07/09	03:00	07:07	Matrix Spike
OP40751A-MS	3M15078.D	11/07/09	03:00	07:07	Matrix Spike
OP40751-MSD	3M15079.D	11/07/09	03:28	07:35	Matrix Spike Duplicate
OP40751A-MSD	3M15079.D	11/07/09	03:28	07:35	Matrix Spike Duplicate
ZZZZZZ	3M15080.D	11/07/09	03:56	08:03	(unrelated sample)
JA31597-1	3M15081.D	11/07/09	04:23	08:30	TK-7930-TW1

Instrument Performance Check (DFTPP)

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample: E3M664-DFTPP
Lab File ID: 3M15062.D
Instrument ID: GCMS3M
Injection Date: 11/06/09
Injection Time: 19:53

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	3M15082.D	11/07/09	04:51	08:58	(unrelated sample)
ZZZZZZ	3M15084.D	11/07/09	05:45	09:52	(unrelated sample)
ZZZZZZ	3M15085.D	11/07/09	06:13	10:20	(unrelated sample)
ZZZZZZ	3M15086.D	11/07/09	06:40	10:47	(unrelated sample)
ZZZZZZ	3M15087.D	11/07/09	07:07	11:14	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample: E4M597-DFTPP
Lab File ID: 4M12768.D
Instrument ID: GCMS4M
Injection Date: 10/28/09
Injection Time: 12:48

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	13690	36.1		Pass
68	Less than 2.0% of mass 69	203	0.53	(1.5) [a]	Pass
69	Mass 69 relative abundance	13781	36.3		Pass
70	Less than 2.0% of mass 69	0	0.0	(0.0) [a]	Pass
127	40.0 - 60.0% of mass 198	18151	47.8		Pass
197	Less than 1.0% of mass 198	167	0.44		Pass
198	Base peak, 100% relative abundance	37945	100.0		Pass
199	5.0 - 9.0% of mass 198	2578	6.8		Pass
275	10.0 - 30.0% of mass 198	8232	21.7		Pass
365	1.0 - 100.0% of mass 198	931	2.5		Pass
441	Present, but less than mass 443	3748	9.9	(73.4) [b]	Pass
442	40.0 - 100.0% of mass 198	26176	69.0		Pass
443	17.0 - 23.0% of mass 442	5104	13.5	(19.5) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E4M597-ICC597	4M12769.D	10/28/09	12:59	00:11	Initial cal 2.5
E4M597-IC597	4M12770.D	10/28/09	13:22	00:34	Initial cal 5
E4M597-IC597	4M12771.D	10/28/09	13:45	00:57	Initial cal 1
E4M597-IC597	4M12772.D	10/28/09	14:08	01:20	Initial cal .5
E4M597-IC597	4M12773.D	10/28/09	14:31	01:43	Initial cal .2
E4M597-IC597	4M12774.D	10/28/09	14:54	02:06	Initial cal .1
E4M597-IC597	4M12775.D	10/28/09	15:17	02:29	Initial cal .05
E4M597-IC597	4M12776.D	10/28/09	15:40	02:52	Initial cal .02
E4M597-IC597	4M12777.D	10/28/09	16:02	03:14	Initial cal .01
E4M597-ICV597	4M12780.D	10/28/09	17:59	05:11	Initial cal verification 5
E4M597-ICV597	4M12781.D	10/28/09	19:39	06:51	Initial cal verification 1

Instrument Performance Check (DFTPP)

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample: E4M606-DFTPP
Lab File ID: 4M13105.D
Instrument ID: GCMS4M
Injection Date: 11/06/09
Injection Time: 19:30

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	16500	42.7		Pass
68	Less than 2.0% of mass 69	220	0.57	(1.4) [a]	Pass
69	Mass 69 relative abundance	15787	40.9		Pass
70	Less than 2.0% of mass 69	0	0.0	(0.0) [a]	Pass
127	40.0 - 60.0% of mass 198	19398	50.3		Pass
197	Less than 1.0% of mass 198	218	0.56		Pass
198	Base peak, 100% relative abundance	38601	100.0		Pass
199	5.0 - 9.0% of mass 198	2667	6.9		Pass
275	10.0 - 30.0% of mass 198	8973	23.2		Pass
365	1.0 - 100.0% of mass 198	1145	3.0		Pass
441	Present, but less than mass 443	4080	10.6	(75.7) [b]	Pass
442	40.0 - 100.0% of mass 198	27899	72.3		Pass
443	17.0 - 23.0% of mass 442	5388	14.0	(19.3) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E4M606-CC597	4M13106.D	11/06/09	19:41	00:11	Continuing cal .5
OP40707A-MB1	4M13107.D	11/06/09	20:03	00:33	Method Blank
OP40707A-BS12	4M13108.D	11/06/09	20:25	00:55	Blank Spike
OP40751A-MB1	4M13109.D	11/06/09	20:47	01:17	Method Blank
OP40751A-BS12	4M13110.D	11/06/09	21:09	01:39	Blank Spike
JA31445-6	4M13111.D	11/06/09	21:31	02:01	(used for QC only; not part of job JA31597)
ZZZZZZ	4M13112.D	11/06/09	21:54	02:24	(unrelated sample)
ZZZZZZ	4M13113.D	11/06/09	22:16	02:46	(unrelated sample)
ZZZZZZ	4M13114.D	11/06/09	22:38	03:08	(unrelated sample)
ZZZZZZ	4M13115.D	11/06/09	23:00	03:30	(unrelated sample)
ZZZZZZ	4M13116.D	11/06/09	23:22	03:52	(unrelated sample)
ZZZZZZ	4M13117.D	11/06/09	23:44	04:14	(unrelated sample)
ZZZZZZ	4M13118.D	11/07/09	00:06	04:36	(unrelated sample)
ZZZZZZ	4M13119.D	11/07/09	00:28	04:58	(unrelated sample)
ZZZZZZ	4M13120.D	11/07/09	00:50	05:20	(unrelated sample)
ZZZZZZ	4M13121.D	11/07/09	01:12	05:42	(unrelated sample)
JA31597-1	4M13122.D	11/07/09	01:34	06:04	TK-7930-TW1
JA31597-2	4M13123.D	11/07/09	01:56	06:26	FIELD BLANK
JA31630-1	4M13124.D	11/07/09	02:18	06:48	(used for QC only; not part of job JA31597)

Instrument Performance Check (DFTPP)

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Sample: E4M606-DFTPP
Lab File ID: 4M13105.D
Instrument ID: GCMS4M
Injection Date: 11/06/09
Injection Time: 19:30

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	4M13125.D	11/07/09	02:40	07:10	(unrelated sample)
ZZZZZZ	4M13126.D	11/07/09	03:02	07:32	(unrelated sample)
ZZZZZZ	4M13127.D	11/07/09	03:24	07:54	(unrelated sample)
ZZZZZZ	4M13128.D	11/07/09	03:46	08:16	(unrelated sample)
ZZZZZZ	4M13129.D	11/07/09	04:08	08:38	(unrelated sample)
ZZZZZZ	4M13130.D	11/07/09	04:30	09:00	(unrelated sample)
ZZZZZZ	4M13131.D	11/07/09	04:52	09:22	(unrelated sample)
ZZZZZZ	4M13132.D	11/07/09	05:14	09:44	(unrelated sample)
ZZZZZZ	4M13133.D	11/07/09	05:36	10:06	(unrelated sample)
ZZZZZZ	4M13134.D	11/07/09	05:58	10:28	(unrelated sample)
ZZZZZZ	4M13135.D	11/07/09	06:20	10:50	(unrelated sample)
ZZZZZZ	4M13137.D	11/07/09	07:04	11:34	(unrelated sample)

Semivolatile Internal Standard Area Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Check Std:	E3M662-CC630	**Injection Date:**	11/05/09
Lab File ID:	3M15024.D	**Injection Time:**	15:56
Instrument ID:	GCMS3M	**Method:**	SW846 8270C

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	451674	3.65	1673408	5.35	989059	8.03	1649186	10.36	1937964	14.17	1749543	15.85
Upper Limit [a]	903348	4.15	3346816	5.85	1978118	8.53	3298372	10.86	3875928	14.67	3499086	16.35
Lower Limit [b]	225837	3.15	836704	4.85	494530	7.53	824593	9.86	968982	13.67	874772	15.35

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP40707-MB1	265925	3.67	984897	5.35	616881	8.03	993458	10.36	1131779	14.17	1053575	15.85
OP40707-BS1	296869	3.65	1063723	5.35	668356	8.03	1111692	10.35	1269654	14.16	1120913	15.85
ZZZZZZ	308198	3.67	1126325	5.35	676429	8.03	1109710	10.36	1239549	14.17	1155591	15.85
ZZZZZZ	281137	3.67	1107420	5.35	654199	8.03	1079978	10.36	1232567	14.17	1169281	15.85
ZZZZZZ	281689	3.67	1065804	5.35	641341	8.03	1053171	10.36	1182595	14.17	1109572	15.85
JA31597-2	313809	3.67	1147477	5.35	684681	8.03	1127975	10.36	1276906	14.17	1198761	15.85
JA31445-6	296195	3.66	1128014	5.35	698394	8.03	1150129	10.35	1287344	14.17	1191867	15.85
OP40707-MS	315519	3.65	1135423	5.35	703941	8.03	1178502	10.35	1342620	14.16	1208019	15.85
OP40707A-MS	315519	3.65	1135423	5.35	703941	8.03	1178502	10.35	1342620	14.16	1208019	15.85
OP40707A-MSD	301387	3.65	1096647	5.34	670384	8.03	1134675	10.35	1292339	14.16	1154680	15.85
OP40707-MSD	301387	3.65	1096647	5.34	670384	8.03	1134675	10.35	1292339	14.16	1154680	15.85
ZZZZZZ	281772	3.67	1087512	5.36	661172	8.03	1079922	10.36	1216115	14.17	1149224	15.85
ZZZZZZ	247014	3.67	931514	5.36	550593	8.04	917550	10.37	1049092	14.17	969719	15.85
ZZZZZZ	270448	3.67	1038420	5.36	631213	8.03	1038466	10.37	1173176	14.17	1130003	15.85
ZZZZZZ	258538	3.67	945107	5.36	587374	8.03	944364	10.37	1084013	14.17	1012443	15.85
ZZZZZZ	266703	3.67	1028132	5.35	635013	8.03	1035749	10.36	1162741	14.17	1102307	15.85
ZZZZZZ	285152	3.67	1069896	5.36	651675	8.03	1055700	10.36	1195131	14.17	1137450	15.85
ZZZZZZ	277548	3.67	1086057	5.35	654035	8.03	1062612	10.36	1186338	14.17	1111116	15.85
ZZZZZZ	233168	3.67	931343	5.36	563951	8.03	946673	10.37	1078395	14.17	1025392	15.85
ZZZZZZ	277275	3.67	1020665	5.36	610258	8.03	991442	10.36	1136010	14.17	1082762	15.85
ZZZZZZ	300220	3.67	1113077	5.35	676452	8.03	1147042	10.36	1283446	14.17	1202826	15.85
OP40680-MB1	296953	3.64	1045605	5.32	631997	7.99	959378	10.33	1120838	14.13	1054619	15.81
OP40680-BS1	332933	3.62	1229090	5.31	722740	7.99	1186166	10.32	1316745	14.12	1176765	15.81
OP40752-MB1	300109	3.64	1101624	5.32	660509	7.99	1080774	10.33	1214335	14.13	1146945	15.81
OP40752-BS1	321428	3.62	1204136	5.31	695321	7.99	1170587	10.32	1333037	14.12	1174006	15.81
JA29569-3	272323	3.63	992733	5.32	601517	7.99	995592	10.32	1104065	14.12	1027778	15.81
JA29569-2	341358	3.62	1223244	5.32	731290	7.99	1218330	10.32	1344356	14.13	841709*	15.81
ZZZZZZ	309293	3.62	1094710	5.32	660036	7.99	1112681	10.32	1250368	14.13	902688	15.81
ZZZZZZ	298039	3.62	1035207	5.32	625131	7.99	1004268	10.32	1123345	14.13	1043103	15.81
ZZZZZZ	294654	3.62	1037042	5.32	626763	7.99	966185	10.32	1116898	14.13	997220	15.81
OP40680-MS	303435	3.62	1085931	5.31	662949	7.99	1106893	10.32	1238250	14.12	976979	15.81

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10

Semivolatile Internal Standard Area Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Check Std:	E3M662-CC630	**Injection Date:**	11/05/09
Lab File ID:	3M15024.D	**Injection Time:**	15:56
Instrument ID:	GCMS3M	**Method:**	SW846 8270C

Lab	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
Sample ID	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**

IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

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

Semivolatile Internal Standard Area Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Check Std:	E3M664-CC630	**Injection Date:**	11/06/09
Lab File ID:	3M15063.D	**Injection Time:**	20:06
Instrument ID:	GCMS3M	**Method:**	SW846 8270C

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	432198	3.61	1625830	5.31	987190	7.99	1659674	10.32	1903071	14.12	1614218	15.81
Upper Limit [a]	864396	4.11	3251660	5.81	1974380	8.49	3319348	10.82	3806142	14.62	3228436	16.31
Lower Limit [b]	216099	3.11	812915	4.81	493595	7.49	829837	9.82	951536	13.62	807109	15.31

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP40751-MB1	339640	3.65	1119193	5.33	663227	8.00	1096761	10.33	1230921	14.14	1168759	15.82
OP40751-BS1	300884	3.62	1077580	5.31	684209	7.99	1128334	10.32	1308768	14.12	1179257	15.82
ZZZZZZ	291812	3.65	1006381	5.33	625762	8.00	1024580	10.33	1198800	14.14	1132727	15.82
JA31630-1	299170	3.63	1125959	5.32	664886	8.00	1070029	10.33	1239858	14.14	1180564	15.81
ZZZZZZ	292978	3.65	1014958	5.33	638772	8.00	966854	10.34	1140913	14.14	1108589	15.82
ZZZZZZ	242766	3.66	905081	5.34	539307	8.00	869404	10.35	999032	14.15	933787	15.82
ZZZZZZ	290360	3.63	1095613	5.32	639244	7.99	1049313	10.33	1183593	14.14	1111799	15.81
ZZZZZZ	311863	3.65	1177459	5.33	703810	8.00	1081587	10.33	1305349	14.14	1146840	15.81
ZZZZZZ	313533	3.65	1093609	5.33	669105	8.00	1028083	10.34	1293005	14.14	1216545	15.81
ZZZZZZ	259101	3.65	983840	5.34	578259	8.00	946698	10.34	1094635	14.15	1043145	15.82
ZZZZZZ	283361	3.65	986881	5.33	616429	8.00	957592	10.34	1172005	14.14	1140838	15.81
OP40751-MS	301001	3.62	1079519	5.31	677681	7.99	1102209	10.32	1280463	14.12	1153138	15.81
OP40751A-MS	301001	3.62	1079519	5.31	677681	7.99	1102209	10.32	1280463	14.12	1153138	15.81
OP40751-MSD	297837	3.62	1042938	5.31	656349	7.99	1087403	10.32	1251390	14.12	1127064	15.82
OP40751A-MSD	297837	3.62	1042938	5.31	656349	7.99	1087403	10.32	1251390	14.12	1127064	15.82
ZZZZZZ	283209	3.65	1042231	5.33	645010	7.99	1077723	10.33	1214486	14.14	1144963	15.82
JA31597-1	287456	3.65	1075179	5.33	665286	8.00	1134145	10.33	1382441	14.13	1322279	15.81
ZZZZZZ	281415	3.65	1072543	5.33	691335	7.99	1090667	10.33	1325334	14.13	1240331	15.81
ZZZZZZ	276744	3.65	1075430	5.33	670581	7.99	1102127	10.33	1266142	14.14	1197232	15.81
ZZZZZZ	299717	3.65	1143655	5.32	708483	7.99	1169532	10.33	1345166	14.13	1282943	15.81
ZZZZZZ	276457	3.65	1089953	5.33	695308	7.99	1081659	10.33	1325444	14.13	1256757	15.81
ZZZZZZ	337196	3.63	1223828	5.32	766331	7.99	1232981	10.32	1405486	14.13	1321355	15.81

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

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

Semivolatile Internal Standard Area Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Check Std:	E4M606-CC597	**Injection Date:**	11/06/09
Lab File ID:	4M13106.D	**Injection Time:**	19:41
Instrument ID:	GCMS4M	**Method:**	SW846 8270C BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
Check Std	53592	6.08	65357	8.36	77045	11.66	45817	14.73
Upper Limit [a]	107184	6.58	130714	8.86	154090	12.16	91634	15.23
Lower Limit [b]	26796	5.58	32679	7.86	38523	11.16	22909	14.23

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
OP40707A-MB1	50715	6.08	60912	8.36	74145	11.66	41856	14.73
OP40707A-BS12	50622	6.08	62445	8.36	73298	11.66	43622	14.71
OP40751A-MB1	49332	6.08	59573	8.36	73837	11.66	41150	14.71
OP40751A-BS12	50620	6.08	62428	8.36	75284	11.66	42891	14.71
JA31445-6	62080	6.08	70880	8.36	86509	11.66	49874	14.73
ZZZZZZ	55052	6.08	66471	8.36	78555	11.66	46450	14.73
ZZZZZZ	56136	6.08	69437	8.36	84561	11.66	48495	14.71
ZZZZZZ	54014	6.08	66653	8.36	81646	11.66	44720	14.71
ZZZZZZ	55320	6.08	67315	8.36	82666	11.66	48888	14.71
ZZZZZZ	54750	6.08	66835	8.36	80232	11.66	48247	14.71
ZZZZZZ	50196	6.08	62396	8.36	71800	11.66	42251	14.71
ZZZZZZ	51604	6.08	62924	8.36	76539	11.66	45453	14.71
ZZZZZZ	57558	6.08	71340	8.36	84147	11.66	48766	14.71
ZZZZZZ	52434	6.08	66647	8.36	79332	11.66	46038	14.71
ZZZZZZ	50835	6.08	61541	8.36	73472	11.66	42659	14.71
JA31597-1	54402	6.08	66696	8.36	79845	11.66	48991	14.73
JA31597-2	57033	6.08	70339	8.36	84735	11.66	51585	14.71
JA31630-1	49141	6.08	61221	8.36	73683	11.66	43710	14.71
ZZZZZZ	48039	6.08	59609	8.36	73278	11.66	42727	14.71
ZZZZZZ	49905	6.08	61046	8.36	73170	11.66	44344	14.71
ZZZZZZ	52042	6.08	63201	8.36	80804	11.66	45020	14.71
ZZZZZZ	50814	6.08	62786	8.36	75733	11.66	43172	14.71
ZZZZZZ	51810	6.08	63206	8.36	79498	11.66	46066	14.71
ZZZZZZ	48525	6.08	58728	8.36	72105	11.66	42001	14.71
ZZZZZZ	50573	6.08	63684	8.36	76108	11.66	44530	14.71
ZZZZZZ	46484	6.08	56212	8.36	69576	11.66	39160	14.71
ZZZZZZ	46791	6.08	58134	8.36	70678	11.66	40965	14.71
ZZZZZZ	48266	6.08	59544	8.36	73513	11.66	40891	14.71
ZZZZZZ	53003	6.08	67015	8.36	81105	11.66	46961	14.71
ZZZZZZ	42718	6.10	56903	8.36	71215	11.66	43771	14.71

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

Semivolatile Internal Standard Area Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Check Std:	E4M606-CC597	**Injection Date:**	11/06/09
Lab File ID:	4M13106.D	**Injection Time:**	19:41
Instrument ID:	GCMS4M	**Method:**	SW846 8270C BY SIM

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

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

Semivolatile Surrogate Recovery Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Method: SW846 8270C **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
JA31597-1	3M15081.D	90.0	88.0	44.0
JA31597-2	3M15031.D	104.0	108.0* [a]	75.0
OP40707-BS1	3M15027.D	125.0* [b]	117.0* [b]	56.0
OP40707-MB1	3M15026.D	114.0* [a]	110.0* [a]	76.0
OP40707-MS	3M15033.D	95.0	94.0	58.0
OP40707-MSD	3M15034.D	107.0	99.0	50.0

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	25-112%
S2 = 2-Fluorobiphenyl	31-106%
S3 = Terphenyl-d14	14-122%

(a) Outside of in house control limits, but within reasonable method recovery limits.
(b) Outside of in house control limits.

Semivolatile Surrogate Recovery Summary

Job Number: JA31597
Account: ENVNJSP EnviroTrac, Ltd.
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

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
JA31597-1	4M13122.D	102.0	79.0	41.0
JA31597-2	4M13123.D	114.0	96.0	64.0
OP40707A-BS12	4M13108.D	113.0	96.0	61.0
OP40707A-MB1	4M13107.D	122.0* [a]	103.0	66.0
OP40707A-MS	3M15033.D	95.0	94.0	58.0
OP40707A-MSD	3M15034.D	107.0	99.0	50.0

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	18-119%
S2 = 2-Fluorobiphenyl	18-104%
S3 = Terphenyl-d14	13-109%

(a) Outside of in house control limits.

Initial Calibration Summary

Job Number: JA31597 **Sample:** E3M630-ICC630
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M14192.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

```
                         Response Factor Report  MS3M

  Method       : C:\msdchem\1\METHODS\M3M630.M (RTE Integrator)
  Title        : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
  Last Update  : Tue Sep 29 16:08:16 2009
  Response via : Initial Calibration

  Calibration Files
  100 =3m14190.D   80  =3m14191.D   50  =3m14192.D   25  =3m14193.D
  10  =3m14194.D   5   =3m14195.D   2   =3m14196.D   1   =3m14197.D

   Compound         100   80    50    25    10    5     2     1     Avg %RSD
  ---------------------------------------------------------------------------



102)     1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde       0.919 1.049 0.874 1.061 1.014 0.863 1.031 0.973   8.75

104)     Phenanthrene-d10a     ----------------ISTD---------------------
105) Atrazine     0.110 0.113 0.130 0.104 0.116 0.105 0.083 0.093 0.107  13.37

106)     Acenaphthene-d10a     ----------------ISTD---------------------
107) 1,2,4,5-Tetr 0.570 0.591 0.632 0.513 0.570 0.490 0.402       0.538  14.21

108)     Chrysene-d12a         ----------------ISTD---------------------
109) Benzidine    0.427 0.474 0.597 0.452 0.485 0.375             0.468  15.86
          ----- Quadratic regression -----                Coefficient =  0.9900
               Response Ratio = -0.06936 + 0.75773 *A + -0.12108 *A^2

110) Methyl Parat 0.148 0.152 0.195 0.152 0.163 0.126             0.156  14.55
111) Parathion    0.143 0.147 0.163 0.128 0.136 0.111             0.138  12.76
 ---------------------------------------------------------------------------
  (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M3M630.M          Tue Sep 29 16:27:57 2009   MS3M
```

8.7.1

8

Initial Calibration Summary

Job Number: JA31597 **Sample:** E3M631-ICC631
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M14202.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Response Factor Report MS3M

Method : C:\msdchem\1\METHODS\M3M630.M (RTE Integrator)
Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
Last Update : Tue Sep 29 19:17:09 2009
Response via : Initial Calibration

Calibration Files
100 =3m14199.D 80 =3m14200.D 50 =3m14201.D 25 =3m14202.D
10 =3m14203.D 5 =3m14204.D 2 =3m14205.D 1 =3m14206.D

Compound	100	80	50	25	10	5	2	1	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------									
2) 1,4-Dioxane	0.259	0.255	0.269	0.265	0.262	0.262	0.250	0.302	0.266	5.99
3) Pyridine	1.237	1.194	1.269	1.258	1.302	1.220	1.188	1.462	1.266	6.95
4) N-Nitrosodim	0.661	0.656	0.700	0.679	0.677	0.648	0.647	0.744	0.677	4.83
5) 2-Fluorophen	1.293	1.261	1.298	1.271	1.296	1.221	1.162	1.312	1.264	3.96
6) Indene	2.085	2.004	2.078	2.011	2.056	1.917	1.886	2.166	2.026	4.53
7) Cumene	2.789	2.704	2.826	2.760	2.815	2.684	2.661	3.011	2.781	3.99
8) Phenol-d5	1.618	1.561	1.609	1.551	1.552	1.424	1.373	1.547	1.529	5.64
9) Phenol	1.753	1.684	1.731	1.668	1.687	1.527	1.503	1.682	1.654	5.48
10) Aniline	1.491	1.438	1.854	1.818	1.715	1.676	1.615	1.883	1.686	9.77
11) bis(2-Chloro	1.172	1.157	1.214	1.185	1.220	1.152	1.151	1.219	1.184	2.55
12) 2-Chlorophen	1.496	1.449	1.492	1.448	1.465	1.380	1.343	1.462	1.442	3.71
13) Decane	1.047	1.010	1.053	1.031	1.058	1.002	1.022	1.153	1.047	4.51
14) 1,3-Dichloro	1.596	1.550	1.601	1.553	1.602	1.510	1.517	1.707	1.579	3.99
15) 1,4-Dichloro	1.649	1.612	1.664	1.593	1.654	1.546	1.565	1.733	1.627	3.72
16) Benzyl alcoh	0.938	0.902	0.904	0.861	0.854	0.772	0.734	0.763	0.841	8.96
17) 1,2-Dichloro	1.598	1.543	1.551	1.495	1.527	1.435	1.405	1.648	1.525	5.26
18) Acetophenone	1.823	1.768	1.834	1.798	1.806	1.700	1.652	1.903	1.786	4.43
19) 2-Methylphen	1.231	1.186	1.249	1.198	1.205	1.110	0.968	1.035	1.148	8.77
20) 2,2'-oxybis(	0.455	0.441	0.454	0.454	0.457	0.429	0.436	0.501	0.453	4.86
21) 3&4-Methylph	1.366	1.302	1.352	1.316	1.311	1.136	0.979	1.015	1.222	12.76
22) n-Nitroso-di	0.775	0.746	0.781	0.752	0.765	0.705	0.678	0.749	0.744	4.76
23) Hexachloroet	0.553	0.531	0.532	0.514	0.524	0.479	0.481	0.570	0.523	6.08
24) I Naphthalene-d8	----------ISTD----------									
25) Nitrobenzene	0.386	0.376	0.387	0.378	0.385	0.360	0.357	0.398	0.378	3.70
26) Nitrobenzene	0.192	0.186	0.191	0.186	0.190	0.174	0.171	0.187	0.185	4.38
27) Quinoline	0.680	0.665	0.685	0.662	0.664	0.605	0.540		0.643	8.18
28) Isophorone	0.575	0.568	0.608	0.592	0.605	0.542	0.509	0.573	0.572	5.79
29) 2-Nitropheno	0.233	0.228	0.225	0.212	0.212	0.189	0.168	0.189	0.207	11.00
30) 2,4-Dimethyl	0.354	0.339	0.358	0.340	0.293	0.261			0.324	11.92
31) Benzoic Acid	0.297	0.281	0.265	0.222	0.170	0.107			0.224	32.78
----- Linear regression ----- Coefficient = 0.9978										
Response Ratio = -0.03921 + 0.30593 *A										
32) bis(2-Chloro	0.368	0.359	0.374	0.360	0.371	0.338	0.319	0.367	0.357	5.34
33) 2,4-Dichloro	0.318	0.310	0.315	0.298	0.293	0.257			0.299	7.59
34) 2,6-Dichloro	0.322	0.312	0.316	0.299	0.302	0.281	0.222		0.293	11.71
35) 1,3,5-Trichl	0.368	0.357	0.358	0.343	0.347	0.323	0.325	0.363	0.348	4.83
36) 1,2,4-Trichl	0.337	0.329	0.333	0.316	0.327	0.308	0.306	0.333	0.324	3.74
37) 1,2,3-Trichl	0.347	0.338	0.330	0.317	0.322	0.305	0.300	0.325	0.323	4.89
38) Naphthalene	1.181	1.152	1.174	1.119	1.140	1.065	1.058	1.166	1.132	4.21
39) 4-Chloroanil	0.456	0.443	0.481	0.457	0.452	0.415	0.385	0.379	0.433	8.44
40) 2,3-Dichloro	0.388	0.376	0.378	0.361	0.358	0.324	0.295	0.310	0.349	9.87
41) Caprolactam	0.122	0.118	0.116	0.112	0.114	0.105	0.077		0.109	13.97
42) Hexachlorobu	0.202	0.195	0.187	0.178	0.183	0.175	0.169	0.197	0.186	6.26

Initial Calibration Summary

Job Number: JA31597 **Sample:** E3M631-ICC631
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M14202.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

```
43) 4-Chloro-3-m 0.303 0.305 0.311 0.293 0.291 0.244             0.291   8.32
44) 2-Methylnaph 0.801 0.772 0.777 0.733 0.744 0.683 0.632 0.606 0.718   9.89
45) 1-Methylnaph 0.773 0.751 0.758 0.718 0.736 0.694 0.703 0.830 0.745   5.86
46) Dimethylnaph 0.712 0.687 0.681 0.644 0.644 0.601 0.583 0.642 0.649   6.69

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.332 0.321 0.338 0.301 0.278 0.229             0.300  13.65
49) 2,4,6-Trichl 0.425 0.414 0.408 0.368 0.353 0.294             0.377  13.09
50) 2,4,5-Trichl 0.444 0.427 0.435 0.403 0.379 0.343 0.293       0.389  14.17
51) 2-Fluorobiph 1.556 1.508 1.535 1.422 1.458 1.302 1.276 1.321 1.422   7.76
52) 2-Chloronaph 1.301 1.260 1.276 1.171 1.203 1.083 1.086 1.109 1.186   7.39
53) Biphenyl     1.784 1.730 1.696 1.566 1.600 1.446 1.454 1.524 1.600   7.90
54) 2-Nitroanili 0.335 0.323 0.328 0.311 0.308 0.278 0.223       0.301  12.96
55) Dimethylphth 1.448 1.405 1.410 1.305 1.340 1.231 1.252 1.396 1.348   5.88
56) Acenaphthyle 2.145 2.075 2.088 1.946 1.955 1.788 1.793 1.994 1.973   6.67
57) 2,6-Dinitrot 0.319 0.312 0.317 0.288 0.292 0.265 0.226 0.223 0.280  13.80
58) 3-Nitroanili 0.374 0.358 0.360 0.330 0.329 0.294 0.253 0.298 0.325  12.54
59) Acenaphthene 1.325 1.283 1.296 1.221 1.251 1.175 1.215 1.369 1.267   5.03
60) 2,4-Dinitrop 0.190 0.182 0.168 0.128 0.108 0.060             0.139  35.97
            ----- Linear regression -----  Coefficient =  0.9969
              Response Ratio = -0.05712 + 0.19780 *A

61) 4-Nitropheno 0.198 0.189 0.188 0.155 0.142 0.094             0.161  24.55
            ----- Linear regression -----  Coefficient =  0.9984
              Response Ratio = -0.01934 + 0.20273 *A

62) Dibenzofuran 1.742 1.680 1.709 1.608 1.635 1.512 1.540 1.721 1.643   5.17
63) 2,4-Dinitrot 0.433 0.419 0.435 0.398 0.403 0.351 0.278       0.388  14.50
64) 2,3,4,6-Tetr 0.369 0.353 0.348 0.315 0.311 0.269             0.327  11.18
65) Diethylphtha 1.518 1.455 1.457 1.361 1.396 1.313 1.270 1.499 1.409   6.32
66) Fluorene     1.484 1.431 1.446 1.350 1.382 1.262 1.294 1.460 1.388   5.82
67) 4-Chlorophen 0.725 0.688 0.667 0.615 0.622 0.585 0.601 0.656 0.645   7.38
68) 4-Nitroanili 0.351 0.340 0.352 0.331 0.333 0.284 0.229       0.317  14.22

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro- 0.155 0.150 0.151 0.138 0.131 0.095             0.137  16.35
            ----- Linear regression -----  Coefficient =  0.9993
              Response Ratio = -0.00864 + 0.15689 *A

71) n-Nitrosodip 0.593 0.578 0.585 0.565 0.577 0.519 0.536 0.588 0.568   4.66
72) 1,2-Diphenyl 0.799 0.775 0.789 0.782 0.743 0.690 0.727 0.776 0.760   4.86
73) 2,4,6-Tribro 0.103 0.099 0.099 0.091 0.093 0.080 0.070 0.074 0.089  14.03
74) 4-Bromopheny 0.209 0.203 0.207 0.200 0.204 0.187 0.188 0.214 0.202   4.78
75) Hexachlorobe 0.216 0.211 0.215 0.208 0.212 0.200 0.217 0.237 0.214   4.98
76) Pentachlorop 0.167 0.159 0.156 0.141 0.140 0.111 0.093       0.138  19.56
            ----- Linear regression -----  Coefficient =  0.9987
              Response Ratio = -0.01768 + 0.16679 *A

77) Phenanthrene 1.166 1.139 1.179 1.149 1.179 1.121 1.190 1.397 1.190   7.30
78) Anthracene   1.181 1.156 1.223 1.194 1.226 1.161 1.196 1.349 1.211   5.07
79) Carbazole    1.032 0.986 1.043 1.010 1.030 1.000 1.018 1.224 1.043   7.24
80) Di-n-butylph 1.369 1.343 1.412 1.365 1.408 1.249 1.168 1.413 1.341   6.58
81) Fluoranthene 1.239 1.215 1.257 1.205 1.243 1.137 1.162 1.421 1.235   6.94
82) Octadecane   0.396 0.383 0.400 0.394 0.419 0.390 0.375 0.415 0.396   3.71

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.189 1.165 1.259 1.211 1.253 1.194 1.196 1.540 1.251   9.67
85) Butyl steara 0.253 0.240 0.258 0.250 0.282 0.284 0.314       0.269   9.58
86) Terphenyl-d1 0.875 0.849 0.879 0.831 0.878 0.826 0.833 1.026 0.875   7.43
87) Butylbenzylp 0.561 0.539 0.585 0.552 0.570 0.516 0.482 0.571 0.547   6.19
```

Initial Calibration Summary

Job Number: JA31597 **Sample:** E3M631-ICC631
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M14202.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

```
 88) Benzo[a]anth 1.082 1.042 1.101 1.043 1.077 1.009 1.023 1.322 1.087   9.19
 89) 3,3'-Dichlor 0.426 0.406 0.408 0.374 0.386 0.352 0.326 0.344 0.378   9.32
 90) Chrysene     1.122 1.064 1.133 1.068 1.138 1.055 1.069 1.403 1.131  10.13
 91) bis(2-Ethylh 0.818 0.783 0.833 0.779 0.802 0.715 0.655 0.733 0.765   7.81

 92) I   Perylene-d12          ----------------ISTD--------------------
 93) Di-n-octylph 1.757 1.694 1.669 1.506 1.517 1.298 1.118 1.237 1.474  15.87
            ----- Linear regression -----  Coefficient =  0.9989
              Response Ratio = -0.06441 + 1.75106 *A

 94) Benzo[b]fluo 1.876 1.792 1.461 1.175 1.173 1.034 1.067 1.087 1.333  25.24
         ----- Quadratic regression -----                Coefficient =  0.9991
              Response Ratio = -0.01418 + 1.09221 *A + 0.32519 *A^2

 95) Benzo[k]fluo 0.999 1.009 1.206 1.255 1.319 1.192 1.108 1.531 1.202  14.49
 96) Benzo[a]pyre 1.241 1.215 1.212 1.113 1.136 1.045 1.084 1.080 1.141   6.41
 97) Indeno[1,2,3 1.385 1.337 1.270 1.169 1.180 1.047 1.034 1.131 1.194  10.72
 98) Dibenz(a,h)a 1.044 1.015 0.978 0.888 0.905 0.800 0.795 0.875 0.912  10.19
 99) Dibenz[a,h]a 1.286 1.250 1.156 1.015 1.029 0.914 0.927 1.024 1.075  13.05
100) 7,12-Dimethy 0.652 0.637 0.631 0.560 0.452 0.336 0.312       0.511  28.36
            ----- Linear regression -----  Coefficient =  0.9994
              Response Ratio = -0.04290 + 0.66378 *A

101) Benzo[g,h,i] 1.133 1.086 1.077 0.998 1.023 0.912 0.930 1.015 1.022   7.46


 ------------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M3M630.M          Tue Sep 29 19:17:23 2009   MS3M
```

8.7.2

8

Initial Calibration Verification

Job Number: JA31597 **Sample:** E3M631-ICV631
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M14207.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e3m631\3m14207.D Vial: 18
Acq On : 29 Sep 2009 1:00 pm Operator: kristis
Sample : icv631-50 Inst : MS3M
Misc : op39946,E3M631,1000,,,1,1 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\msdchem\1\METHODS\M3M630.M (RTE Integrator)
Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
Last Update : Tue Sep 29 16:08:16 2009
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 202%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	138	0.00	3.96
9	t	Phenol	1.654	1.566	5.3	125	0.02	3.62
12	t	2-Chlorophenol	1.442	1.489	-3.3	138	0.01	3.75
19	t	2-Methylphenol	1.148	1.192	-3.8	132	0.01	4.35
21	t	3&4-Methylphenol	1.222	1.245	-1.9	127	0.02	4.55
24	I	Naphthalene-d8	1.000	1.000	0.0	136	0.00	5.68
29	t	2-Nitrophenol	0.207	0.212	-2.4	128	0.00	5.18
30	t	2,4-Dimethylphenol	0.324	0.347	-7.1	132	0.01	5.28
		----------	True	Calc.	% Drift	----------		
31		Benzoic Acid	50.000	40.517	19.0	111	0.12	5.58
		----------	AvgRF	CCRF	% Dev	----------		
32	t	bis(2-Chloroethoxy)methan		----------NA----------				
33	t	2,4-Dichlorophenol	0.299	0.289	3.3	125	0.01	5.52
34		2,6-Dichlorophenol	0.293	0.292	0.3	126	0.00	5.85
43	t	4-Chloro-3-methylphenol	0.291	0.300	-3.1	131	0.01	6.63
47	I	Acenaphthene-d10	1.000	1.000	0.0	133	0.00	8.38
49	t	2,4,6-Trichlorophenol	0.377	0.379	-0.5	124	0.01	7.26
50	t	2,4,5-Trichlorophenol	0.389	0.410	-5.4	126	0.01	7.30
		----------	True	Calc.	% Drif t	----------		
60	t	2,4-Dinitrophenol	50.000	47.148	5.7	112	0.00	8.56
61	t	4-Nitrophenol	50.000	43.872	12.3	115	0.01	8.74
64		2,3,4,6-Tetrachlorophenol	0.327	0.332	-1.5	127	0.01	8.98
69	I	Phenanthrene-d10	1.000	1.000	0.0	125	0.00	10.70
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	50.000	48.278	3.4	120	0.01	9.43
		----------	True	Calc.	% Drift	----------		
76	t	Pentachlorophenol	50.000	49.297	1.4	120	0.00	10.53

8.7.3

8

Initial Calibration Verification

Job Number: JA31597 **Sample:** E3M631-ICV631
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M14207.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

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   (#) = Out of Range                SPCC's out = 0  CCC's out = 0
    3m14201.D  M3M630.M         Tue Sep 29 17:02:03 2009   MS3M
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Initial Calibration Verification

Job Number: JA31597 **Sample:** E3M631-ICV631
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M14208.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e3m631\3m14208.D Vial: 19
Acq On : 29 Sep 2009 1:28 pm Operator: kristis
Sample : icv631-50 Inst : MS3M
Misc : op39946,E3M631,1000,,,1,1 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\msdchem\1\METHODS\M3M630.M (RTE Integrator)
Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
Last Update : Tue Sep 29 19:17:09 2009
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 202%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	139	0.01	3.96
2	t	1,4-Dioxane	0.266	0.227	14.7	117	0.02	1.59
3	t	Pyridine	1.266	1.076	15.0	118	-0.01	1.77
4	t	N-Nitrosodimethylamine	0.677	0.643	5.0	128	0.02	1.77
5	S	2-Fluorophenol		----------NA----------				
6	t	Indene	2.026	2.148	-6.0	144	0.00	4.31
7	t	Cumene	2.781	2.454	11.8	121	0.01	3.13
8	S	Phenol-d5		----------NA----------				
9	t	Phenol		----------NA----------				
11	t	bis(2-Chloroethyl)ether	1.184	1.101	7.0	126	0.00	3.70
12	t	2-Chlorophenol		----------NA----------				
13	t	Decane	1.047	0.942	10.0	124	0.00	3.81
14	t	1,3-Dichlorobenzene	1.579	1.443	8.6	125	0.00	3.91
15	t	1,4-Dichlorobenzene	1.627	1.496	8.1	125	0.00	3.98
16	t	Benzyl alcohol	0.841	0.775	7.8	119	0.02	4.19
17	t	1,2-Dichlorobenzene	1.525	1.398	8.3	125	0.00	4.21
18	t	Acetophenone	1.786	1.783	0.2	135	0.01	4.52
19	t	2-Methylphenol		----------NA----------				
20	t	2,2'-oxybis(1-Chloropropa	0.453	0.409	9.7	126	0.00	4.38
21	t	3&4-Methylphenol		----------NA----------				
22	t	n-Nitroso-di-n-propylamin	0.744	0.704	5.4	125	0.01	4.57
23	t	Hexachloroethane	0.523	0.478	8.6	125	0.00	4.60
24	I	Naphthalene-d8	1.000	1.000	0.0	139	0.00	5.68
25	S	Nitrobenzene-d5		----------NA----------				
26	t	Nitrobenzene	0.185	0.167	9.7	122	0.01	4.74
27	t	Quinoline	0.643	0.673	-4.7	136	0.00	6.22
28	t	Isophorone	0.572	0.519	9.3	118	0.00	5.06
29	t	2-Nitrophenol		----------NA----------				
30	t	2,4-Dimethylphenol		----------NA----------				
		----------	True	Calc.	% Drift	----------		
31		Benzoic Acid		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
32	t	bis(2-Chloroethoxy)methan	0.357	0.339	5.0	126	0.01	5.42
33	t	2,4-Dichlorophenol		----------NA----------				
34		2,6-Dichlorophenol		----------NA----------				
35	t	1,3,5-Trichlorobenzene		----------NA----------				
36	t	1,2,4-Trichlorobenzene	0.324	0.303	6.5	126	0.00	5.63
37	t	1,2,3-Trichlorobenzene		----------NA----------				
38	t	Naphthalene	1.132	1.013	10.5	120	0.01	5.71

Initial Calibration Verification

Job Number: JA31597 **Sample:** E3M631-ICV631
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M14208.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

40	t	2,3-Dichloroaniline	0.349	0.320	8.3	118	0.02	7.26
41	t	Caprolactam	0.109	0.100	8.3	120	0.04	6.36
42	t	Hexachlorobutadiene	0.186	0.175	5.9	130	0.00	6.00
43	t	4-Chloro-3-methylphenol		----------NA----------				
44	t	2-Methylnaphthalene	0.718	0.694	3.3	124	0.01	6.75
45	t	1-Methylnaphthalene	0.745	0.685	8.1	125	0.01	6.91
46	t	Dimethylnaphthalene	0.649	0.626	3.5	128	0.01	7.73
47	I	Acenaphthene-d10	1.000	1.000	0.0	130	0.00	8.39
48	t	Hexachlorocyclopentadiene	0.300	0.290	3.3	111	0.01	7.12
49	t	2,4,6-Trichlorophenol		----------NA----------				
50	t	2,4,5-Trichlorophenol		----------NA----------				
51	S	2-Fluorobiphenyl		----------NA----------				
52	t	2-Chloronaphthalene	1.186	1.168	1.5	119	0.01	7.49
53	t	Biphenyl	1.600	1.644	-2.7	126	0.02	7.51
54	t	2-Nitroaniline	0.301	0.310	-3.0	122	0.02	7.75
55	t	Dimethylphthalate	1.348	1.291	4.2	119	0.02	8.13
56	t	Acenaphthylene	1.973	1.721	12.8	107	0.02	8.14
57	t	2,6-Dinitrotoluene	0.280	0.290	-3.6	119	0.02	8.22
58	t	3-Nitroaniline	0.325	0.298	8.3	107	0.03	8.42
59	t	Acenaphthene	1.267	1.184	6.6	118	0.02	8.44
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol		----------NA----------				
61	t	4-Nitrophenol		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
62	t	Dibenzofuran	1.643	1.633	0.6	124	0.02	8.69
63	t	2,4-Dinitrotoluene	0.388	0.379	2.3	113	0.03	8.82
64		2,3,4,6-Tetrachlorophenol		----------NA----------				
65	t	Diethylphthalate	1.409	1.336	5.2	119	0.02	9.26
66	t	Fluorene	1.388	1.349	2.8	121	0.02	9.23
67	t	4-Chlorophenyl-phenylethe	0.645	0.617	4.3	120	0.02	9.28
68	t	4-Nitroaniline	0.317	0.288	9.1	106	0.03	9.40
69	I	Phenanthrene-d10	1.000	1.000	0.0	122	0.00	10.69
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
71	t	n-Nitrosodiphenylamine	0.568	0.584	-2.8	122	0.02	9.50
72	t	1,2-Diphenylhydrazine	0.760	0.798	-5.0	123	0.02	9.53
73	S	2,4,6-Tribromophenol		----------NA----------				
74	t	4-Bromophenyl-phenylether	0.202	0.204	-1.0	120	0.01	10.04
75	t	Hexachlorobenzene	0.214	0.212	0.9	120	0.02	10.23
		----------	True	Calc.	% Drift	----------		
76	t	Pentachlorophenol		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
77	t	Phenanthrene	1.190	1.158	2.7	120	0.02	10.73
78	t	Anthracene	1.211	1.167	3.6	116	0.03	10.81
79	t	Carbazole	1.043	1.084	-3.9	127	0.02	11.11
80	t	Di-n-butylphthalate	1.341	1.382	-3.1	119	0.02	11.82
81	t	Fluoranthene	1.235	1.198	3.0	116	0.02	12.52
82	t	Octadecane	0.396	0.421	-6.3	128	0.02	10.71
83	I	Chrysene-d12	1.000	1.000	0.0	130	0.01	14.43
84	t	Pyrene	1.251	1.111	11.2	115	0.02	12.81

Initial Calibration Verification

Job Number: JA31597 **Sample:** E3M631-ICV631
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M14208.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

85		Butyl stearate		----------NA----------				
86	S	Terphenyl-d14		----------NA----------				
87	t	Butylbenzylphthalate	0.547	0.525	4.0	116	0.02	13.85
88	t	Benzo[a]anthracene	1.087	0.976	10.2	115	0.02	14.40
89	t	3,3'-Dichlorobenzidine	0.378	0.316	16.4	101	0.01	14.43
90	t	Chrysene	1.131	1.000	11.6	115	0.03	14.47
91	t	bis(2-Ethylhexyl)phthalat	0.765	0.753	1.6	118	0.01	14.63
92	I	Perylene-d12	1.000	1.000	0.0	123	0.00	16.08
		----------	True	Calc.	% Drift	----------		
93	t	Di-n-octylphthalate	50.000	46.750	6.5	117	0.02	15.35
94	t	Benzo[b]fluoranthene	50.000	45.217	9.6	111	0.03	15.69
		----------	AvgRF	CCRF	% Dev	----------		
95	t	Benzo[k]fluoranthene	1.202	1.159	3.6	119	0.04	15.72
96	t	Benzo[a]pyrene	1.141	1.067	6.5	109	0.03	16.02
97	t	Indeno[1,2,3-cd]pyrene	1.194	1.205	-0.9	117	-0.24	17.16
98	t	Dibenz(a,h)acridine	0.912	0.956	-4.8	121	0.03	16.93
99	t	Dibenz[a,h]anthracene	1.075	1.047	2.6	112	0.04	17.18
		----------	True	Calc.	% Drift	----------		
100	t	7,12-Dimethylbenz(a)anthr	50.000	44.385	11.2	109	0.03	15.71
		----------	AvgRF	CCRF	% Dev	----------		
101	t	Benzo[g,h,i]perylene	1.022	0.977	4.4	112	0.05	17.45

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m14201.D M3M630.M Tue Sep 29 19:25:45 2009 MS3M

8.7.4

8

Initial Calibration Verification

Job Number: JA31597 **Sample:** E3M631-ICV631
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M14209.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m631\3m14209.D          Vial: 20
Acq On    : 29 Sep 2009   1:56 pm                   Operator: kristis
Sample    : icv631-50                               Inst    : MS3M
Misc      : op39946,E3M631,1000,,,1,1               Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M3M630.M (RTE Integrator)
Title        : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
Last Update  : Tue Sep 29 16:08:16 2009
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 202%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	105	0.00	3.95
10	t	Aniline	1.686	1.732	-2.7	98	0.00	3.63
24	I	Naphthalene-d8	1.000	1.000	0.0	105	0.00	5.68
39	t	4-Chloroaniline	0.433	0.454	-4.8	99	0.00	5.85
102		1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	135	0.00	3.95
103		Benzaldehyde	0.973	0.890	8.5	115	-0.01	3.47
108		Chrysene-d12a	1.000	1.000	0.0	134	0.00	14.42
			True	Calc.	% Drift			
109		Benzidine	50.000	53.520	-7.0	131	-0.01	12.76

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m14201.D M3M630.M Tue Sep 29 17:25:54 2009 MS3M

8.7.5

8

Continuing Calibration Summary

Job Number: JA31597 **Sample:** E3M662-CC630
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M15024.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e3m662\3m15024.D Vial: 2
Acq On : 5 Nov 2009 3:56 pm Operator: larisap
Sample : cc630-25 Inst : MS3M
Misc : op40736,E3M662, Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3M630.M (RTE Integrator)
Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
Last Update : Wed Nov 04 15:50:07 2009
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 202%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	79	-0.03	3.65
2	t	1,4-Dioxane	0.266	0.381	-43.2#	114	-0.03	1.38
3	t	Pyridine	1.266	1.283	-1.3	81	-0.02	1.58
4	t	N-Nitrosodimethylamine	0.677	0.677	0.0	79	-0.02	1.58
5	S	2-Fluorophenol	1.264	1.232	2.5	77	-0.04	2.52
6	t	Indene	2.026	2.042	-0.8	80	-0.03	3.99
7	t	Cumene	2.781	2.856	-2.7	82	-0.02	2.83
8	S	Phenol-d5	1.529	1.715	-12.2	87	-0.06	3.45
9	t	Phenol	1.654	1.626	1.7	77	-0.06	3.47
10	t	Aniline	1.686	0.994	41.0#	43#	-0.02	3.38
11	t	bis(2-Chloroethyl)ether	1.184	1.635	-38.1#	109	-0.02	3.42
12	t	2-Chlorophenol	1.442	1.441	0.1	79	-0.03	3.52
13	t	Decane	1.047	1.569	-49.9#	120	-0.02	3.47
14	t	1,3-Dichlorobenzene	1.579	1.509	4.4	77	-0.03	3.60
15	t	1,4-Dichlorobenzene	1.627	1.664	-2.3	83	-0.03	3.67
16	t	Benzyl alcohol	0.841	0.753	10.5	69	-0.03	3.96
17	t	1,2-Dichlorobenzene	1.525	1.499	1.7	79	-0.03	3.90
18	t	Acetophenone	1.786	1.840	-3.0	81	-0.02	4.24
19	t	2-Methylphenol	1.148	1.178	-2.6	78	-0.03	4.15
20	t	2,2'-oxybis(1-Chloropropa	0.453	0.434	4.2	76	-0.03	4.06
21	t	3&4-Methylphenol	1.222	1.228	-0.5	74	-0.03	4.39
22	t	n-Nitroso-di-n-propylamin	0.744	0.828	-11.3	87	-0.02	4.27
23	t	Hexachloroethane	0.523	0.552	-5.5	85	-0.03	4.25
24	I	Naphthalene-d8	1.000	1.000	0.0	78	-0.03	5.35
25	S	Nitrobenzene-d5	0.378	0.405	-7.1	84	-0.02	4.43
26	t	Nitrobenzene	0.185	0.183	1.1	77	-0.02	4.46
27	t	Quinoline	0.643	0.659	-2.5	78	-0.02	5.96
28	t	Isophorone	0.572	0.645	-12.8	85	-0.03	4.77
29	t	2-Nitrophenol	0.207	0.210	-1.4	78	-0.02	4.90
30	t	2,4-Dimethylphenol	0.324	0.314	3.1	72	-0.01	5.06
		----------	True	Calc.	% Drift		----------	
31		Benzoic Acid	25.000	23.990	4.0	82	-0.02	5.48
		----------	AvgRF	CCRF	% Dev		----------	
32	t	bis(2-Chloroethoxy)methan	0.357	0.368	-3.1	80	-0.03	5.11
33	t	2,4-Dichlorophenol	0.299	0.289	3.3	76	0.00	5.34
34		2,6-Dichlorophenol	0.293	0.313	-6.8	82	-0.02	5.59
35	t	1,3,5-Trichlorobenzene	0.348	0.360	-3.4	82	-0.10	4.85
36	t	1,2,4-Trichlorobenzene	0.324	0.340	-4.9	84	-0.03	5.30
37	t	1,2,3-Trichlorobenzene	0.323	0.339	-5.0	84	-0.10	5.65

Continuing Calibration Summary

Job Number: JA31597 **Sample:** E3M662-CC630
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M15024.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

38	t	Naphthalene	1.132	1.129	0.3	79	-0.03	5.37
39	t	4-Chloroaniline	0.433	0.405	6.5	70	-0.02	5.61
40	t	2,3-Dichloroaniline	0.349	0.362	-3.7	79	-0.03	6.95
41	t	Caprolactam	0.109	0.132	-21.1#	93	-0.09	6.19
42	t	Hexachlorobutadiene	0.186	0.198	-6.5	87	-0.03	5.63
43	t	4-Chloro-3-methylphenol	0.291	0.326	-12.0	87	0.00	6.50
44	t	2-Methylnaphthalene	0.718	0.732	-1.9	78	-0.03	6.41
45	t	1-Methylnaphthalene	0.745	0.835	-12.1	91	-0.03	6.57
46	t	Dimethylnaphthalene	0.649	0.669	-3.1	81	-0.03	7.38
47	I	Acenaphthene-d10	1.000	1.000	0.0	81	-0.03	8.03
48	t	Hexachlorocyclopentadiene	0.300	0.198	34.0#	54	-0.03	6.74
49	t	2,4,6-Trichlorophenol	0.377	0.370	1.9	82	-0.02	7.00
50	t	2,4,5-Trichlorophenol	0.389	0.424	-9.0	86	0.00	7.16
51	S	2-Fluorobiphenyl	1.422	1.462	-2.8	84	-0.03	7.03
52	t	2-Chloronaphthalene	1.186	1.218	-2.7	85	-0.03	7.15
53	t	Biphenyl	1.600	1.587	0.8	83	-0.03	7.15
54	t	2-Nitroaniline	0.301	0.344	-14.3	90	-0.02	7.51
55	t	Dimethylphthalate	1.348	1.349	-0.1	84	-0.03	7.80
56	t	Acenaphthylene	1.973	1.922	2.6	80	-0.03	7.80
57	t	2,6-Dinitrotoluene	0.280	0.287	-2.5	81	-0.02	7.92
58	t	3-Nitroaniline	0.325	0.269	17.2	66	-0.01	8.21
59	t	Acenaphthene	1.267	1.238	2.3	83	-0.03	8.08
			True	Calc.	% Drift			
60	t	2,4-Dinitrophenol	50.000	43.528	12.9	80	0.02	8.43
61	t	4-Nitrophenol	25.000	18.574	25.7#	63	-0.09	8.88
			AvgRF	CCRF	% Dev			
62	t	Dibenzofuran	1.643	1.637	0.4	83	-0.03	8.35
63	t	2,4-Dinitrotoluene	0.388	0.422	-8.8	86	-0.02	8.58
64		2,3,4,6-Tetrachlorophenol	0.327	0.309	5.5	80	-0.02	8.72
65	t	Diethylphthalate	1.409	1.389	1.4	83	-0.03	8.90
66	t	Fluorene	1.388	1.405	-1.2	85	-0.03	8.88
67	t	4-Chlorophenyl-phenylethe	0.645	0.673	-4.3	89	-0.03	8.91
68	t	4-Nitroaniline	0.317	0.265	16.4	65	-0.04	9.22
69	I	Phenanthrene-d10	1.000	1.000	0.0	82	-0.03	10.36
			True	Calc.	% Drift			
70	t	4,6-Dinitro-2-methylpheno	25.000	24.369	2.5	83	-0.02	9.23
			AvgRF	CCRF	% Dev			
71	t	n-Nitrosodiphenylamine	0.568	0.580	-2.1	84	-0.03	9.17
72	t	1,2-Diphenylhydrazine	0.760	0.847	-11.4	89	-0.03	9.17
73	S	2,4,6-Tribromophenol	0.089	0.127	-42.7#	114	-0.03	9.35
74	t	4-Bromophenyl-phenylether	0.202	0.234	-15.8	96	-0.04	9.67
75	t	Hexachlorobenzene	0.214	0.260	-21.5#	103	-0.03	9.88
			True	Calc.	% Drift			
76	t	Pentachlorophenol	50.000	44.724	10.6	79	-0.04	10.27
			AvgRF	CCRF	% Dev			
77	t	Phenanthrene	1.190	1.165	2.1	83	-0.03	10.39
78	t	Anthracene	1.211	1.179	2.6	81	-0.03	10.46
79	t	Carbazole	1.043	0.976	6.4	79	-0.02	10.84
80	t	Di-n-butylphthalate	1.341	1.390	-3.7	84	-0.03	11.47
81	t	Fluoranthene	1.235	1.266	-2.5	86	-0.02	12.22
82	t	Octadecane	0.396	0.477	-20.5#	100	-0.04	10.31

Continuing Calibration Summary

Job Number: JA31597 **Sample:** E3M662-CC630
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M15024.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

83	I	Chrysene-d12	1.000	1.000	0.0	91	-0.02	14.17
84	t	Pyrene	1.251	1.127	9.9	85	-0.02	12.52
85		Butyl stearate	0.269	0.317	-17.8	115	0.03	13.59
86	S	Terphenyl-d14	0.875	0.866	1.0	95	-0.03	12.80
87	t	Butylbenzylphthalate	0.547	0.524	4.2	86	-0.03	13.53
88	t	Benzo[a]anthracene	1.087	1.080	0.6	94	-0.02	14.14
89	t	3,3'-Dichlorobenzidine	0.378	0.377	0.3	92	-0.02	14.19
90	t	Chrysene	1.131	1.083	4.2	92	-0.03	14.19
91	t	bis(2-Ethylhexyl)phthalat	0.765	0.783	-2.4	91	-0.03	14.31
92	I	Perylene-d12	1.000	1.000	0.0	95	-0.02	15.85
		----------	True	Calc.	% Drift	----------		
93	t	Di-n-octylphthalate	25.000	22.497	10.0	93	-0.03	15.03
94	t	Benzo[b]fluoranthene	25.000	23.537	5.9	96	-0.02	15.44
		----------	AvgRF	CCRF	% Dev	----------		
95	t	Benzo[k]fluoranthene	1.202	1.312	-9.2	100	-0.02	15.47
96	t	Benzo[a]pyrene	1.141	1.148	-0.6	99	-0.02	15.79
97	t	Indeno[1,2,3-cd]pyrene	1.194	1.353	-13.3	111	-0.03	16.92
98	t	Dibenz(a,h)acridine	0.912	1.023	-12.2	110	-0.02	16.69
99	t	Dibenz[a,h]anthracene	1.075	1.166	-8.5	110	-0.03	16.90
		----------	True	Calc.	% Drift	----------		
100	t	7,12-Dimethylbenz(a)anthr	25.000	19.515	21.9#	77	-0.03	15.42
		----------	AvgRF	CCRF	% Dev	----------		
101	t	Benzo[g,h,i]perylene	1.022	1.130	-10.6	108	-0.01	17.19

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m14961.D M3M630.M Fri Nov 06 14:27:20 2009 MS3M

8.7.6

8

Continuing Calibration Summary

Job Number: JA31597 **Sample:** E3M662-CC630
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M15025.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m662\3m15025.D          Vial: 3
Acq On    :  5 Nov 2009   4:53 pm                   Operator: larisap
Sample    : cc630-50                                Inst    : MS3M
Misc      : op40736,E3M662,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3M630.M (RTE Integrator)
Title        : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
Last Update  : Wed Nov 04 15:50:07 2009
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 202%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	91	-0.02	3.66
103	Benzaldehyde	0.973	0.804	17.4	69	-0.02	3.23
104	Phenanthrene-d10a	1.000	1.000	0.0	96	-0.03	10.36
105	Atrazine	0.107	0.119	-11.2	88	-0.03	10.14
106	Acenaphthene-d10a	1.000	1.000	0.0	95	-0.03	8.03
107	1,2,4,5-Tetrachlorobenzen	0.538	0.582	-8.2	88	-0.03	6.74
108	Chrysene-d12a	1.000	1.000	0.0	102	-0.03	14.16
		True	Calc.	% Drift			
109	Benzidine	50.000	30.180	39.6#	59	-0.07	12.55
		AvgRF	CCRF	% Dev			
110 T	Methyl Parathion	0.156	0.150	3.8	79	-0.03	11.12
111	Parathion	0.138	0.138	0.0	87	-0.03	11.73

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m14758.D M3M630.M Fri Nov 06 14:29:48 2009 MS3M

8.7.7

8

Continuing Calibration Summary

Job Number: JA31597 **Sample:** E3M664-CC630
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M15063.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e3m664\3m15063.D Vial: 2
Acq On : 6 Nov 2009 8:06 pm Operator: larisap
Sample : cc630-25 Inst : MS3M
Misc : op40736,E3M664 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3M630.M (RTE Integrator)
Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
Last Update : Wed Nov 04 15:50:07 2009
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 202%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	76	-0.06	3.61
2	t	1,4-Dioxane	0.266	0.386	-45.1#	110	-0.05	1.36
3	t	Pyridine	1.266	1.218	3.8	73	-0.04	1.56
4	t	N-Nitrosodimethylamine	0.677	0.661	2.4	74	-0.04	1.56
5	S	2-Fluorophenol	1.264	1.226	3.0	73	-0.05	2.51
6	t	Indene	2.026	2.020	0.3	76	-0.05	3.96
7	t	Cumene	2.781	2.815	-1.2	77	-0.05	2.80
8	S	Phenol-d5	1.529	1.800	-17.7	88	-0.09	3.42
9	t	Phenol	1.654	1.619	2.1	73	-0.09	3.44
10	t	Aniline	1.686	0.950	43.7#	40#	-0.05	3.36
11	t	bis(2-Chloroethyl)ether	1.184	1.545	-30.5#	99	-0.05	3.39
12	t	2-Chlorophenol	1.442	1.433	0.6	75	-0.06	3.49
13	t	Decane	1.047	1.506	-43.8#	111	-0.05	3.44
14	t	1,3-Dichlorobenzene	1.579	1.500	5.0	73	-0.06	3.57
15	t	1,4-Dichlorobenzene	1.627	1.656	-1.8	79	-0.06	3.63
16	t	Benzyl alcohol	0.841	0.758	9.9	67	-0.04	3.94
17	t	1,2-Dichlorobenzene	1.525	1.519	0.4	77	-0.06	3.86
18	t	Acetophenone	1.786	1.878	-5.2	79	-0.05	4.21
19	t	2-Methylphenol	1.148	1.181	-2.9	75	-0.05	4.13
20	t	2,2'-oxybis(1-Chloropropa	0.453	0.440	2.9	73	-0.05	4.04
21	t	3&4-Methylphenol	1.222	1.237	-1.2	71	-0.05	4.37
22	t	n-Nitroso-di-n-propylamin	0.744	0.803	-7.9	81	-0.05	4.24
23	t	Hexachloroethane	0.523	0.576	-10.1	85	-0.06	4.21
24	I	Naphthalene-d8	1.000	1.000	0.0	76	-0.06	5.31
25	S	Nitrobenzene-d5	0.378	0.402	-6.3	81	-0.05	4.40
26	t	Nitrobenzene	0.185	0.178	3.8	73	-0.05	4.43
27	t	Quinoline	0.643	0.639	0.6	74	-0.03	5.95
28	t	Isophorone	0.572	0.641	-12.1	83	-0.05	4.74
29	t	2-Nitrophenol	0.207	0.204	1.4	73	-0.04	4.88
30	t	2,4-Dimethylphenol	0.324	0.317	2.2	71	-0.04	5.04
		----------	True	Calc.	% Drift		----------	
31		Benzoic Acid	25.000	25.405	-1.6	85	-0.01	5.49
		----------	AvgRF	CCRF	% Dev		----------	
32	t	bis(2-Chloroethoxy)methan	0.357	0.365	-2.2	77	-0.05	5.08
33	t	2,4-Dichlorophenol	0.299	0.299	0.0	77	-0.03	5.31
34		2,6-Dichlorophenol	0.293	0.313	-6.8	80	-0.05	5.56
35	t	1,3,5-Trichlorobenzene	0.348	0.359	-3.2	80	-0.13	4.82
36	t	1,2,4-Trichlorobenzene	0.324	0.342	-5.6	82	-0.06	5.27
37	t	1,2,3-Trichlorobenzene	0.323	0.346	-7.1	83	-0.13	5.62

Continuing Calibration Summary

Job Number: JA31597 **Sample:** E3M664-CC630
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M15063.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

38	t	Naphthalene	1.132	1.117	1.3	76	-0.06	5.34
39	t	4-Chloroaniline	0.433	0.372	14.1	62	-0.03	5.60
40	t	2,3-Dichloroaniline	0.349	0.360	-3.2	76	-0.06	6.92
41	t	Caprolactam	0.109	0.142	-30.3#	97	-0.10	6.18
42	t	Hexachlorobutadiene	0.186	0.208	-11.8	89	-0.06	5.60
43	t	4-Chloro-3-methylphenol	0.291	0.325	-11.7	84	-0.03	6.47
44	t	2-Methylnaphthalene	0.718	0.724	-0.8	75	-0.06	6.38
45	t	1-Methylnaphthalene	0.745	0.852	-14.4	90	-0.06	6.53
46	t	Dimethylnaphthalene	0.649	0.663	-2.2	78	-0.06	7.35
47	I	Acenaphthene-d10	1.000	1.000	0.0	81	-0.07	7.99
48	t	Hexachlorocyclopentadiene	0.300	0.205	31.7#	55	-0.07	6.70
49	t	2,4,6-Trichlorophenol	0.377	0.373	1.1	82	-0.04	6.98
50	t	2,4,5-Trichlorophenol	0.389	0.411	-5.7	83	-0.03	7.14
51	S	2-Fluorobiphenyl	1.422	1.430	-0.6	82	-0.07	6.99
52	t	2-Chloronaphthalene	1.186	1.210	-2.0	84	-0.06	7.12
53	t	Biphenyl	1.600	1.557	2.7	81	-0.07	7.12
54	t	2-Nitroaniline	0.301	0.357	-18.6	93	-0.04	7.50
55	t	Dimethylphthalate	1.348	1.315	2.4	82	-0.06	7.77
56	t	Acenaphthylene	1.973	1.867	5.4	78	-0.06	7.76
57	t	2,6-Dinitrotoluene	0.280	0.259	7.5	73	-0.05	7.90
58	t	3-Nitroaniline	0.325	0.320	1.5	79	-0.02	8.20
59	t	Acenaphthene	1.267	1.196	5.6	80	-0.07	8.04
		----------	True	Calc.	% Drift	----------		
60	t	2,4-Dinitrophenol	50.000	41.838	16.3	76	-0.01	8.40
61	t	4-Nitrophenol	25.000	25.863	-3.5	94	-0.11	8.87
		----------	AvgRF	CCRF	% Dev	----------		
62	t	Dibenzofuran	1.643	1.585	3.5	80	-0.06	8.31
63	t	2,4-Dinitrotoluene	0.388	0.404	-4.1	82	-0.04	8.55
64		2,3,4,6-Tetrachlorophenol	0.327	0.302	7.6	78	-0.05	8.68
65	t	Diethylphthalate	1.409	1.417	-0.6	85	-0.06	8.87
66	t	Fluorene	1.388	1.370	1.3	82	-0.07	8.84
67	t	4-Chlorophenyl-phenylethe	0.645	0.674	-4.5	89	-0.07	8.88
68	t	4-Nitroaniline	0.317	0.263	17.0	65	-0.04	9.22
69	I	Phenanthrene-d10	1.000	1.000	0.0	83	-0.07	10.32
		----------	True	Calc.	% Drift	----------		
70	t	4,6-Dinitro-2-methylpheno	25.000	23.441	6.2	80	-0.05	9.20
		----------	AvgRF	CCRF	% Dev	----------		
71	t	n-Nitrosodiphenylamine	0.568	0.572	-0.7	84	-0.06	9.13
72	t	1,2-Diphenylhydrazine	0.760	0.881	-15.9	93	-0.06	9.13
73	S	2,4,6-Tribromophenol	0.089	0.126	-41.6#	115	-0.06	9.32
74	t	4-Bromophenyl-phenylether	0.202	0.233	-15.3	97	-0.07	9.63
75	t	Hexachlorobenzene	0.214	0.258	-20.6#	103	-0.07	9.83
		----------	True	Calc.	% Drift	----------		
76	t	Pentachlorophenol	50.000	38.725	22.5#	67	-0.08	10.23
		----------	AvgRF	CCRF	% Dev	----------		
77	t	Phenanthrene	1.190	1.122	5.7	81	-0.07	10.35
78	t	Anthracene	1.211	1.120	7.5	78	-0.07	10.43
79	t	Carbazole	1.043	0.912	12.6	75	-0.04	10.82
80	t	Di-n-butylphthalate	1.341	1.368	-2.0	83	-0.07	11.43
81	t	Fluoranthene	1.235	1.222	1.1	84	-0.05	12.19
82	t	Octadecane	0.396	0.457	-15.4	96	-0.07	10.27

Continuing Calibration Summary

Job Number: JA31597 **Sample:** E3M664-CC630
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M15063.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

83	I	Chrysene-d12	1.000	1.000	0.0	89	-0.06	14.12
84	t	Pyrene	1.251	1.108	11.4	82	-0.05	12.49
85		Butyl stearate	0.269	0.307	-14.1	109	0.00	13.55
86	S	Terphenyl-d14	0.875	0.861	1.6	93	-0.06	12.76
87	t	Butylbenzylphthalate	0.547	0.536	2.0	87	-0.06	13.49
88	t	Benzo[a]anthracene	1.087	1.089	-0.2	93	-0.06	14.10
89	t	3,3'-Dichlorobenzidine	0.378	0.355	6.1	85	-0.04	14.16
90	t	Chrysene	1.131	1.068	5.6	89	-0.06	14.16
91	t	bis(2-Ethylhexyl)phthalat	0.765	0.790	-3.3	90	-0.06	14.27
92	I	Perylene-d12	1.000	1.000	0.0	88	-0.05	15.81
		----------	True	Calc.	% Drift	----------		
93	t	Di-n-octylphthalate	25.000	24.214	3.1	93	-0.06	14.99
94	t	Benzo[b]fluoranthene	25.000	20.239	19.0	75	-0.06	15.40
		----------	AvgRF	CCRF	% Dev	----------		
95	t	Benzo[k]fluoranthene	1.202	1.592	-32.4#	112	-0.06	15.43
96	t	Benzo[a]pyrene	1.141	1.196	-4.8	95	-0.06	15.74
97	t	Indeno[1,2,3-cd]pyrene	1.194	1.381	-15.7	104	-0.07	16.87
98	t	Dibenz(a,h)acridine	0.912	1.044	-14.5	104	-0.05	16.65
99	t	Dibenz[a,h]anthracene	1.075	1.231	-14.5	107	-0.08	16.86
		----------	True	Calc.	% Drift	----------		
100	t	7,12-Dimethylbenz(a)anthr	25.000	20.288	18.8	74	-0.06	15.38
		----------	AvgRF	CCRF	% Dev	----------		
101	t	Benzo[g,h,i]perylene	1.022	1.129	-10.5	100	-0.05	17.15

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m14961.D M3M630.M Mon Nov 09 13:47:36 2009 MS3M

8.7.8

8

Continuing Calibration Summary

Job Number: JA31597 **Sample:** E3M664-CC631
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 3M15064.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e3m664\3m15064.D          Vial: 3
Acq On    :  6 Nov 2009   8:37 pm                   Operator: larisap
Sample    : cc631-50                                Inst    : MS3M
Misc      : op40736,E3M664                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3M630.M (RTE Integrator)
Title        : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
Last Update  : Wed Nov 04 15:50:07 2009
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 202%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
102	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	106	-0.05	3.62
103	Benzaldehyde	0.973	0.825	15.2	83	-0.04	3.21
104	Phenanthrene-d10a	1.000	1.000	0.0	112	-0.06	10.32
105	Atrazine	0.107	0.119	-11.2	103	-0.06	10.11
106	Acenaphthene-d10a	1.000	1.000	0.0	113	-0.07	7.99
107	1,2,4,5-Tetrachlorobenzen	0.538	0.576	-7.1	103	-0.06	6.71
108	Chrysene-d12a	1.000	1.000	0.0	121	-0.05	14.13
	----------	True	Calc.	% Drift	----------		
109	Benzidine	50.000	22.797	54.4#	53	-0.06	12.56
	----------	AvgRF	CCRF	% Dev	----------		
110 T	Methyl Parathion	0.156	0.149	4.5	93	-0.06	11.09
111	Parathion	0.138	0.139	-0.7	103	-0.07	11.69

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m14758.D M3M630.M Mon Nov 09 13:53:42 2009 MS3M

8.7.9

8

Initial Calibration Summary

Job Number: JA31597 **Sample:** E4M597-ICC597
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 4M12769.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Response Factor Report MS4M

```
Method       : C:\msdchem\1\METHODS\M4M597SIM.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5 15m x .25mm x .25um
Last Update  : Thu Oct 29 10:47:30 2009
Response via : Initial Calibration

Calibration Files
5   =4m12770.D   0.05=4m12775.D   .2  =4m12773.D   2.5 =4m12769.D
.02 =4m12776.D   .1  =4m12774.D   1   =4m12771.D   .01 =4m12777.D
.5  =4m12772.D       =

 Compound
           5     0.05  .2    2.5   .02   .1    1     .01   .5      Avg    %RSD
-------------------------------------------------------------------------------

1) I   1-Methylnaphthalene-d ----------------ISTD---------------------
2)  2-Fluorophenol
          0.505 0.769 0.684 0.601 0.739 0.812 0.656       0.680   0.681   14.31
3)  Phenol-d5
          0.699 0.787 0.675 0.718 0.821 0.791 0.752       0.681   0.740    7.47
4)  Phenol
                1.120 0.986       1.103 1.153 1.023 0.992 1.005   1.054    6.52
5)  bis(2-Chloroethyl)ether
          0.798 0.882 0.671 0.722 0.943 0.810 0.630 0.912 0.638   0.779   15.31
           ----- Linear regression -----  Coefficient =  0.9967
             Response Ratio = -0.01018 + 0.78885 *A

6)  Nitrobenzene-d5
          0.485 0.688 0.618 0.546 0.681 0.714 0.597       0.612   0.617   12.44
7)  Naphthalene
          2.040 2.369 2.054 2.053 2.498 2.360 2.028       1.945   2.168    9.52
8)  Hexachlorobutadiene
          0.358 0.440 0.371 0.363 0.448 0.434 0.359       0.348   0.390   10.88
9)  2-Methylnaphthalene
          1.791       1.772 1.739       2.184 1.745       1.655   1.814   10.30
10)  1-Methylnaphthalene
          1.581       1.517 1.572       1.832 1.519       1.478   1.583    8.06
11)  2-Fluorobiphenyl
          1.290 2.109 1.758 1.514 2.138 2.098 1.660       1.652   1.777   17.53

12) I   Fluorene-d10          ----------------ISTD---------------------
13)  Acenaphthylene
          2.076 2.159 1.893 1.945 2.278 2.163 1.961       1.886   2.045    7.10
14)  Acenaphthene
          1.285 1.414 1.192 1.271 1.485 1.418 1.268       1.209   1.318    8.14
15)  Fluorene
          1.511 1.610 1.438 1.479 1.854 1.603 1.428       1.425   1.544    9.42
16)  2,6-Dinitrotoluene
          0.609 0.362 0.358 0.568       0.386 0.465       0.401   0.450   22.67
        ----- Quadratic regression -----                Coefficient =  0.9994
             Response Ratio = -0.00812 + 0.51782 *A + 0.07940 *A^2

17)  2,4,6-Tribromophenol
          0.194 0.201 0.198 0.219 0.191 0.235 0.216 0.166 0.209   0.203    9.68
18)  Hexachlorobenzene
          0.384 0.468 0.388 0.374 0.529 0.465 0.369       0.371   0.418   14.51
19)  Pentachlorophenol
          0.244 0.145 0.147 0.222       0.160 0.175       0.162   0.179   21.56
           ----- Linear regression -----  Coefficient =  0.9966
```

8.7.10

8

Initial Calibration Summary

Job Number: JA31597 **Sample:** E4M597-ICC597
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 4M12769.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

```
              Response Ratio = -0.03766 + 0.24530 *A

20)  Phenanthrene
          1.573 1.762 1.536 1.540       1.767 1.515       1.469   1.594    7.55
21)  Anthracene
          1.521 1.518 1.224 1.455       1.386 1.372       1.313   1.398    7.77
22)  2,4-Dinitrotoluene
                0.268 0.293             0.295 0.519       0.376   0.350   29.42
        ----- Quadratic regression -----                Coefficient =  1.0000
              Response Ratio = 0.00058 + 0.22656 *A + 1.16172 *A^2


23) I   Fluoranthene-d10      ----------------ISTD---------------------
24)  Fluoranthene
          1.420 1.969 1.540 1.451       1.882 1.448       1.496   1.601   14.15
25)  Pyrene
          1.465 1.709 1.353 1.442       1.670 1.421       1.384   1.492    9.40
26)  Terphenyl-d14
          0.332 0.788 0.654 0.408       0.786 0.576       0.642   0.598   29.29
27)  Benzo[a]anthracene
          1.251 1.151 1.048 1.208       1.173 1.169       1.098   1.157    5.84
28)  Chrysene
          1.196       1.300 1.196       1.493 1.136       1.059   1.230   12.30
29)  bis(2-Ethylhexyl)phthalate
          0.852 1.386 0.740 0.828       0.996 0.740       0.725   0.895   26.37
        ----- Quadratic regression -----                Coefficient =  0.9996
              Response Ratio = 0.00014 + 0.77145 *A + 0.06538 *A^2


30) I   Benzo(a)pyrene-d12    ----------------ISTD---------------------
31)  Benzo[b]fluoranthene
          0.523       0.406 0.461       0.436 0.504       0.472   0.467    9.19
32)  Benzo[k]fluoranthene
          0.367 0.483 0.400 0.451       0.533 0.363       0.369   0.424   15.78
        ----- Quadratic regression -----                Coefficient =  0.9952
              Response Ratio = -0.00698 + 0.50073 *A + -0.10044 *A^2

33)  Benzo[a]pyrene
          1.797       2.057 1.876       2.777 1.910       1.948   2.061   17.52
        ----- Quadratic regression -----                Coefficient =  0.9999
              Response Ratio = 0.01145 + 1.90996 *A + -0.09709 *A^2

34)  Indeno[1,2,3-cd]pyrene
          2.899 2.754 2.179 2.962       2.659 2.588       2.387   2.632   10.55
35)  Dibenz[a,h]anthracene
          2.484 2.100 1.726 2.490       2.081 2.125       1.953   2.137   12.85
36)  Benzo[g,h,i]perylene
          2.608 3.242 2.413 2.726       3.131 2.511       2.536   2.738   11.77
-------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

         M4M597SIM.M        Thu Oct 29 15:39:02 2009   RPT1
```

8.7.10

8

Initial Calibration Verification

Job Number: JA31597 **Sample:** E4M597-ICV597
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 4M12780.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E4M597\4m12780.D          Vial: 13
Acq On    : 28 Oct 2009   5:59 pm                   Operator: ninap
Sample    : icv597-5                                Inst    : MS4M
Misc      : op40477,e4m597,2nd source bn            Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M4M597SIM.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5 15m x .25mm x .25um
Last Update  : Thu Oct 29 10:47:30 2009
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1-Methylnaphthalene-d10	1.000	1.000	0.0	100	0.00	6.08
4 t	Phenol	1.054	0.966	8.3	94	0.00	2.96
12 I	Fluorene-d10	1.000	1.000	0.0	97	0.00	8.38
	----------	True	Calc.	% Drift	----------		
19 t	Pentachlorophenol	5.000	4.400	12.0	102	0.00	9.71
	----------	AvgRF	CCRF	% Dev	----------		
23 I	Fluoranthene-d10	1.000	1.000	0.0	94	0.02	11.67
30 I	Benzo(a)pyrene-d12	1.000	1.000	0.0	82	0.00	14.73

(#) = Out of Range SPCC's out = 0 CCC's out = 0
4m12771.D M4M597SIM.M Thu Oct 29 15:40:46 2009 RPT1

8.7.11

8

Initial Calibration Verification

Job Number: JA31597 **Sample:** E4M597-ICV597
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 4M12781.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E4M597\4m12781.D          Vial: 14
Acq On    : 28 Oct 2009   7:39 pm                   Operator: ninap
Sample    : icv597-1                                Inst    : MS4M
Misc      : op40477,e4m597,2nd source bn            Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\msdchem\1\METHODS\M4M597SIM.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5 15m x .25mm x .25um
Last Update  : Thu Oct 29 10:47:30 2009
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1-Methylnaphthalene-d10	1.000	1.000	0.0	154	0.00	6.08
		----------	True	Calc.	% Drift	----------		
5	t	bis(2-Chloroethyl)ether	1.000	0.800	20.0	144	0.00	3.04
		----------	AvgRF	CCRF	% Dev	----------		
7	t	Naphthalene	2.168	2.174	-0.3	165	0.00	4.96
8	t	Hexachlorobutadiene	0.390	0.379	2.8	162	0.00	5.27
9	t	2-Methylnaphthalene	1.814	1.836	-1.2	162	0.00	5.98
12	I	Fluorene-d10	1.000	1.000	0.0	141	0.00	8.38
13	t	Acenaphthylene	2.045	1.881	8.0	135	0.00	7.33
14	t	Acenaphthene	1.318	1.389	-5.4	154	0.02	7.64
15	t	Fluorene	1.544	1.590	-3.0	157	0.01	8.42
18	t	Hexachlorobenzene	0.418	0.396	5.3	151	0.00	9.40
20	t	Phenanthrene	1.594	1.683	-5.6	157	0.00	9.88
21	t	Anthracene	1.398	1.487	-6.4	153	0.02	9.96
23	I	Fluoranthene-d10	1.000	1.000	0.0	133	0.02	11.67
24	t	Fluoranthene	1.601	1.639	-2.4	150	0.00	11.69
25	t	Pyrene	1.492	1.559	-4.5	146	0.00	11.97
27	t	Benzo[a]anthracene	1.157	1.337	-15.6	152	0.01	13.41
28	t	Chrysene	1.230	1.249	-1.5	146	0.01	13.45
		----------	True	Calc.	% Drift	----------		
29		bis(2-Ethylhexyl)phthalat	1.000	1.081	-8.1	153	0.01	13.67
		----------	AvgRF	CCRF	% Dev	----------		
30	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	122	0.00	14.73
31	t	Benzo[b]fluoranthene	0.467	0.540	-15.6	131	0.01	14.47
		----------	True	Calc.	% Drift	----------		
32	t	Benzo[k]fluoranthene	1.000	0.853	14.7	128	0.01	14.49
33	t	Benzo[a]pyrene	1.000	1.052	-5.2	129	0.01	14.74
		----------	AvgRF	CCRF	% Dev	----------		
34	t	Indeno[1,2,3-cd]pyrene	2.632	3.111	-18.2	147	0.01	15.64
35	t	Dibenz[a,h]anthracene	2.137	2.508	-17.4	144	0.02	15.67
36	t	Benzo[g,h,i]perylene	2.738	3.004	-9.7	146	0.02	15.85

Initial Calibration Verification

Job Number: JA31597 **Sample:** E4M597-ICV597
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 4M12781.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

```
--------------------------------------------------------------------------
--------------------------------------------------------------------------

   (#) = Out of Range                SPCC's out = 0  CCC's out = 0
    4m12771.D  M4M597SIM.M       Thu Oct 29 11:30:04 2009   RPT1
```

Continuing Calibration Summary

Job Number: JA31597 **Sample:** E4M606-CC597
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 4M13106.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E4M605\4m13106.D Vial: 2
Acq On : 6 Nov 2009 7:41 pm Operator: ninap
Sample : cc597-.5 Inst : MS4M
Misc : op40692a,e4m606,1000 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\msdchem\1\METHODS\M4M597SIM.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .25um
Last Update : Thu Nov 05 14:22:27 2009
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1-Methylnaphthalene-d10	1.000	1.000	0.0	75	-0.02	6.08
2	S	2-Fluorophenol	0.681	0.624	8.4	69	0.00	2.08
3	S	Phenol-d5	0.740	0.786	-6.2	86	-0.02	2.96
4	t	Phenol	1.054	0.845	19.8	63	0.00	2.98
		----------	True	Calc.	% Drift		----------	
5	t	bis(2-Chloroethyl)ether	0.500	0.505	-1.0	84	0.00	3.04
		----------	AvgRF	CCRF	% Dev		----------	
6	S	Nitrobenzene-d5	0.617	0.689	-11.7	84	-0.02	3.98
7	t	Naphthalene	2.168	2.022	6.7	78	-0.02	4.94
8	t	Hexachlorobutadiene	0.390	0.364	6.7	78	0.00	5.27
9	t	2-Methylnaphthalene	1.814	1.828	-0.8	83	-0.02	5.98
10	t	1-Methylnaphthalene	1.583	1.582	0.1	80	-0.02	6.13
11	S	2-Fluorobiphenyl	1.777	1.661	6.5	75	-0.02	6.61
12	I	Fluorene-d10	1.000	1.000	0.0	76	-0.03	8.36
13	t	Acenaphthylene	2.045	2.063	-0.9	83	-0.02	7.33
14	t	Acenaphthene	1.318	1.463	-11.0	92	-0.02	7.62
15	t	Fluorene	1.544	1.512	2.1	80	-0.03	8.40
		----------	True	Calc.	% Drift		----------	
16	t	2,6-Dinitrotoluene	0.500	0.583	-16.6	104	0.00	7.43
		----------	AvgRF	CCRF	% Dev		----------	
17	S	2,4,6-Tribromophenol	0.203	0.218	-7.4	79	-0.01	8.83
18	t	Hexachlorobenzene	0.418	0.351	16.0	72	-0.02	9.40
		----------	True	Calc.	% Drift		----------	
19	t	Pentachlorophenol	2.500	3.011	-20.4#	110	-0.02	9.71
		----------	AvgRF	CCRF	% Dev		----------	
20	t	Phenanthrene	1.594	1.487	6.7	77	-0.03	9.86
21	t	Anthracene	1.398	1.475	-5.5	85	-0.02	9.94
		----------	True	Calc.	% Drift		----------	
22	t	2,4-Dinitrotoluene	0.500	0.654	-30.8#	111	-0.02	8.01
		----------	AvgRF	CCRF	% Dev		----------	
23	I	Fluoranthene-d10	1.000	1.000	0.0	79	-0.03	11.66
24	t	Fluoranthene	1.601	1.388	13.3	74	-0.02	11.69

Continuing Calibration Summary

Job Number: JA31597 **Sample:** E4M606-CC597
Account: ENVNJSP EnviroTrac, Ltd. **Lab FileID:** 4M13106.D
Project: Hess-Port Reading Refinery, 750 Cliff Road, Port Reading, NJ

25	t	Pyrene	1.492	1.396	6.4	80	-0.02	11.97
26	S	Terphenyl-d14	0.598	0.556	7.0	69	-0.03	12.28
27	t	Benzo[a]anthracene	1.157	1.183	-2.2	86	-0.03	13.39
28	t	Chrysene	1.230	1.238	-0.7	93	-0.03	13.43
		----------	True	Calc.	% Drift	----------		
29		bis(2-Ethylhexyl)phthalat	0.500	0.622	-24.4#	107	-0.01	13.64
		----------	AvgRF	CCRF	% Dev	----------		
30	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	84	-0.01	14.73
31	t	Benzo[b]fluoranthene	0.467	0.471	-0.9	84	-0.03	14.45
		----------	True	Calc.	% Drift	----------		
32	t	Benzo[k]fluoranthene	0.500	0.490	2.0	96	0.00	14.48
33	t	Benzo[a]pyrene	0.500	0.466	6.8	80	-0.01	14.74
		----------	AvgRF	CCRF	% Dev	----------		
34	t	Indeno[1,2,3-cd]pyrene	2.632	2.759	-4.8	97	-0.02	15.63
35	t	Dibenz[a,h]anthracene	2.137	2.139	-0.1	92	-0.02	15.65
36	t	Benzo[g,h,i]perylene	2.738	2.517	8.1	83	-0.03	15.83

(#) = Out of Range SPCC's out = 0 CCC's out = 0
4m12772.D M4M597SIM.M Mon Nov 09 14:12:28 2009 RPT1

8.7.13

8

New Jersey ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m664\
Data File : 3m15081.D
Acq On : 7 Nov 2009 4:23 am
Operator : larisap
Sample : ja31597-1
Misc : op40707,E3M664,1000
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Nov 09 16:20:04 2009
Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
Quant Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
QLast Update : Wed Nov 04 15:50:07 2009
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	3.651	152	287456	40.00 ppb	-0.02
24) Naphthalene-d8	5.330	136	1075179	40.00 ppb	-0.04
47) Acenaphthene-d10	7.999	164	665286	40.00 ppb	-0.06
69) Phenanthrene-d10	10.326	188	1134145	40.00 ppb	-0.06
83) Chrysene-d12	14.134	240	1382441	40.00 ppb	-0.05
92) Perylene-d12	15.808	264	1322279	40.00 ppb	-0.05
102) 1,4-Dichlorobenzene-d4a	3.651	152	287456	40.00 ppb	-0.02
104) Phenanthrene-d10a	10.326	188	1134145	40.00 ppb	-0.06
106) Acenaphthene-d10a	7.999	164	665286	40.00 ppb	-0.06
108) Chrysene-d12a	14.134	240	1382441	40.00 ppb	-0.05
112) Chrysene-d12b	14.134	240	1382441	40.00 ppb	-0.05
System Monitoring Compounds					
5) 2-Fluorophenol	0.000	112	0	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
8) Phenol-d5	0.000	99	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
25) Nitrobenzene-d5	4.453	82	460105	45.24 ppb	0.00
Spiked Amount 50.000			Recovery	= 90.48%	
51) 2-Fluorobiphenyl	7.005	172	1039744	43.96 ppb	-0.06
Spiked Amount 50.000			Recovery	= 87.92%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
86) Terphenyl-d14	12.765	244	667437	22.08 ppb	-0.06
Spiked Amount 50.000			Recovery	= 44.16%	

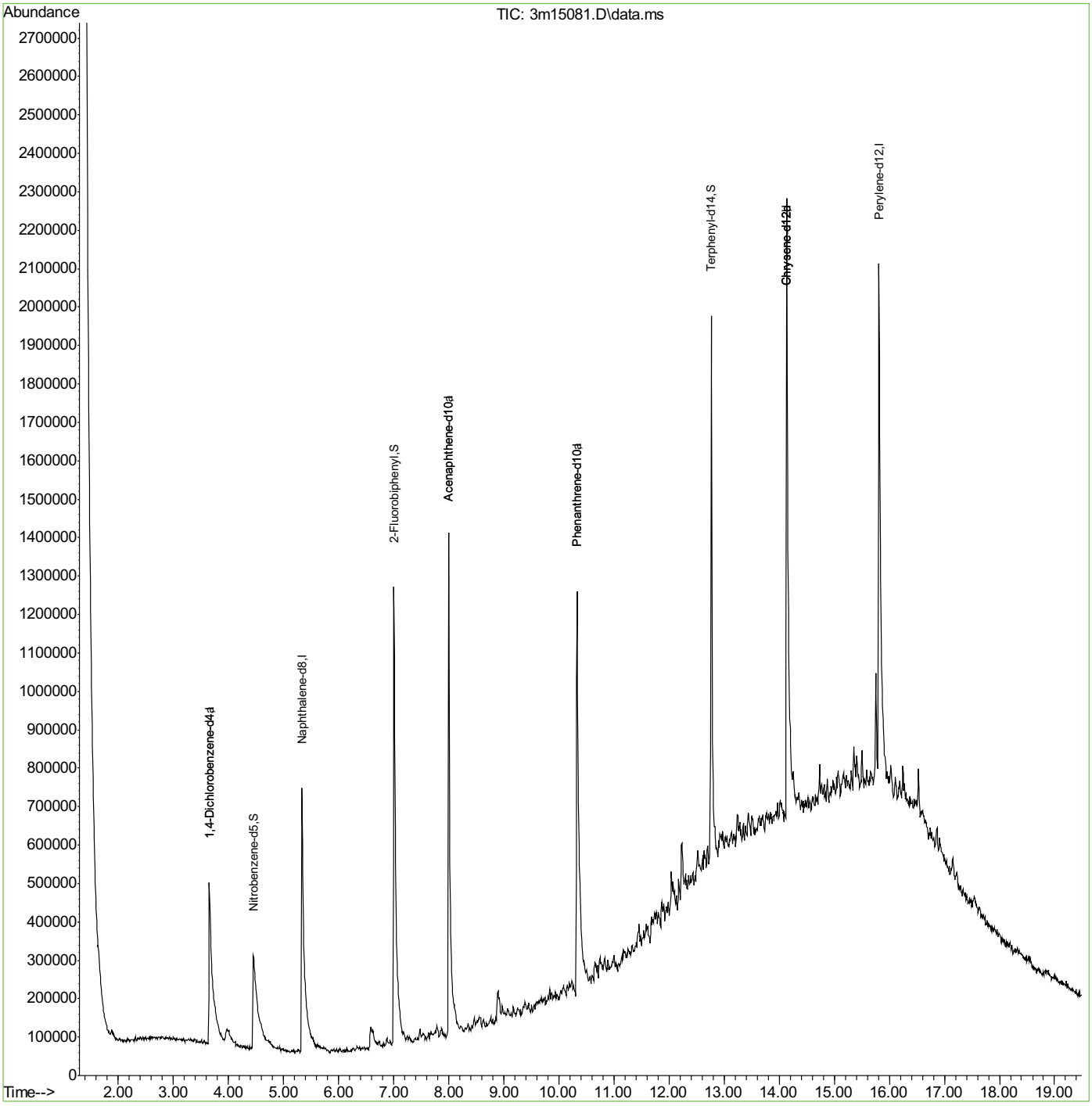
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m664\
Data File : 3m15081.D
Acq On : 7 Nov 2009 4:23 am
Operator : larisap
Sample : ja31597-1
Misc : op40707,E3M664,1000
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Nov 09 16:20:04 2009
Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
Quant Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
QLast Update : Wed Nov 04 15:50:07 2009
Response via : Initial Calibration



M3M630.M Mon Nov 09 16:20:08 2009 MS3M

LSC Area Percent Report

Data Path : C:\msdchem\1\DATA\e3m664\
Data File : 3m15081.D
Acq On : 7 Nov 2009 4:23 am
Operator : larisap
Sample : ja31597-1
Misc : op40707,E3M664,1000
ALS Vial : 20 Sample Multiplier: 1

Integration Parameters: lscint.p
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 1000 Area counts
Start Thrs: 0.02 Max Peaks: 100
Stop Thrs : 0.3 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method : C:\MSDCHEM\1\METHODS\M3M630.M
Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u

Signal : TIC: 3m15081.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.651	438	442	492	rBB2	418309	1812484	54.14%	6.487%
2	3.967	494	501	503	rBB7	7262	18656	0.56%	0.067%
3	4.453	587	592	631	rBB	238511	1210762	36.17%	4.333%
4	5.330	751	756	802	rBB	687674	2290393	68.42%	8.197%
5	6.336	936	944	949	rBB	10092	17785	0.53%	0.064%
6	6.582	986	990	993	rBB4	27771	53369	1.59%	0.191%
7	6.823	1029	1035	1038	rBB8	10523	17582	0.53%	0.063%
8	6.876	1038	1045	1051	rBB10	17439	39687	1.19%	0.142%
9	7.005	1061	1069	1100	rBB	1186728	2976660	88.92%	10.653%
10	7.245	1107	1114	1119	rBB	10113	17091	0.51%	0.061%
11	7.390	1133	1141	1144	rBB10	7453	17381	0.52%	0.062%
12	7.475	1152	1157	1161	rBB7	24843	38947	1.16%	0.139%
13	7.630	1180	1186	1189	rBB7	16446	21546	0.64%	0.077%
14	7.679	1189	1195	1198	rBB8	7581	17088	0.51%	0.061%
15	7.785	1211	1215	1222	rBB10	22477	40289	1.20%	0.144%
16	7.871	1222	1231	1235	rBB10	19893	41992	1.25%	0.150%
17	7.994	1246	1254	1283	rBB	1306174	2846433	85.03%	10.187%
18	8.219	1293	1296	1304	rBB10	9301	18365	0.55%	0.066%
19	8.352	1317	1321	1325	rBB7	15508	17319	0.52%	0.062%
20	8.465	1329	1342	1346	rBB7	21308	46106	1.38%	0.165%
21	8.577	1352	1363	1366	rBB7	23567	61282	1.83%	0.219%
22	8.625	1367	1372	1381	rBB7	18893	42949	1.28%	0.154%
23	8.759	1387	1397	1400	rBB7	18189	32566	0.97%	0.117%
24	8.898	1416	1423	1425	rBB5	35102	69069	2.06%	0.247%
25	8.968	1434	1436	1441	rBB6	21692	23998	0.72%	0.086%
26	9.064	1451	1454	1462	rBB10	16918	25004	0.75%	0.089%
27	9.171	1469	1474	1482	rBB10	25792	51643	1.54%	0.185%
28	9.246	1483	1488	1497	rBB10	20279	49244	1.47%	0.176%
29	9.390	1502	1515	1519	rBB10	22868	69719	2.08%	0.250%
30	9.449	1520	1526	1531	rBB10	20050	28460	0.85%	0.102%
31	9.502	1534	1536	1540	rBB5	19101	23180	0.69%	0.083%
32	9.545	1540	1544	1547	rBB6	15693	21814	0.65%	0.078%
33	9.615	1547	1557	1558	rBB10	7605	25626	0.77%	0.092%
34	9.684	1563	1570	1574	rBB10	12662	21019	0.63%	0.075%

LSC Area Percent Report

```
Data Path : C:\msdchem\1\DATA\e3m664\
Data File : 3m15081.D
Acq On    :  7 Nov 2009   4:23 am
Operator  : larisap
Sample    : ja31597-1
Misc      : op40707,E3M664,1000
ALS Vial  : 20   Sample Multiplier: 1

Integration Parameters: lscint.p
Integrator: RTE
Smoothing : ON                          Filtering: 5
Sampling  : 1                            Min Area: 1000 Area counts
Start Thrs: 0.02                        Max Peaks: 100
Stop Thrs : 0.3                     Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method    : C:\MSDCHEM\1\METHODS\M3M630.M
Title     : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
```

35	9.839	1594	1599	1601	rBB6	25515	33795	1.01%	0.121%
36	9.866	1601	1604	1607	rBB5	15373	17070	0.51%	0.061%
37	10.032	1630	1635	1638	rBB7	16170	25931	0.77%	0.093%
38	10.085	1640	1645	1653	rBB7	24944	55007	1.64%	0.197%
39	10.155	1653	1658	1661	rBB7	18003	33231	0.99%	0.119%
40	10.235	1669	1673	1677	rBB7	17393	23317	0.70%	0.083%
41	10.326	1686	1690	1713	rBB2	1041392	2657669	79.39%	9.511%
42	10.604	1738	1742	1746	rBB7	17215	25877	0.77%	0.093%
43	10.658	1746	1752	1756	rBB8	32597	68804	2.06%	0.246%
44	10.743	1762	1768	1775	rBB10	41771	93723	2.80%	0.335%
45	10.834	1779	1785	1790	rBB10	34952	60854	1.82%	0.218%
46	10.888	1790	1795	1799	rBB7	27633	38270	1.14%	0.137%
47	11.000	1813	1816	1819	rBB5	22237	19551	0.58%	0.070%
48	11.086	1829	1832	1835	rBB5	14249	18475	0.55%	0.066%
49	11.144	1839	1843	1845	rBB5	20725	25880	0.77%	0.093%
50	11.177	1845	1849	1851	rBB4	15310	18276	0.55%	0.065%
51	11.257	1861	1864	1869	rBB6	21750	28620	0.85%	0.102%
52	11.332	1874	1878	1882	rBB6	21628	32593	0.97%	0.117%
53	11.449	1893	1900	1909	rBB6	60960	154649	4.62%	0.553%
54	11.540	1909	1917	1920	rBB9	25680	52507	1.57%	0.188%
55	11.583	1922	1925	1927	rBB4	19796	20664	0.62%	0.074%
56	11.685	1939	1944	1950	rBB9	45079	82492	2.46%	0.295%
57	11.738	1950	1954	1957	rBB6	21176	27367	0.82%	0.098%
58	11.808	1964	1967	1974	rBB9	33300	53053	1.58%	0.190%
59	11.867	1974	1978	1980	rBB4	39355	51869	1.55%	0.186%
60	11.952	1989	1994	1996	rBB6	23212	35817	1.07%	0.128%
61	11.984	1997	2000	2004	rBB6	28339	23896	0.71%	0.086%
62	12.043	2004	2011	2015	rBB7	76121	104085	3.11%	0.373%
63	12.134	2026	2028	2031	rBB4	29510	20089	0.60%	0.072%
64	12.177	2031	2036	2041	rBB7	68834	96005	2.87%	0.344%
65	12.230	2042	2046	2054	rBB2	134748	262607	7.84%	0.940%
66	12.294	2055	2058	2060	rBB4	28332	22563	0.67%	0.081%
67	12.359	2066	2070	2072	rBB5	27170	32489	0.97%	0.116%
68	12.524	2094	2101	2105	rBB7	55773	99863	2.98%	0.357%
69	12.637	2120	2122	2129	rBB8	48552	84291	2.52%	0.302%
70	12.701	2130	2134	2138	rBB6	49098	72790	2.17%	0.261%
71	12.765	2138	2146	2168	rBB	1419727	2403424	71.80%	8.601%

LSC Area Percent Report

```
Data Path : C:\msdchem\1\DATA\e3m664\
Data File : 3m15081.D
Acq On    :  7 Nov 2009   4:23 am
Operator  : larisap
Sample    : ja31597-1
Misc      : op40707,E3M664,1000
ALS Vial  : 20   Sample Multiplier: 1

Integration Parameters: lscint.p
Integrator: RTE
Smoothing : ON                          Filtering: 5
Sampling  : 1                            Min Area: 1000 Area counts
Start Thrs: 0.02                        Max Peaks: 100
Stop Thrs : 0.3                     Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method    : C:\MSDCHEM\1\METHODS\M3M630.M
Title     : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
```

72	12.899	2169	2171	2173	rBB3	28554	27092	0.81%	0.097%
73	12.926	2173	2176	2180	rBB6	25490	38794	1.16%	0.139%
74	13.236	2230	2234	2240	rBB9	64790	105796	3.16%	0.379%
75	13.353	2252	2256	2258	rBB5	42598	38767	1.16%	0.139%
76	13.386	2260	2262	2267	rBB6	29205	28764	0.86%	0.103%
77	13.444	2268	2273	2280	rBB10	60423	131903	3.94%	0.472%
78	13.498	2280	2283	2284	rBB3	31564	20933	0.63%	0.075%
79	13.637	2304	2309	2313	rBB7	28561	45813	1.37%	0.164%
80	13.771	2330	2334	2337	rBB6	28814	46200	1.38%	0.165%
81	13.969	2368	2371	2376	rBB6	36964	43394	1.30%	0.155%
82	14.017	2376	2380	2392	rBB6	49597	156761	4.68%	0.561%
83	14.134	2398	2402	2420	rBB	1596255	3347602	100.00%	11.981%
84	14.605	2486	2490	2497	rBB9	27559	51338	1.53%	0.184%
85	14.739	2511	2515	2517	rBB5	79435	91021	2.72%	0.326%
86	14.872	2536	2540	2546	rBB9	59206	101844	3.04%	0.364%
87	15.065	2574	2576	2585	rBB9	48473	98245	2.93%	0.352%
88	15.311	2619	2622	2625	rBB5	43012	44165	1.32%	0.158%
89	15.354	2627	2630	2637	rBB9	104250	161764	4.83%	0.579%
90	15.407	2637	2640	2650	rBB9	61284	104793	3.13%	0.375%
91	15.504	2655	2658	2664	rBB8	89137	118204	3.53%	0.423%
92	15.584	2671	2673	2678	rBB6	36116	39863	1.19%	0.143%
93	15.755	2700	2705	2711	rBB	261674	320722	9.58%	1.148%
94	15.808	2711	2715	2740	rBB	1316784	3251857	97.14%	11.638%
95	16.028	2754	2756	2763	rBB8	46931	66104	1.97%	0.237%
96	16.108	2767	2771	2778	rBB10	48893	84557	2.53%	0.303%
97	16.247	2793	2797	2800	rBB5	68193	65016	1.94%	0.233%
98	16.531	2846	2850	2856	rBB4	105945	132094	3.95%	0.473%
99	16.867	2909	2913	2917	rBB7	48487	58971	1.76%	0.211%
100	17.151	2964	2966	2974	rBB9	28567	36676	1.10%	0.131%

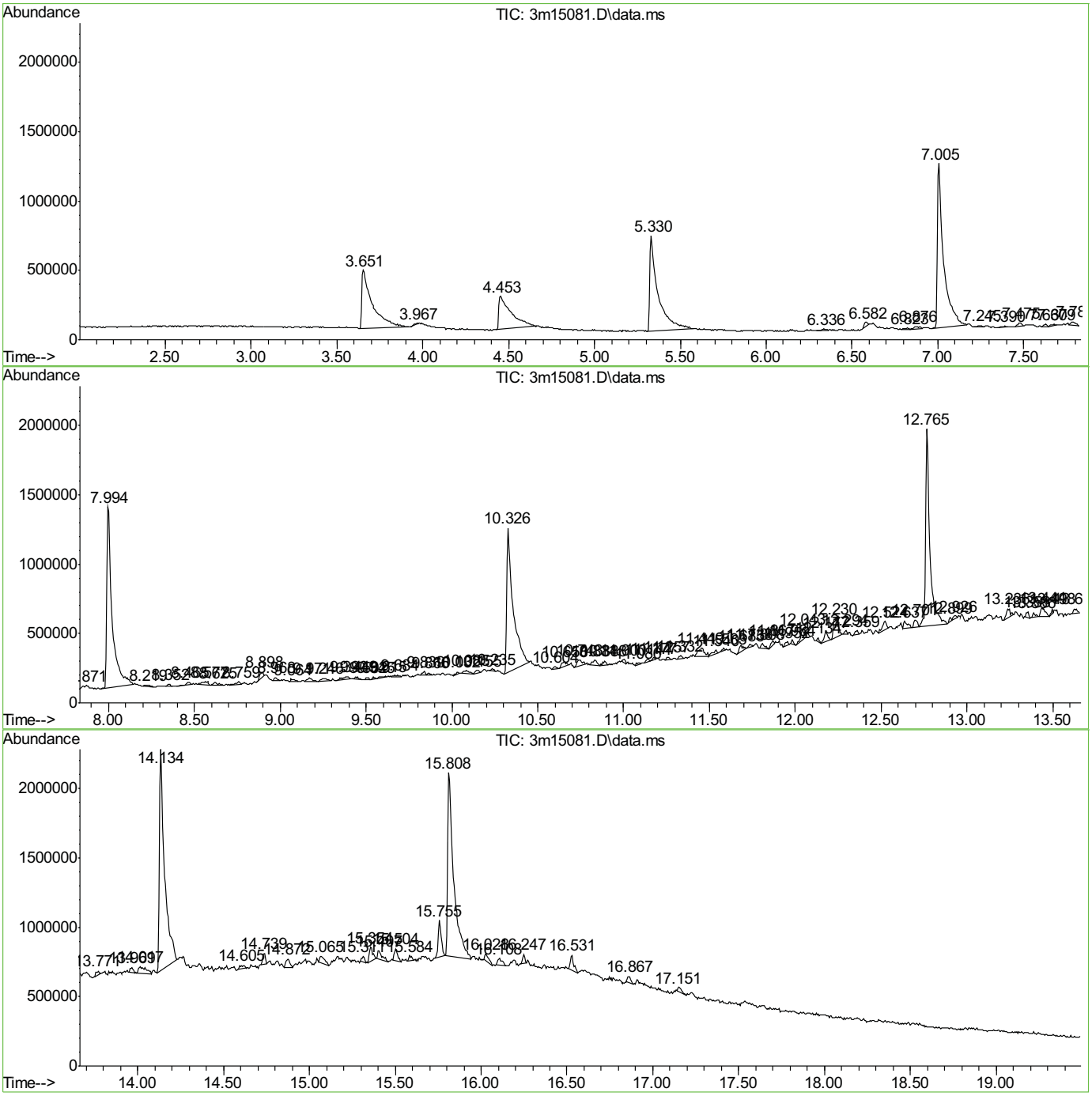
Sum of corrected areas: 27942024

LSC Report - Integrated Chromatogram

```
Data Path : C:\msdchem\1\DATA\e3m664\
Data File : 3m15081.D
Acq On    :  7 Nov 2009   4:23 am
Operator  : larisap
Sample    : ja31597-1
Misc      : op40707,E3M664,1000
ALS Vial  : 20   Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
Quant Title  : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u

TIC Library    : C:\DATABASE\NIST98.L
TIC Integration Parameters: lscint.p
```



9.1.2

9

Library Search Compound Report

```
Data Path : C:\msdchem\1\DATA\e3m664\
Data File : 3m15081.D
Acq On    :  7 Nov 2009   4:23 am
Operator  : larisap
Sample    : ja31597-1
Misc      : op40707,E3M664,1000
ALS Vial  : 20   Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
Quant Title  : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u

TIC Library    : C:\DATABASE\NIST98.L
TIC Integration Parameters: lscint.p

No Library Search Compounds Detected
```

****

Tentatively Identified Compound (LSC) summary

```
  Data Path : C:\msdchem\1\DATA\e3m664\
  Data File : 3m15081.D
  Acq On    :  7 Nov 2009   4:23 am
  Operator  : larisap
  Sample    : ja31597-1
  Misc      : op40707,E3M664,1000
  ALS Vial  : 20   Sample Multiplier: 1

  Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
  Quant Title  : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u

  TIC Library   : C:\DATABASE\NIST98.L
  TIC Integration Parameters: lscint.p

                                                   |--Internal Standard---|
  TIC Top Hit name      RT  EstConc Units Response |#    RT     Resp  Conc|
-------------------------------------------------------------------------------
```

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m662\
Data File : 3m15031.D
Acq On : 5 Nov 2009 7:38 pm
Operator : larisap
Sample : ja31597-2
Misc : op40707,E3M662,1000
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 06 14:44:36 2009
Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
Quant Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
QLast Update : Wed Nov 04 15:50:07 2009
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	3.667	152	313809	40.00 ppb	0.00
24) Naphthalene-d8	5.352	136	1147477	40.00 ppb	-0.02
47) Acenaphthene-d10	8.032	164	684681	40.00 ppb	-0.03
69) Phenanthrene-d10	10.364	188	1127975	40.00 ppb	-0.02
83) Chrysene-d12	14.166	240	1276906	40.00 ppb	-0.02
92) Perylene-d12	15.846	264	1198761	40.00 ppb	-0.02
102) 1,4-Dichlorobenzene-d4a	3.667	152	313809	40.00 ppb	0.00
104) Phenanthrene-d10a	10.364	188	1127975	40.00 ppb	-0.02
106) Acenaphthene-d10a	8.032	164	684681	40.00 ppb	-0.03
108) Chrysene-d12a	14.166	240	1276906	40.00 ppb	-0.02
112) Chrysene-d12b	14.166	240	1276906	40.00 ppb	-0.02
System Monitoring Compounds					
5) 2-Fluorophenol	0.000	112	0	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
8) Phenol-d5	0.000	99	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
25) Nitrobenzene-d5	4.448	82	566468	52.19 ppb	0.00
Spiked Amount 50.000			Recovery	= 104.38%	
51) 2-Fluorobiphenyl	7.031	172	1317289	54.11 ppb	-0.03
Spiked Amount 50.000			Recovery	= 108.22%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
86) Terphenyl-d14	12.797	244	1041705	37.31 ppb	-0.03
Spiked Amount 50.000			Recovery	= 74.62%	

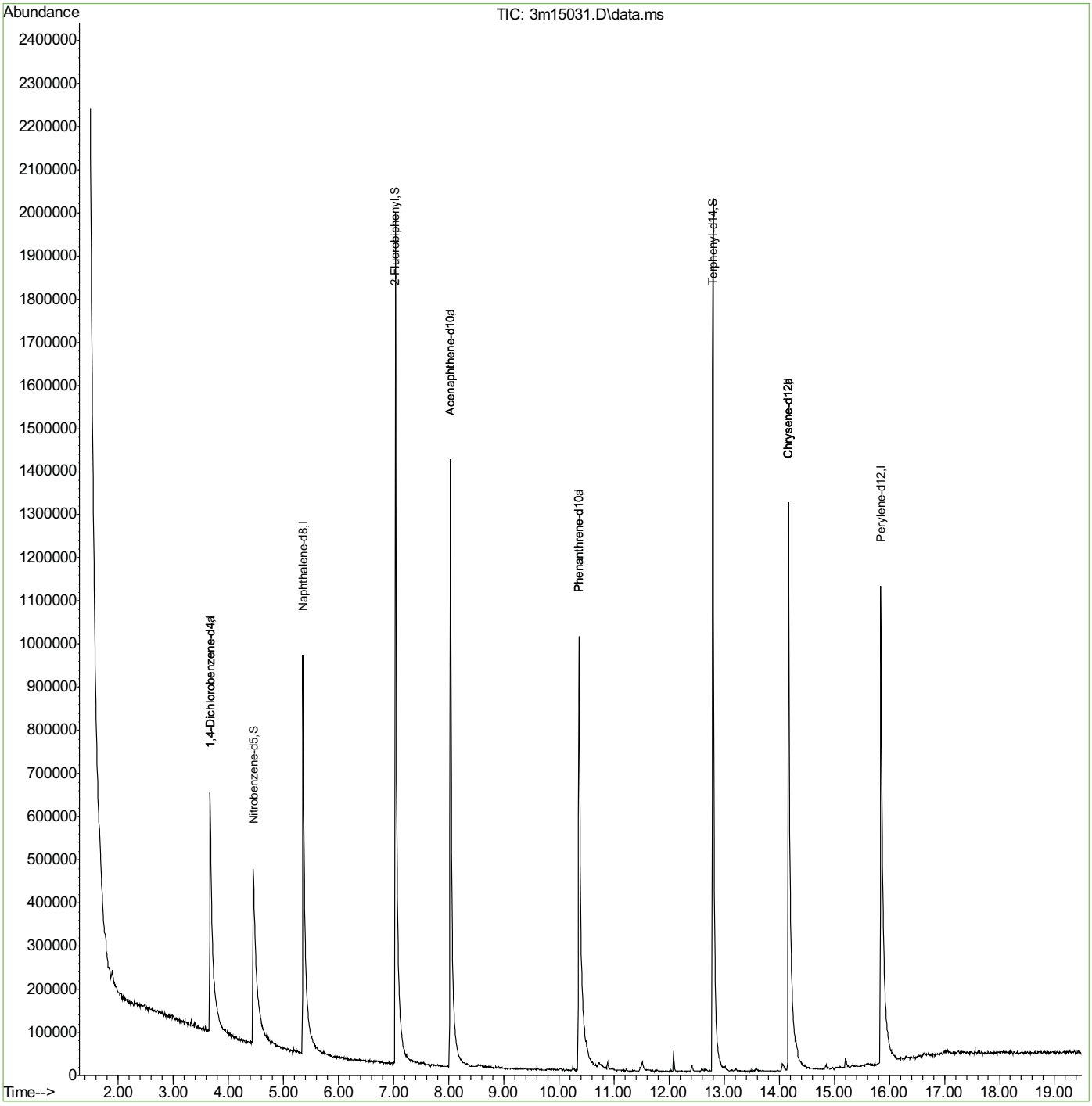
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m662\
Data File : 3m15031.D
Acq On : 5 Nov 2009 7:38 pm
Operator : larisap
Sample : ja31597-2
Misc : op40707,E3M662,1000
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 06 14:44:36 2009
Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
Quant Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
QLast Update : Wed Nov 04 15:50:07 2009
Response via : Initial Calibration



M3M630.M Fri Nov 06 14:44:42 2009 MS3M

LSC Area Percent Report

Data Path : C:\msdchem\1\DATA\e3m662\
Data File : 3m15031.D
Acq On : 5 Nov 2009 7:38 pm
Operator : larisap
Sample : ja31597-2
Misc : op40707,E3M662,1000
ALS Vial : 9 Sample Multiplier: 1

Integration Parameters: lscint.p
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 1000 Area counts
Start Thrs: 0.02 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method : C:\MSDCHEM\1\METHODS\M3M630.M
Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u

Signal : TIC: 3m15031.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.319	377	380	386	rBB5	14422	15691	0.40%	0.059%
2	3.394	392	394	399	rBB4	10336	9205	0.24%	0.035%
3	3.608	433	434	438	rBB3	6293	5060	0.13%	0.019%
4	3.667	441	445	489	rBB	553552	1858754	47.57%	7.004%
5	4.448	588	591	641	rBB	403741	1695521	43.40%	6.389%
6	4.774	650	652	654	rBB3	5783	4873	0.12%	0.018%
7	4.844	664	665	670	rBB4	4395	5283	0.14%	0.020%
8	5.020	695	698	704	rBB4	4618	6469	0.17%	0.024%
9	5.058	704	705	710	rBB5	4160	4479	0.11%	0.017%
10	5.181	726	728	733	rBB5	6599	6353	0.16%	0.024%
11	5.224	733	736	738	rBB4	4192	3400	0.09%	0.013%
12	5.250	739	741	745	rBB5	3996	3501	0.09%	0.013%
13	5.293	745	749	751	rBB4	3194	3130	0.08%	0.012%
14	5.352	755	760	802	rBB	922569	2413610	61.78%	9.095%
15	6.384	949	953	957	rBB7	4062	4667	0.12%	0.018%
16	6.646	1000	1002	1006	rBB4	3833	3708	0.09%	0.014%
17	6.785	1025	1028	1033	rBB6	2684	3806	0.10%	0.014%
18	6.919	1046	1053	1059	rBB9	5035	6752	0.17%	0.025%
19	6.978	1059	1064	1066	rBB6	3511	4236	0.11%	0.016%
20	7.031	1068	1074	1110	rBB	1969248	3907047	100.00%	14.722%
21	7.679	1191	1195	1197	rBB5	3820	3815	0.10%	0.014%
22	7.732	1202	1205	1211	rBB7	3673	6187	0.16%	0.023%
23	8.032	1254	1261	1305	rBB	1406295	2921349	74.77%	11.008%
24	8.764	1394	1398	1403	rBB8	3003	3555	0.09%	0.013%
25	8.850	1410	1414	1418	rBB6	4010	3467	0.09%	0.013%
26	9.604	1550	1555	1559	rBB7	4394	5130	0.13%	0.019%
27	9.690	1569	1571	1581	rBB10	2410	3169	0.08%	0.012%
28	9.781	1581	1588	1592	rBB9	2686	4501	0.12%	0.017%
29	9.941	1611	1618	1620	rBB8	1867	3527	0.09%	0.013%
30	10.139	1647	1655	1660	rBB10	3002	5941	0.15%	0.022%
31	10.257	1670	1677	1682	rBB7	6418	10497	0.27%	0.040%
32	10.364	1689	1697	1752	rBB2	1004986	2977159	76.20%	11.218%
33	10.722	1759	1764	1781	rBB2	9194	29202	0.75%	0.110%
34	10.882	1790	1794	1804	rBB	13533	21887	0.56%	0.082%

LSC Area Percent Report

```
Data Path : C:\msdchem\1\DATA\e3m662\
Data File : 3m15031.D
Acq On    :  5 Nov 2009   7:38 pm
Operator  : larisap
Sample    : ja31597-2
Misc      : op40707,E3M662,1000
ALS Vial  : 9   Sample Multiplier: 1

Integration Parameters: lscint.p
Integrator: RTE
Smoothing : ON                          Filtering: 5
Sampling  : 1                            Min Area: 1000 Area counts
Start Thrs: 0.02                        Max Peaks: 100
Stop Thrs : 0                       Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method    : C:\MSDCHEM\1\METHODS\M3M630.M
Title     : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
```

35	11.225	1855	1858	1870	rBB	3979	7117	0.18%	0.027%
36	11.514	1898	1912	1922	rBB4	20309	61229	1.57%	0.231%
37	11.770	1958	1960	1968	rBB8	3226	5592	0.14%	0.021%
38	12.043	2004	2011	2013	rBB8	2925	4230	0.11%	0.016%
39	12.080	2013	2018	2027	rBB5	48627	64121	1.64%	0.242%
40	12.417	2074	2081	2090	rBB5	14279	25921	0.66%	0.098%
41	12.605	2108	2116	2119	rBB10	3918	9208	0.24%	0.035%
42	12.647	2121	2124	2127	rBB6	4326	4994	0.13%	0.019%
43	12.674	2127	2129	2137	rBB8	3350	4080	0.10%	0.015%
44	12.744	2137	2142	2145	rBB6	3165	3597	0.09%	0.014%
45	12.797	2145	2152	2184	rBB	2021588	3382316	86.57%	12.745%
46	13.017	2190	2193	2205	rBB	5245	7711	0.20%	0.029%
47	13.220	2226	2231	2235	rBB8	3900	4806	0.12%	0.018%
48	13.487	2278	2281	2283	rBB4	3210	3109	0.08%	0.012%
49	13.514	2283	2286	2290	rBB6	4421	4748	0.12%	0.018%
50	13.589	2295	2300	2305	rBB9	5543	7395	0.19%	0.028%
51	13.878	2347	2354	2358	rBB9	2063	5381	0.14%	0.020%
52	13.974	2369	2372	2377	rBB7	3019	3564	0.09%	0.013%
53	14.059	2381	2388	2401	rBB7	15572	41252	1.06%	0.155%
54	14.166	2401	2408	2464	rBB	1314951	3442126	88.10%	12.970%
55	14.851	2529	2536	2541	rBB	9435	14851	0.38%	0.056%
56	14.894	2541	2544	2550	rBB7	2752	4353	0.11%	0.016%
57	14.974	2554	2559	2561	rBB6	2507	3347	0.09%	0.013%
58	15.054	2565	2574	2576	rBB10	1763	5090	0.13%	0.019%
59	15.108	2581	2584	2590	rBB8	3881	3295	0.08%	0.012%
60	15.204	2598	2602	2616	rBB7	20969	38217	0.98%	0.144%
61	15.332	2618	2626	2627	rBB8	3075	5872	0.15%	0.022%
62	15.541	2655	2665	2666	rBB10	3059	5368	0.14%	0.020%
63	15.600	2668	2676	2679	rBB10	2612	7690	0.20%	0.029%
64	15.723	2698	2699	2704	rBB5	3167	3906	0.10%	0.015%
65	15.792	2704	2712	2714	rBB9	2422	5569	0.14%	0.021%
66	15.846	2714	2722	2763	rBB	1105264	3200765	81.92%	12.061%
67	16.210	2788	2790	2796	rBB7	6254	9104	0.23%	0.034%
68	16.306	2806	2808	2811	rBB4	5173	5029	0.13%	0.019%
69	16.391	2822	2824	2830	rBB7	5592	6654	0.17%	0.025%
70	16.541	2846	2852	2855	rBB8	2689	5475	0.14%	0.021%
71	16.563	2855	2856	2861	rBB5	2670	4015	0.10%	0.015%

LSC Area Percent Report

Data Path : C:\msdchem\1\DATA\e3m662\
Data File : 3m15031.D
Acq On : 5 Nov 2009 7:38 pm
Operator : larisap
Sample : ja31597-2
Misc : op40707,E3M662,1000
ALS Vial : 9 Sample Multiplier: 1

Integration Parameters: lscint.p
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 1000 Area counts
Start Thrs: 0.02 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method : C:\MSDCHEM\1\METHODS\M3M630.M
Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u

72	16.616	2865	2866	2868	rBB2	4264	3421	0.09%	0.013%
73	16.766	2893	2894	2898	rBB4	4912	3717	0.10%	0.014%
74	16.798	2898	2900	2905	rBB6	5675	7395	0.19%	0.028%
75	16.942	2921	2927	2929	rBB7	4995	8510	0.22%	0.032%
76	17.156	2964	2967	2969	rBB4	3019	3211	0.08%	0.012%
77	17.210	2975	2977	2980	rBB4	4753	3791	0.10%	0.014%
78	17.263	2980	2987	2989	rBB8	6228	12138	0.31%	0.046%
79	17.402	3012	3013	3018	rBB5	3608	3387	0.09%	0.013%
80	17.483	3025	3028	3034	rBB8	3129	4450	0.11%	0.017%
81	17.557	3040	3042	3047	rBB6	8321	8392	0.21%	0.032%
82	17.697	3066	3068	3073	rBB6	4291	6312	0.16%	0.024%
83	17.964	3116	3118	3121	rBB4	4335	3197	0.08%	0.012%
84	18.060	3130	3136	3137	rBB5	1996	4678	0.12%	0.018%
85	18.183	3156	3159	3161	rBB4	5080	4344	0.11%	0.016%
86	18.205	3161	3163	3167	rBB5	4171	4334	0.11%	0.016%
87	18.264	3171	3174	3179	rBB7	5717	7344	0.19%	0.028%
88	18.403	3195	3200	3201	rBB5	3941	4171	0.11%	0.016%
89	18.510	3217	3220	3224	rBB6	3190	3732	0.10%	0.014%
90	18.563	3228	3230	3233	rBB3	4521	4163	0.11%	0.016%
91	18.718	3254	3259	3263	rBB8	3293	6293	0.16%	0.024%
92	18.879	3285	3289	3290	rBB4	5204	4639	0.12%	0.017%
93	18.959	3299	3304	3310	rBB10	4425	6880	0.18%	0.026%
94	19.060	3318	3323	3326	rBB7	4776	5850	0.15%	0.022%
95	19.157	3336	3341	3345	rBB8	3059	5282	0.14%	0.020%
96	19.226	3352	3354	3359	rBB6	3700	3971	0.10%	0.015%
97	19.274	3359	3363	3365	rBB5	4137	4094	0.10%	0.015%
98	19.365	3375	3380	3383	rBB7	5829	7293	0.19%	0.027%
99	19.387	3383	3384	3387	rBB3	4450	3362	0.09%	0.013%
100	19.424	3389	3391	3395	rBB5	6085	4279	0.11%	0.016%

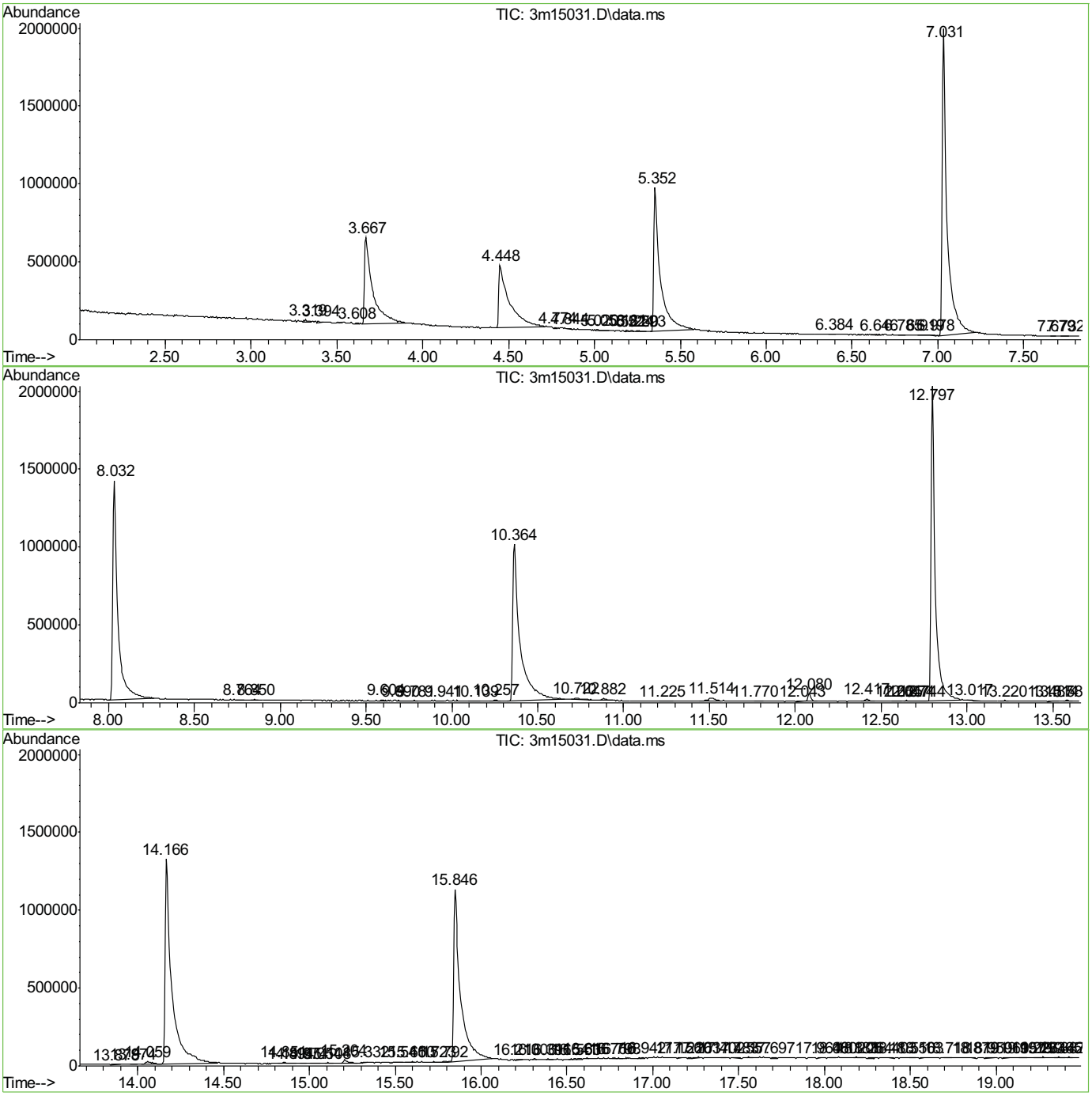
Sum of corrected areas: 26538658

LSC Report - Integrated Chromatogram

```
Data Path : C:\msdchem\1\DATA\e3m662\
Data File : 3m15031.D
Acq On    :  5 Nov 2009   7:38 pm
Operator  : larisap
Sample    : ja31597-2
Misc      : op40707,E3M662,1000
ALS Vial  : 9   Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
Quant Title  : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u

TIC Library    : C:\DATABASE\NIST98.L
TIC Integration Parameters: lscint.p
```



Library Search Compound Report

```
Data Path : C:\msdchem\1\DATA\e3m662\
Data File : 3m15031.D
Acq On    :  5 Nov 2009   7:38 pm
Operator  : larisap
Sample    : ja31597-2
Misc      : op40707,E3M662,1000
ALS Vial  : 9   Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
Quant Title  : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u

TIC Library    : C:\DATABASE\NIST98.L
TIC Integration Parameters: lscint.p

No Library Search Compounds Detected
```

****

Tentatively Identified Compound (LSC) summary

```
  Data Path : C:\msdchem\1\DATA\e3m662\
  Data File : 3m15031.D
  Acq On    :  5 Nov 2009   7:38 pm
  Operator  : larisap
  Sample    : ja31597-2
  Misc      : op40707,E3M662,1000
  ALS Vial  : 9   Sample Multiplier: 1

  Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
  Quant Title  : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u

  TIC Library   : C:\DATABASE\NIST98.L
  TIC Integration Parameters: lscint.p

                                                    |--Internal Standard---|
  TIC Top Hit name      RT  EstConc Units Response |#    RT     Resp  Conc|
-------------------------------------------------------------------------------
```

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M605\
Data File : 4m13122.D
Acq On : 7 Nov 2009 1:34 am
Operator : ninap
Sample : ja31597-1
Misc : op40707a,e4m606,1000
ALS Vial : 49 Sample Multiplier: 1

Quant Time: Nov 12 08:43:50 2009
Quant Method : C:\msdchem\1\METHODS\M4M597SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .25um
QLast Update : Thu Nov 05 14:22:27 2009
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1-Methylnaphthalene-d10	6.085	152	54402	4.00 ppb	-0.02
12) Fluorene-d10	8.362	174	66696	4.00 ppb	-0.03
23) Fluoranthene-d10	11.659	212	79845	4.00 ppb	-0.03
30) Benzo(a)pyrene-d12	14.728	264	48991	4.00 ppb	-0.01
System Monitoring Compounds					
2) 2-Fluorophenol	0.000	112	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
3) Phenol-d5	0.000	99	0	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
6) Nitrobenzene-d5	3.982	82	427019	50.85 ppb	-0.02
Spiked Amount 50.000			Recovery	= 101.70%	
11) 2-Fluorobiphenyl	6.610	172	959647	39.70 ppb	-0.02
Spiked Amount 50.000			Recovery	= 79.40%	
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
26) Terphenyl-d14	12.277	244	243353	20.39 ppb	-0.03
Spiked Amount 50.000			Recovery	= 40.78%	
Target Compounds					Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

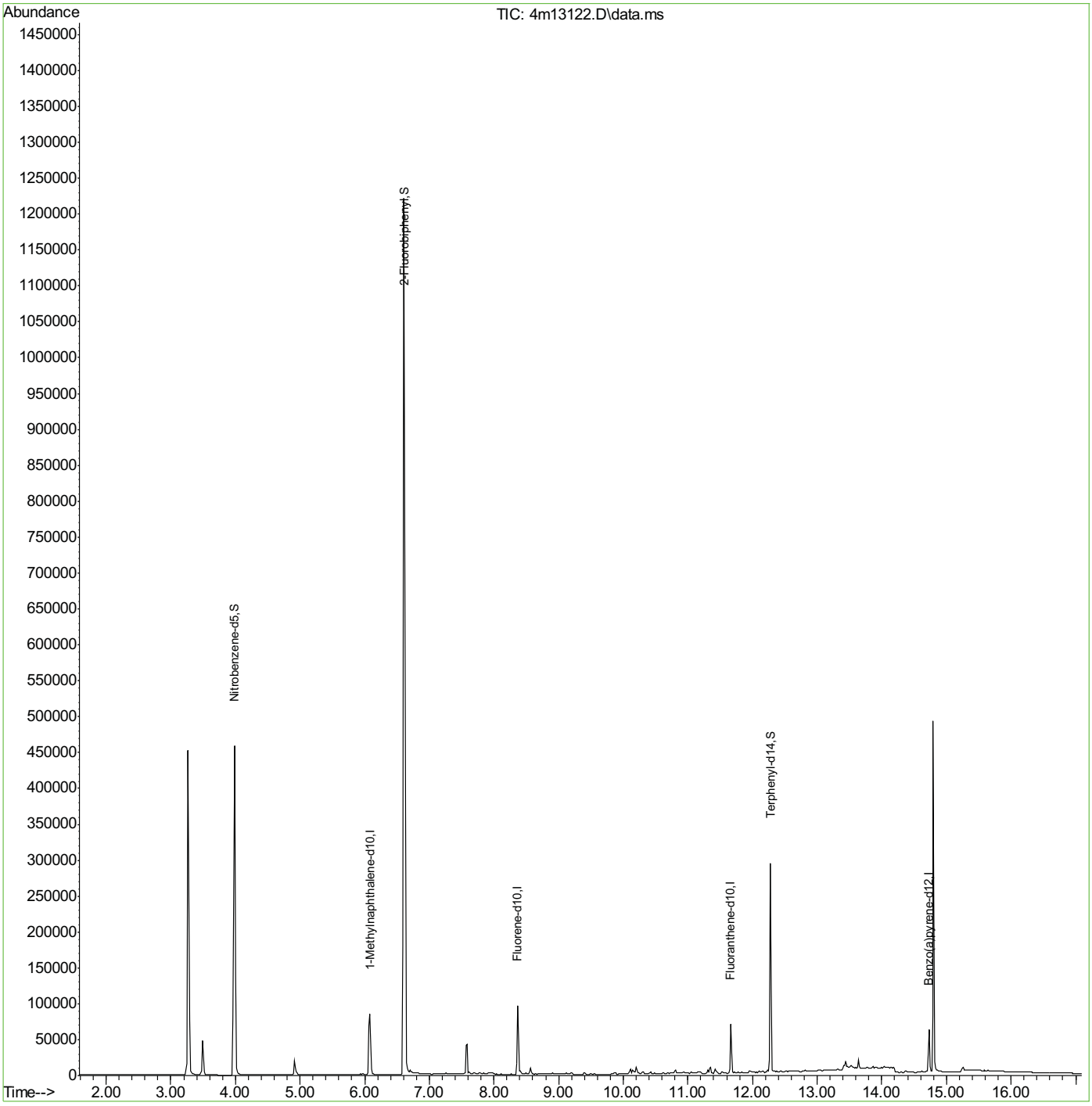
9.1.5

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M605\
Data File : 4m13122.D
Acq On : 7 Nov 2009 1:34 am
Operator : ninap
Sample : ja31597-1
Misc : op40707a,e4m606,1000
ALS Vial : 49 Sample Multiplier: 1

Quant Time: Nov 12 08:43:50 2009
Quant Method : C:\msdchem\1\METHODS\M4M597SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .25um
QLast Update : Thu Nov 05 14:22:27 2009
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : 4m13123.d
Acq On : 7 Nov 2009 1:56 am
Operator : ninap
Sample : ja31597-2
Misc : op40707a,e4m606,1000
ALS Vial : 50 Sample Multiplier: 1

Quant Time: Nov 12 09:14:20 2009
Quant Method : C:\msdchem\1\METHODS\M4M597SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .25um
QLast Update : Thu Nov 05 14:22:27 2009
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	6.085	152	57033	4.00	ppb	-0.02
12) Fluorene-d10	8.361	174	70339	4.00	ppb	-0.03
23) Fluoranthene-d10	11.659	212	84735	4.00	ppb	-0.03
30) Benzo(a)pyrene-d12	14.714	264	51585	4.00	ppb	-0.03
System Monitoring Compounds						
2) 2-Fluorophenol	0.000	112	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
3) Phenol-d5	0.000	99	0	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
6) Nitrobenzene-d5	3.982	82	500008	56.79	ppb	-0.02
Spiked Amount 50.000			Recovery	=	113.58%	
11) 2-Fluorobiphenyl	6.610	172	1221280	48.19	ppb	-0.02
Spiked Amount 50.000			Recovery	=	96.38%	
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00	ppb	
Spiked Amount 50.000			Recovery	=	0.00%	
26) Terphenyl-d14	12.277	244	403190	31.83	ppb	-0.03
Spiked Amount 50.000			Recovery	=	63.66%	
Target Compounds						Qvalue
7) Naphthalene	4.941	128	15852	0.51	ppb	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

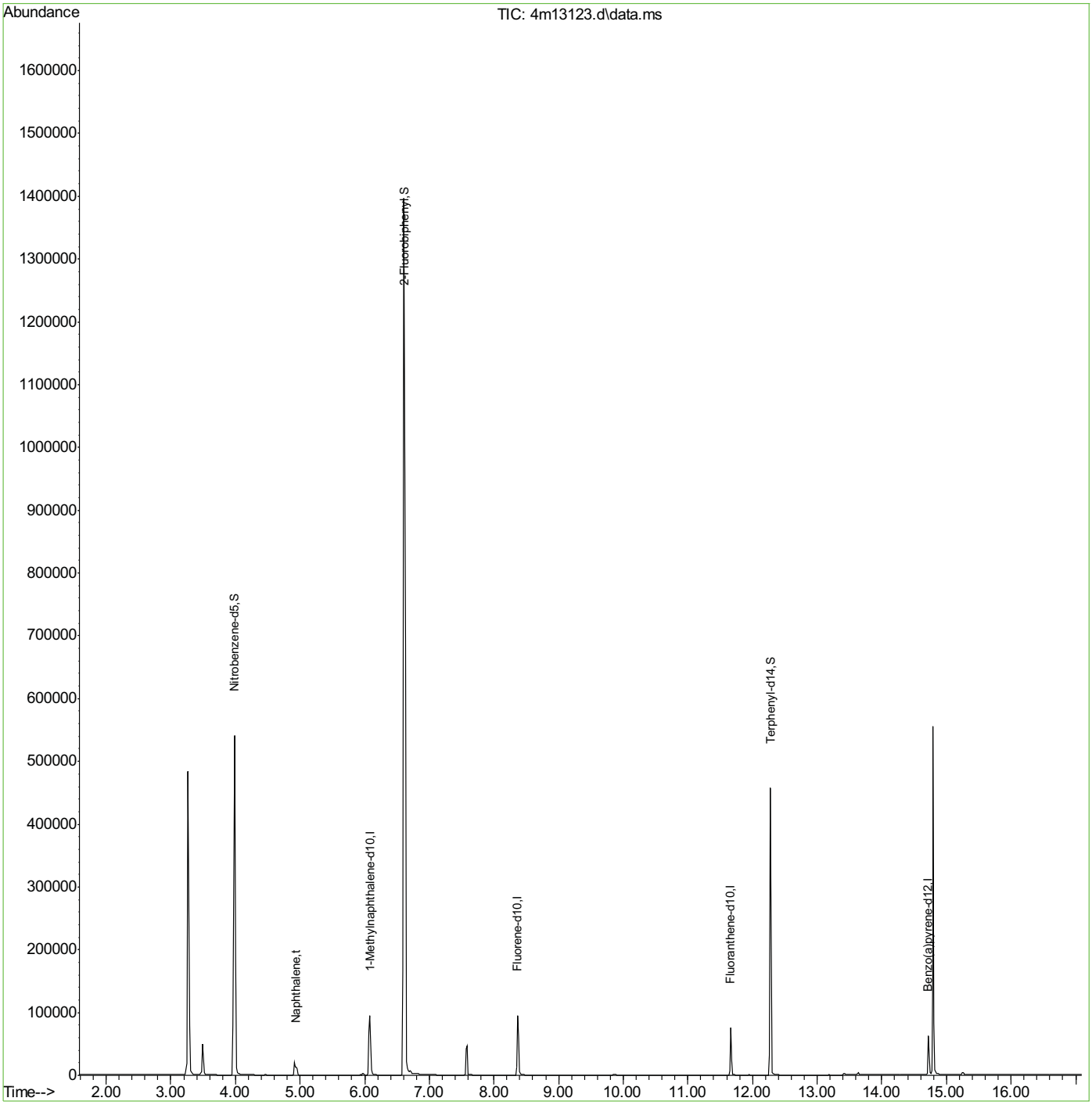
9.1.6

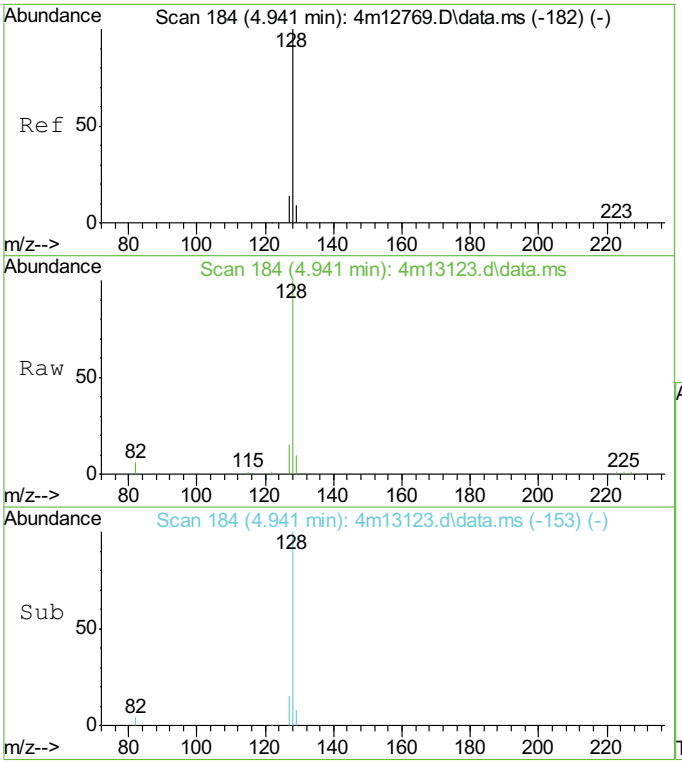
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : 4m13123.d
Acq On : 7 Nov 2009 1:56 am
Operator : ninap
Sample : ja31597-2
Misc : op40707a,e4m606,1000
ALS Vial : 50 Sample Multiplier: 1

Quant Time: Nov 12 09:14:20 2009
Quant Method : C:\msdchem\1\METHODS\M4M597SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .25um
QLast Update : Thu Nov 05 14:22:27 2009
Response via : Initial Calibration

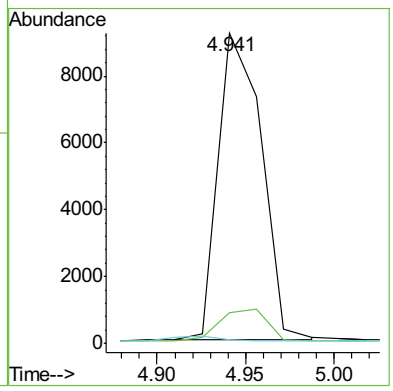




#7
Naphthalene
Concen: 0.51 ppb
RT: 4.941 min Scan# 184
Delta R.T. -0.015 min
Lab File: 4m13123.d
Acq: 7 Nov 2009 1:56 am

Tgt Ion:128 Resp: 15852

Ion	Ratio	Lower	Upper
128	100		
129	9.2	0.0	39.3
122	0.0	0.0	30.3



9.1.6

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m662\
Data File : 3m15026.D
Acq On : 5 Nov 2009 5:21 pm
Operator : larisap
Sample : op40707-mb1
Misc : op40707,E3M662,1000
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 06 14:32:15 2009
Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
Quant Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
QLast Update : Wed Nov 04 15:50:07 2009
Response via : Initial Calibration

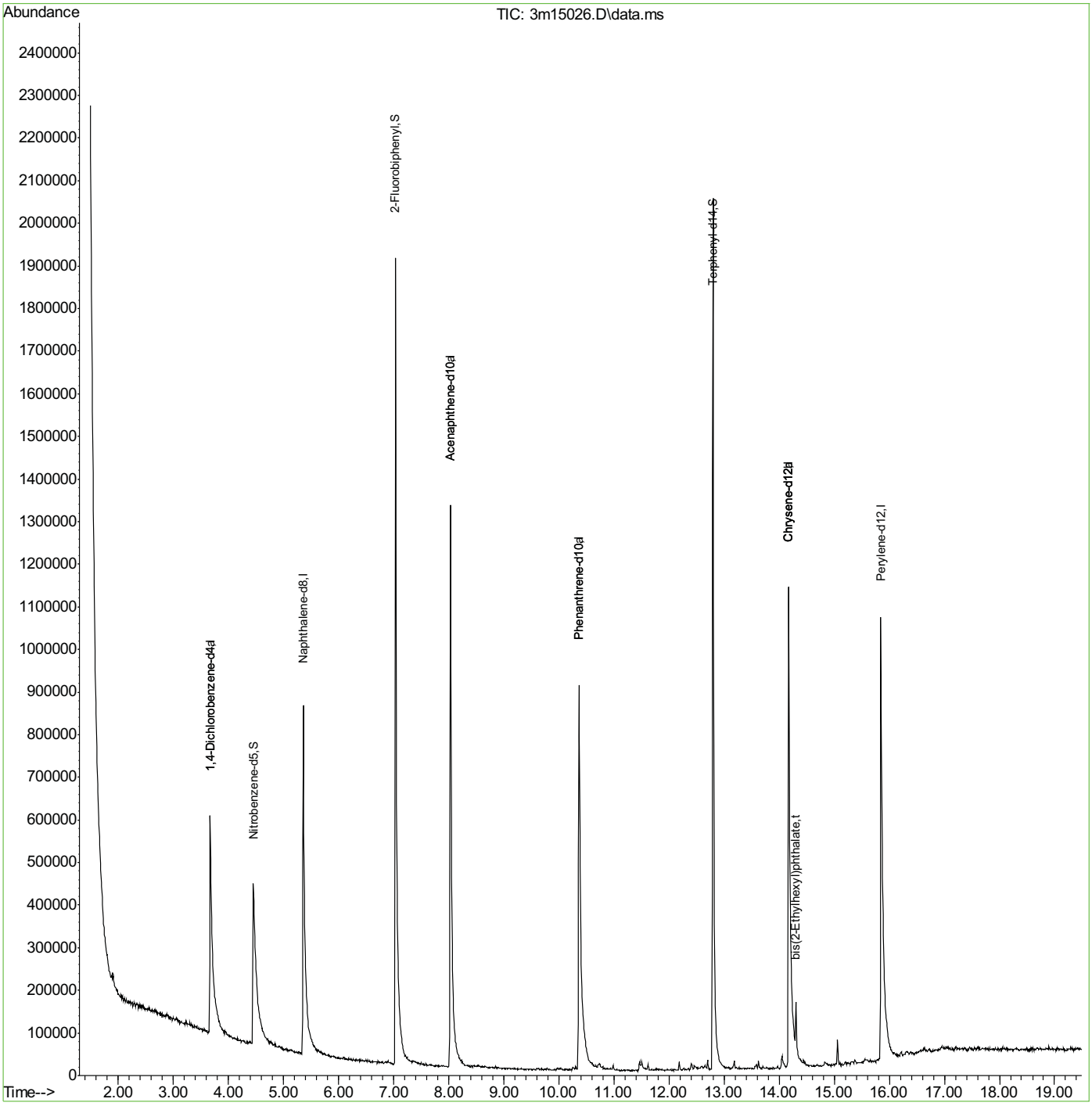
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	3.667	152	265925	40.00 ppb	0.00
24) Naphthalene-d8	5.352	136	984897	40.00 ppb	-0.02
47) Acenaphthene-d10	8.031	164	616881	40.00 ppb	-0.03
69) Phenanthrene-d10	10.363	188	993458	40.00 ppb	-0.02
83) Chrysene-d12	14.166	240	1131779	40.00 ppb	-0.02
92) Perylene-d12	15.851	264	1053575	40.00 ppb	-0.01
102) 1,4-Dichlorobenzene-d4a	3.667	152	265925	40.00 ppb	0.00
104) Phenanthrene-d10a	10.363	188	993458	40.00 ppb	-0.02
106) Acenaphthene-d10a	8.031	164	616881	40.00 ppb	-0.03
108) Chrysene-d12a	14.166	240	1131779	40.00 ppb	-0.02
112) Chrysene-d12b	14.166	240	1131779	40.00 ppb	-0.02
System Monitoring Compounds					
5) 2-Fluorophenol	0.000	112	0	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
8) Phenol-d5	0.000	99	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
25) Nitrobenzene-d5	4.448	82	531965	57.11 ppb	0.00
Spiked Amount 50.000			Recovery	= 114.22%	
51) 2-Fluorobiphenyl	7.031	172	1206200	55.00 ppb	-0.03
Spiked Amount 50.000			Recovery	= 110.00%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
86) Terphenyl-d14	12.797	244	943942	38.14 ppb	-0.03
Spiked Amount 50.000			Recovery	= 76.28%	
Target Compounds					Qvalue
91) bis(2-Ethylhexyl)phtha...	14.305	149	34061	1.57 ppb	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

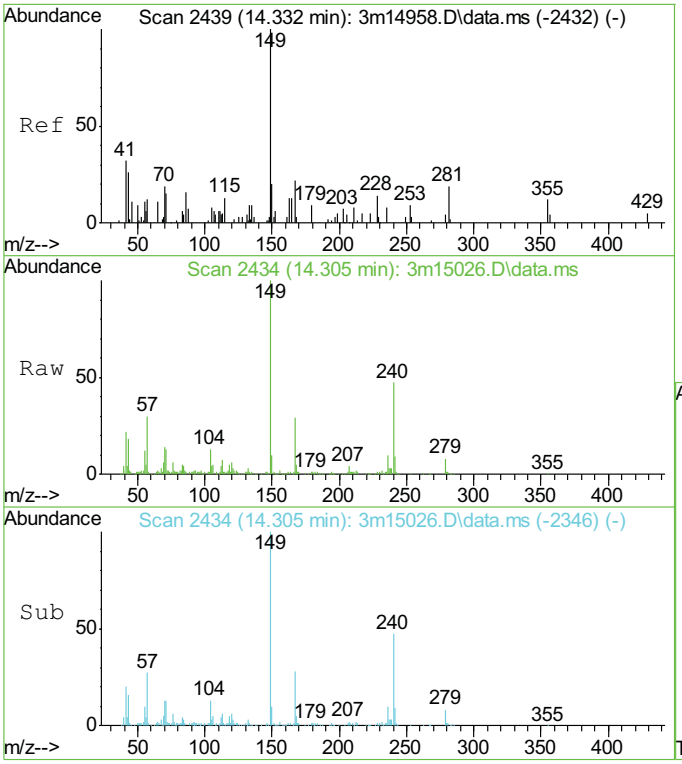
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e3m662\
Data File : 3m15026.D
Acq On : 5 Nov 2009 5:21 pm
Operator : larisap
Sample : op40707-mb1
Misc : op40707,E3M662,1000
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 06 14:32:15 2009
Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
Quant Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
QLast Update : Wed Nov 04 15:50:07 2009
Response via : Initial Calibration



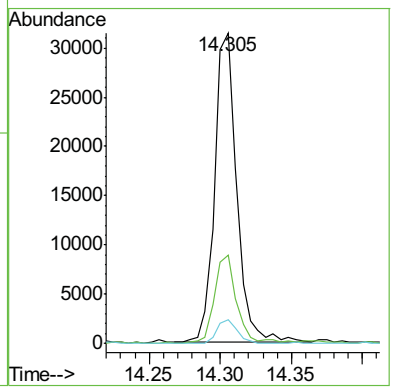
M3M630.M Fri Nov 06 14:32:58 2009 MS3M



#91
bis(2-Ethylhexyl)phthalate
Concen: 1.57 ppb
RT: 14.305 min Scan# 2434
Delta R.T. -0.027 min
Lab File: 3m15026.D
Acq: 5 Nov 2009 5:21 pm

Tgt Ion:149 Resp: 34061

Ion	Ratio	Lower	Upper
149	100		
167	28.3	0.3	60.3
279	7.7	0.0	36.2



9.2.1

9

LSC Area Percent Report

Data Path : C:\msdchem\1\DATA\e3m662\
Data File : 3m15026.D
Acq On : 5 Nov 2009 5:21 pm
Operator : larisap
Sample : op40707-mb1
Misc : op40707,E3M662,1000
ALS Vial : 4 Sample Multiplier: 1

Integration Parameters: lscint.p
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 1000 Area counts
Start Thrs: 0.02 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method : C:\MSDCHEM\1\METHODS\M3M630.M
Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u

Signal : TIC: 3m15026.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	2.988	317	318	325	rBB6	6906	10104	0.28%	0.043%
2	3.127	343	344	355	rBB7	5392	9063	0.25%	0.038%
3	3.383	391	392	396	rBB4	7220	4802	0.13%	0.020%
4	3.667	441	445	483	rBB	507757	1617260	44.31%	6.804%
5	4.170	538	539	542	rBB3	6839	3430	0.09%	0.014%
6	4.378	575	578	581	rBB3	3652	3933	0.11%	0.017%
7	4.448	587	591	638	rBB	374617	1565533	42.89%	6.586%
8	4.983	690	691	694	rBB3	5102	3356	0.09%	0.014%
9	5.197	730	731	734	rBB3	4073	3023	0.08%	0.013%
10	5.357	756	761	810	rBB	816951	2216580	60.73%	9.325%
11	6.175	911	914	916	rBB4	4443	3427	0.09%	0.014%
12	6.609	991	995	997	rBB3	3752	3773	0.10%	0.016%
13	6.721	1012	1016	1017	rBB4	3566	4724	0.13%	0.020%
14	6.790	1027	1029	1035	rBB5	2381	3234	0.09%	0.014%
15	6.849	1035	1040	1042	rBB6	3251	3434	0.09%	0.014%
16	6.892	1045	1048	1053	rBB7	3924	3976	0.11%	0.017%
17	7.031	1069	1074	1119	rBB	1891778	3650040	100.00%	15.356%
18	7.341	1131	1132	1137	rBB6	3245	3196	0.09%	0.013%
19	7.550	1164	1171	1172	rBB6	3547	3627	0.10%	0.015%
20	7.587	1174	1178	1183	rBB8	3643	3854	0.11%	0.016%
21	7.743	1205	1207	1212	rBB6	2082	3050	0.08%	0.013%
22	7.807	1212	1219	1221	rBB8	3802	7155	0.20%	0.030%
23	8.031	1253	1261	1295	rBB	1316048	2548267	69.81%	10.720%
24	8.449	1335	1339	1342	rBB6	3180	4352	0.12%	0.018%
25	8.657	1377	1378	1386	rBB8	1784	3100	0.08%	0.013%
26	8.850	1411	1414	1417	rBB5	4217	3122	0.09%	0.013%
27	9.475	1527	1531	1537	rBB9	2470	4146	0.11%	0.017%
28	9.550	1540	1545	1548	rBB7	2826	3644	0.10%	0.015%
29	9.598	1550	1554	1558	rBB7	3690	4692	0.13%	0.020%
30	9.786	1586	1589	1594	rBB7	4097	4563	0.13%	0.019%
31	9.962	1618	1622	1628	rBB8	3248	5662	0.16%	0.024%
32	10.246	1671	1675	1683	rBB7	5934	11809	0.32%	0.050%
33	10.305	1683	1686	1691	rBB5	6726	6048	0.17%	0.025%
34	10.363	1692	1697	1753	rBB2	902422	2657403	72.80%	11.180%

M3M630.M Fri Nov 06 14:33:15 2009 MS3M

LSC Area Percent Report

```
Data Path : C:\msdchem\1\DATA\e3m662\
Data File : 3m15026.D
Acq On    :  5 Nov 2009   5:21 pm
Operator  : larisap
Sample    : op40707-mb1
Misc      : op40707,E3M662,1000
ALS Vial  : 4   Sample Multiplier: 1

Integration Parameters: lscint.p
Integrator: RTE
Smoothing : ON                          Filtering: 5
Sampling  : 1                            Min Area: 1000 Area counts
Start Thrs: 0.02                        Max Peaks: 100
Stop Thrs : 0                       Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method    : C:\MSDCHEM\1\METHODS\M3M630.M
Title     : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u
```

35	10.732	1759	1766	1774	rBB2	8967	22315	0.61%	0.094%
36	10.871	1790	1792	1800	rBB8	3791	5802	0.16%	0.024%
37	10.984	1809	1813	1818	rBB6	9784	10899	0.30%	0.046%
38	11.460	1899	1902	1908	rBB8	14897	23603	0.65%	0.099%
39	11.503	1908	1910	1916	rBB2	9775	11323	0.31%	0.048%
40	11.615	1927	1931	1936	rBB6	11839	14841	0.41%	0.062%
41	11.775	1955	1961	1965	rBB9	3667	3892	0.11%	0.016%
42	12.037	2003	2010	2014	rBB9	2862	6002	0.16%	0.025%
43	12.096	2018	2021	2028	rBB9	2236	3373	0.09%	0.014%
44	12.182	2032	2037	2043	rBB4	19763	21507	0.59%	0.090%
45	12.348	2063	2068	2073	rBB9	3371	4399	0.12%	0.019%
46	12.407	2073	2079	2085	rBB9	15328	26306	0.72%	0.111%
47	12.460	2085	2089	2094	rBB8	6803	9025	0.25%	0.038%
48	12.647	2120	2124	2130	rBB9	7385	9461	0.26%	0.040%
49	12.701	2130	2134	2142	rBB2	22183	23033	0.63%	0.097%
50	12.797	2142	2152	2190	rBB	2044246	3115606	85.36%	13.107%
51	13.182	2219	2224	2229	rBB3	18453	19805	0.54%	0.083%
52	13.262	2236	2239	2244	rBB7	2936	3600	0.10%	0.015%
53	13.300	2244	2246	2251	rBB6	2906	3005	0.08%	0.013%
54	13.353	2251	2256	2260	rBB8	2793	4335	0.12%	0.018%
55	13.583	2290	2299	2303	rBB8	10096	18467	0.51%	0.078%
56	13.626	2303	2307	2316	rBB3	18172	22344	0.61%	0.094%
57	13.706	2316	2322	2325	rBB7	4266	6287	0.17%	0.026%
58	13.968	2368	2371	2379	rBB9	4352	6663	0.18%	0.028%
59	14.049	2379	2386	2401	rBB5	27635	64527	1.77%	0.271%
60	14.166	2404	2408	2430	rBB	1116815	2608881	71.48%	10.975%
61	14.300	2430	2433	2441	rBB	99302	101813	2.79%	0.428%
62	14.444	2457	2460	2467	rBB8	8959	11449	0.31%	0.048%
63	14.557	2476	2481	2488	rBB8	2704	6125	0.17%	0.026%
64	14.685	2500	2505	2514	rBB8	3108	6633	0.18%	0.028%
65	14.781	2519	2523	2527	rBB6	2461	3301	0.09%	0.014%
66	14.829	2527	2532	2540	rBB10	8926	16764	0.46%	0.071%
67	15.059	2566	2575	2582	rBB2	56929	65498	1.79%	0.276%
68	15.199	2595	2601	2604	rBB8	5074	6766	0.19%	0.028%
69	15.311	2621	2622	2624	rBB2	3880	3065	0.08%	0.013%
70	15.375	2630	2634	2641	rBB7	9637	14046	0.38%	0.059%
71	15.498	2650	2657	2661	rBB10	3597	6155	0.17%	0.026%

LSC Area Percent Report

Data Path : C:\msdchem\1\DATA\e3m662\
Data File : 3m15026.D
Acq On : 5 Nov 2009 5:21 pm
Operator : larisap
Sample : op40707-mb1
Misc : op40707,E3M662,1000
ALS Vial : 4 Sample Multiplier: 1

Integration Parameters: lscint.p
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 1000 Area counts
Start Thrs: 0.02 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method : C:\MSDCHEM\1\METHODS\M3M630.M
Title : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u

72	15.552	2661	2667	2669	rBB7	3830	6489	0.18%	0.027%
73	15.787	2705	2711	2712	rBB6	2747	6116	0.17%	0.026%
74	15.846	2715	2722	2765	rBB	1035997	2895304	79.32%	12.180%
75	16.215	2785	2791	2797	rBB10	8838	14959	0.41%	0.063%
76	16.397	2819	2825	2829	rBB9	4885	7681	0.21%	0.032%
77	16.493	2836	2843	2844	rBB7	4757	5779	0.16%	0.024%
78	16.573	2850	2858	2861	rBB10	4223	5454	0.15%	0.023%
79	16.621	2864	2867	2868	rBB3	4787	4172	0.11%	0.018%
80	16.718	2881	2885	2891	rBB9	5762	10146	0.28%	0.043%
81	16.894	2917	2918	2923	rBB5	3522	3256	0.09%	0.014%
82	16.953	2923	2929	2935	rBB5	8281	14588	0.40%	0.061%
83	17.215	2974	2978	2981	rBB5	5895	7892	0.22%	0.033%
84	17.247	2981	2984	2990	rBB8	4565	9558	0.26%	0.040%
85	17.349	3002	3003	3006	rBB3	3848	3200	0.09%	0.013%
86	17.461	3020	3024	3027	rBB6	4530	6174	0.17%	0.026%
87	17.536	3036	3038	3041	rBB3	4029	3610	0.10%	0.015%
88	17.819	3088	3091	3095	rBB6	6512	7854	0.22%	0.033%
89	17.980	3117	3121	3124	rBB6	7280	7800	0.21%	0.033%
90	18.023	3124	3129	3131	rBB6	7211	8002	0.22%	0.034%
91	18.146	3151	3152	3155	rBB3	4997	3264	0.09%	0.014%
92	18.386	3193	3197	3199	rBB5	2782	3083	0.08%	0.013%
93	18.536	3223	3225	3227	rBB3	3820	3024	0.08%	0.013%
94	18.579	3230	3233	3235	rBB4	5131	5046	0.14%	0.021%
95	18.595	3235	3236	3241	rBB5	6280	7807	0.21%	0.033%
96	18.686	3249	3253	3254	rBB4	3227	3909	0.11%	0.016%
97	18.809	3272	3276	3279	rBB6	2953	4252	0.12%	0.018%
98	18.900	3290	3293	3295	rBB4	6716	3558	0.10%	0.015%
99	19.296	3366	3367	3372	rBB5	6403	5120	0.14%	0.022%
100	19.344	3375	3376	3380	rBB4	4343	4681	0.13%	0.020%

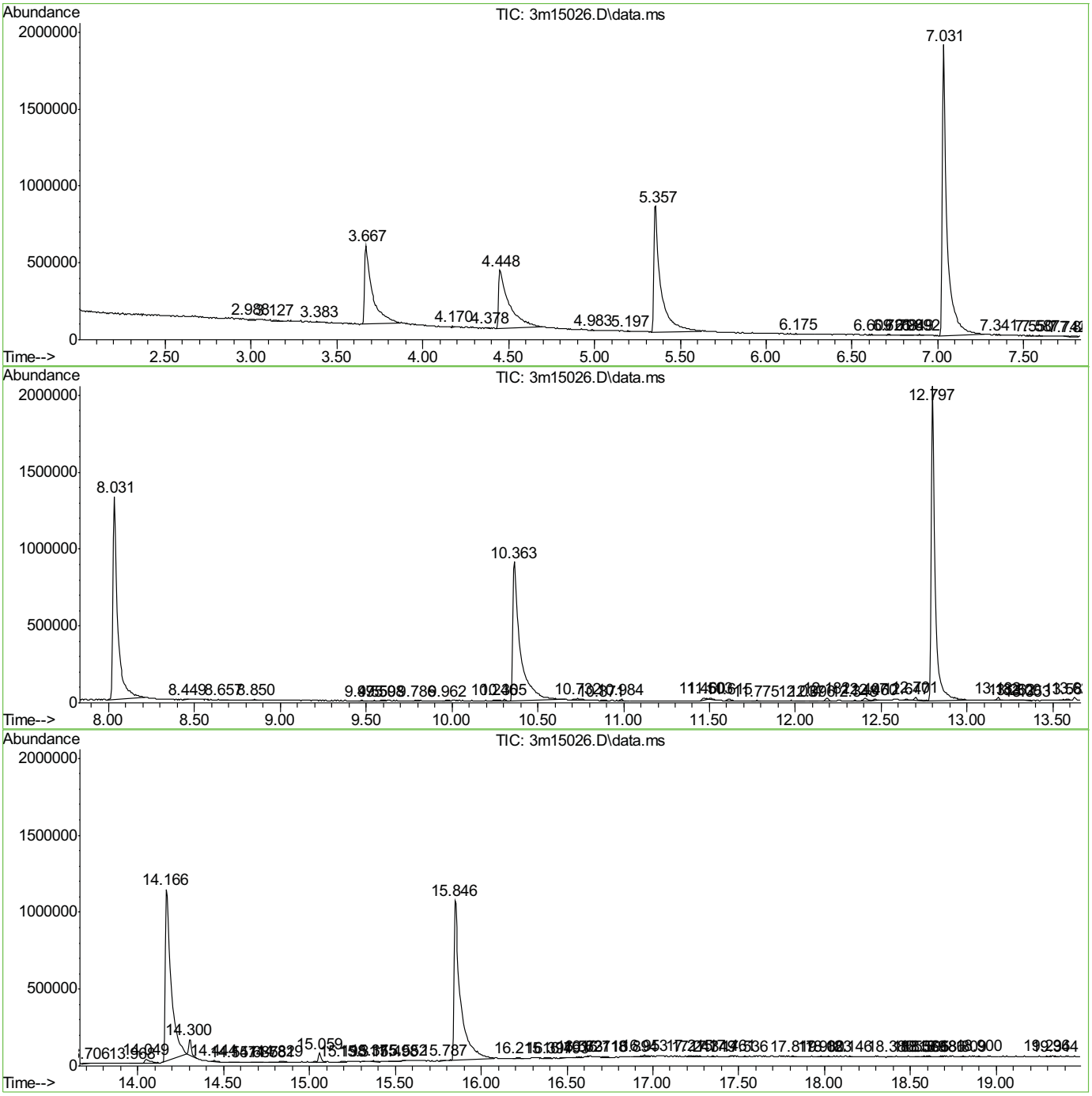
Sum of corrected areas: 23770076

LSC Report - Integrated Chromatogram

```
Data Path : C:\msdchem\1\DATA\e3m662\
Data File : 3m15026.D
Acq On    :  5 Nov 2009   5:21 pm
Operator  : larisap
Sample    : op40707-mb1
Misc      : op40707,E3M662,1000
ALS Vial  : 4   Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
Quant Title  : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u

TIC Library    : C:\DATABASE\NIST98.L
TIC Integration Parameters: lscint.p
```



Library Search Compound Report

```
Data Path : C:\msdchem\1\DATA\e3m662\
Data File : 3m15026.D
Acq On    :  5 Nov 2009   5:21 pm
Operator  : larisap
Sample    : op40707-mb1
Misc      : op40707,E3M662,1000
ALS Vial  : 4   Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
Quant Title  : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u

TIC Library   : C:\DATABASE\NIST98.L
TIC Integration Parameters: lscint.p

No Library Search Compounds Detected
```

****

Tentatively Identified Compound (LSC) summary

```
  Data Path : C:\msdchem\1\DATA\e3m662\
  Data File : 3m15026.D
  Acq On    :  5 Nov 2009   5:21 pm
  Operator  : larisap
  Sample    : op40707-mb1
  Misc      : op40707,E3M662,1000
  ALS Vial  : 4   Sample Multiplier: 1

  Quant Method : C:\MSDCHEM\1\METHODS\M3M630.M
  Quant Title  : SEMI-VOA METHOD. Column ZB-5ms 20mX0.18mmIDX0.18u

  TIC Library   : C:\DATABASE\NIST98.L
  TIC Integration Parameters: lscint.p

                                                    |--Internal Standard---|
  TIC Top Hit name      RT  EstConc Units Response |#    RT     Resp  Conc|
-------------------------------------------------------------------------------
```

9.2.2

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M605\
Data File : 4m13107.D
Acq On : 6 Nov 2009 8:03 pm
Operator : ninap
Sample : op40707a-mb1
Misc : op40707a,e4m606,1000
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Nov 09 14:14:40 2009
Quant Method : C:\msdchem\1\METHODS\M4M597SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .25um
QLast Update : Thu Nov 05 14:22:27 2009
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1-Methylnaphthalene-d10	6.085	152	50715	4.00 ppb	-0.02
12) Fluorene-d10	8.361	174	60912	4.00 ppb	-0.03
23) Fluoranthene-d10	11.659	212	74145	4.00 ppb	-0.03
30) Benzo(a)pyrene-d12	14.728	264	41856	4.00 ppb	-0.01
System Monitoring Compounds					
2) 2-Fluorophenol	0.000	112	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
3) Phenol-d5	0.000	99	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
6) Nitrobenzene-d5	3.982	82	476413	60.85 ppb	-0.02
Spiked Amount 50.000			Recovery	= 121.70%	
11) 2-Fluorobiphenyl	6.610	172	1160745	51.51 ppb	-0.02
Spiked Amount 50.000			Recovery	= 103.02%	
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00 ppb	
Spiked Amount 50.000			Recovery	= 0.00%	
26) Terphenyl-d14	12.277	244	363236	32.77 ppb	-0.03
Spiked Amount 50.000			Recovery	= 65.54%	

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

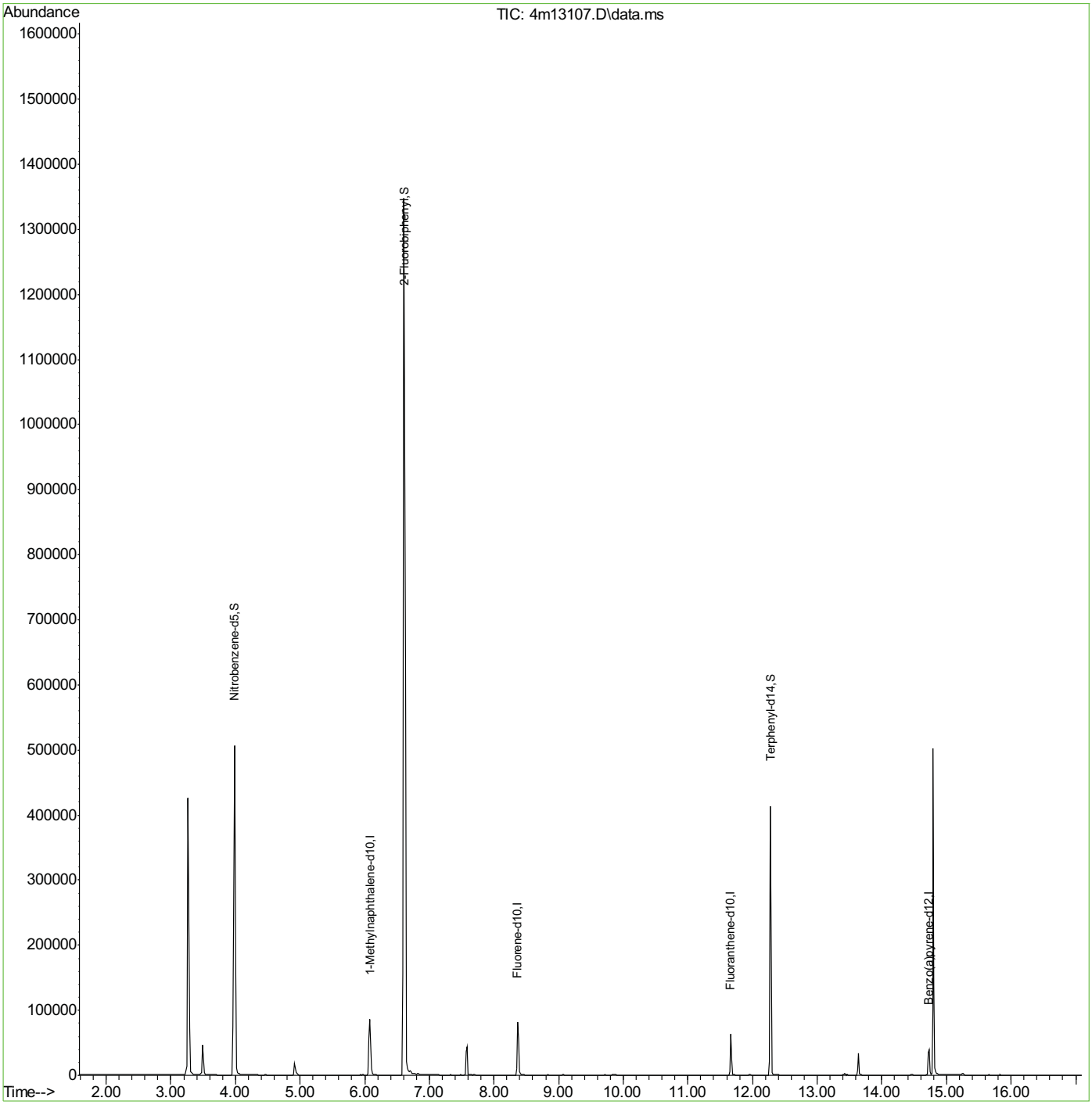
9.2.3

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M605\
Data File : 4m13107.D
Acq On : 6 Nov 2009 8:03 pm
Operator : ninap
Sample : op40707a-mb1
Misc : op40707a,e4m606,1000
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Nov 09 14:14:40 2009
Quant Method : C:\msdchem\1\METHODS\M4M597SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .25um
QLast Update : Thu Nov 05 14:22:27 2009
Response via : Initial Calibration



Appendix XII

South Landfarm Groundwater Monitoring Figure and Table – October 27, 2009 Quarterly

EnviroTrac

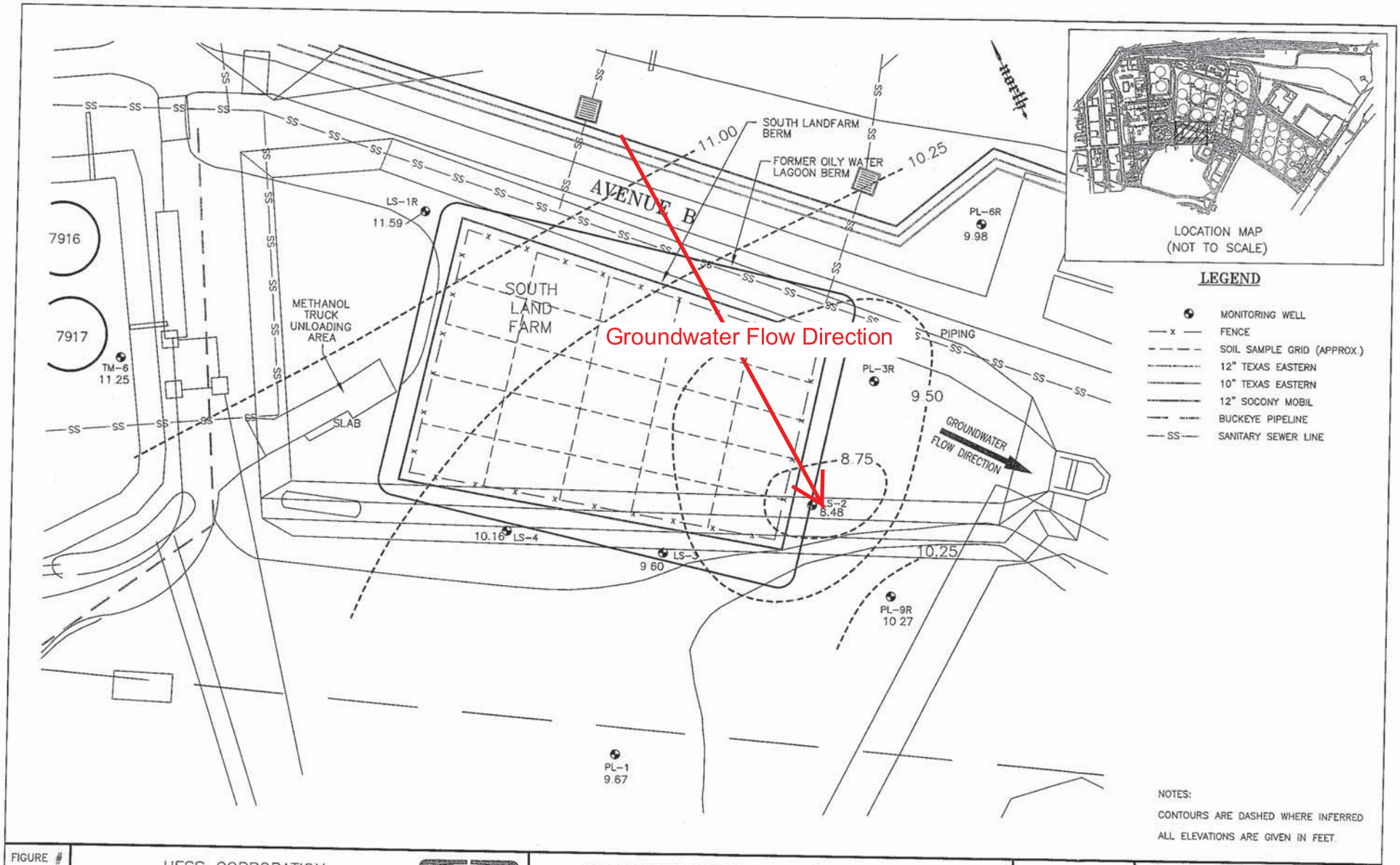


FIGURE #	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	HESS	GROUNDWATER CONTOUR MAP (SOUTH LANDFARM) OCTOBER 27, 2009	0 60 SCALE IN FEET	EnviroTrac ENVIRONMENTAL SERVICES 400E CORPORATE COURT, So. PLAINFIELD NJ 07080 PHONE: (908)757-1900 FAX: (908)757-0017
6			DRAWN BY: B.J.S / REVISION DATE: 12/11/09		

TABLE 10
Field Parameters
HESS CORPORATION - PORT READING, NJ
South Landfarm

Monitoring Date	October 27, 2009								
Weather conditions	Rainy, 60's								
Well ID number	LS-1R	LS-2	LS-3	LS-4	PL-1	PL-3R	PL-6R	PL-9R	TM-6
Well permit	26-25324-1	26-07593-8	26-07594-6	26-07595-4	26-3776-0	26-3776-2	26-3776-5	26-3776-8	26-5262-8
Ground elevation (ft)	12.70	9.57	11.16	8.96	NA	NA	NA	NA	NA
Well diameter (in)	4.0	4.0	4.0	4.0	NA	NA	NA	NA	NA
Top of casing elevation (ft)	14.49	11.69	10.70	11.25	11.82	12.81	11.95	11.95	17.61
Time gauged	9:40	9:48	10:40	10:42	NA	NA	NA	NA	NA
Depth to product from TOC (ft)	NP	NP	NP	NP	NP	NP	NP	NP	NP
Depth to water from TOC (ft)	2.9	3.21	1.1	1.09	2.15	NA	1.97	1.68	6.36
Depth to bottom from TOC (ft)	15.80	12.02	13.10	13.05	19.94	19.89	17.14	18.65	21.20
Depth from TOC to TOS (ft)	4.67	5.25	6.00	5.00	NA	4.00	4.75	3.80	NA
Ground Water Elevation (ft)	11.59	8.48	9.60	10.16	9.67	NA	9.98	10.27	11.25
Product/sheen on probe/bailer (Y/N)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Linear Feet of Water in well (estimate)	12.90	8.81	12.00	11.96	NS	NS	NS	NS	NS
Water volume in well (estimate) (gal)	8.39	5.73	7.80	7.77	NS	NS	NS	NS	NS
LPH thickness (ft)	NP	NP	NP	NP	NS	NS	NS	NS	NS
pH (before purging) (S.U.)	7.62	7.17	7.41	7.29	NS	NS	NS	NS	NS
DO (before purging) (mg/l)	0	0	0	0.58	NS	NS	NS	NS	NS
Temperature (before purging) (°Celcius)	16.5	15.9	16.4	17.2	NS	NS	NS	NS	NS
Specific Conductance (before purging) (µs/cm)	1.16	7.26	4.86	0.656	NS	NS	NS	NS	NS
Turbidity (before purging)	NA	NA	NA	NA	NS	NS	NS	NS	NS
Salinity (before purging)	NA	NA	NA	NA	NS	NS	NS	NS	NS
Appearance (ie. color, clarity, turbid)	L. Brown	L. Brown	L. Brown	Clear	NS	NS	NS	NS	NS
Odor	NA	NA	NA	NA	NS	NS	NS	NS	NS
Purge start time	14:40	13:31	12:02	14:10	NS	NS	NS	NS	NS
Purge end time	15:23	14:08	12:56	14:32	NS	NS	NS	NS	NS
Purge length (minutes)	0:43	0:37	0:54	0:22	NS	NS	NS	NS	NS
Purge method (bailer/pump)	Pump	Pump	Pump	Pump	NS	NS	NS	NS	NS
Purge rate (gal/min)	0.59	0.81	0.4	1.04	NS	NS	NS	NS	NS
Purge volume (gal)	25.5	18	22	23	NS	NS	NS	NS	NS
pH (while pruging) (S.U.)	6.81	7.02	6.83	7.28	NS	NS	NS	NS	NS
DO (while purging) (mg/l)	0	0	0	0.43	NS	NS	NS	NS	NS
Temperature (while purging) (°Celcius)	16.9	16.5	17	17.3	NS	NS	NS	NS	NS
Specific Conductance (while purging) (µs/cm)	0.877	7.46	5.28	0.678	NS	NS	NS	NS	NS
Turbidity (while purging)	NA	NA	NA	NA	NS	NS	NS	NS	NS
Salinity (while purging)	NA	NA	NA	NA	NS	NS	NS	NS	NS
Appearance (ie. color, clarity, turbid)	L. Brown	L. Brown	L. Brown	Clear	NS	NS	NS	NS	NS
Odor	NA	NA	NA	NA	NS	NS	NS	NS	NS
pH (after purging) (S.U.)	6.57	6.9	6.58	7.24	NS	NS	NS	NS	NS
DO (after purging) (mg/l)	0	0	0	0.11	NS	NS	NS	NS	NS
Temperature (after purging) (°Celcius)	16.7	16.5	17.2	17	NS	NS	NS	NS	NS
Specific Conductance (after purging) (µs/cm)	0.803	7.46	5.33	0.649	NS	NS	NS	NS	NS
Turbidity (after purging)	NA	NA	NA	NA	NS	NS	NS	NS	NS
Salinity (after purging)	NA	NA	NA	NA	NS	NS	NS	NS	NS
Appearance (ie. color, clarity, turbid)	L. Brown	L. Brown	L. Brown	Clear	NS	NS	NS	NS	NS
Odor	NA	NA	NA	NA	NS	NS	NS	NS	NS
Depth from TOC to water (before sampling)	6.12	5.59	3.68	2.76	NS	NS	NS	NS	NS
Time sampled	15:45	14:26	13:14	14:33	NS	NS	NS	NS	NS
pH (after sampling) (S.U.)	6.53	6.91	6.49	7.31	NS	NS	NS	NS	NS
DO (after sampling) (mg/l)	0	0	0	0.04	NS	NS	NS	NS	NS
Temperature (after sampling) (°Celcius)	16.9	16.5	16.9	17.2	NS	NS	NS	NS	NS
Specific Conductance (after sampling) (µs/cm)	0.798	7.46	5.33	0.648	NS	NS	NS	NS	NS
Turbidity (after sampling)	NA	NA	NA	NA	NS	NS	NS	NS	NS
Salinity (after sampling)	NA	NA	NA	NA	NS	NS	NS	NS	NS
Appearance (ie. color, clarity, turbid)	L. Brown	L. Brown	L. Brown	Clear	NS	NS	NS	NS	NS
Odor	NA	NA	NA	NA	NS	NS	NS	NS	NS
Depth from TOC to water (after sampling)	6.41	5.64	5.01	2.63	NS	NS	NS	NS	NS
COMMENTS:									

Notes:

G - Good, P - Poor Y - Yes N - No NM - Not Measured, N - Not Found O - Other TOC - Top of Casing TOS - Top of Screen NP - No Product NA - Not Available

Appendix XIII

Site Activity Records and Field Notes

EnviroTrac Site Activity Report

Name	Vehicle	Title	Date	Time left	Start time	Fin time	Ret time	Breaks	Total
Tony De	67	Tech	6/2/09						6.5

T&M#	TD 060292
Site:	Port Reading
Client:	Hess
Req by:	B. Groeling
Req date:	

ET = Technician, SM = System manager, HY = Hydro, EN = Engineer, PM = Project manager, BTEX, M = MTBE, T = TBA, L = Lead

Well	Sample	DTW (ft)	DTP (ft)	LPH (ft)	Prod Rc	O_2 (mg/L)	Temp (°C)	Cond	pH
			Confined Entry Soil Samples.						
Location	Time	Pressure	Vacuum	Flowrate	O_2	PID	Valve Pos	Tot Flow	System

Unit	Description	#
Each	55 Gallon Drum	
Each	Absorbant Socks	
Each	Bailers	
Day	Bio-Injection Equipment	
Gal	Bio-Solve	
Day	Core Saw	
Day	Cut Saw	
Day	Digital Camera	
Day	Electric Jackhammer	
HR	Field Vehicle	
Day	Generator 1,000 Watt	
Day	Generator 5,000 watt	
Day	Interface Probe	
Day	LEL Meter	
Bag	Lite Dry	
Day	Mini Troll	
Day	PID / OVM	
Day	Powerwasher	
Each	PPE (disposable)	
Day	Pump	
Each	Safety Cones	
Roll	Safety Fence	
Day	Saw-Cutter	
Bale	Sorbent Pads	
Day	Spill Buddy	
Day	Survey Equipment	
Spool	Tubing	
Day	Water Level Meter	
Each	Well Master Lock	

EnviroTrac Site Activity Report

Name	Title	Date	Time left	Start time		Fin time	Ret time	Breaks	Total
Richard Delacruz	ET	10/28/09							

T&M#	
Site:	Port Reading Refinery
Client:	HESS
Req by:	
Req date:	

ET = Technician, SM = System manager, HY = Hydro, EN = Engineer, PM = Project manager, BTEX, M = MTBE, T = TBA, L = Lead

Well	Sample	DTW (ft)	DTP (ft)	LPH (ft)	Purge Vol (gal)	Prod Rc	O_2 (mg/L)	Temp (°C)	Cond	pH
TK7930-TW-1	0955	3.28		LPH < .01 No Readings Taken						
		8.04								
SLF-TW-2		0.35	0.15	Product Sample Taken						
		8.46								
Field Blank	1020									

Location	Time	Pressure	Vacuum	Flowrate	O_2		PID	Valve Pos	Tot. Flow	System

Unit	Description	#
Each	55 Gallon Drum	
Each	Absorbant Socks	
Each	Bailers	
Day	Bio-Injection Equipment	
Gal	Bio-Solve	
Day	Core Saw	
Day	Cut Saw	
Day	Digital Camera	
Day	Electric Jackhammer	
HR	Field Vehicle	
Day	Generator 1,000 Watt	
Day	Generator 5,000 watt	
Day	Interface Probe	
Day	LEL Meter	
Bag	Lite Dry	
Day	Mini Troll	
Day	PID / OVM	
Day	Powerwasher	
Each	PPE (disposable)	
Day	Pump	
Each	Safety Cones	
Roll	Safety Fence	
Day	Saw-Cutter	
Bale	Sorbent Pads	
Day	Spill Buddy	
Day	Survey Equipment	
Spool	Tubing	
Day	Water Level Meter	
Each	Well Master Lock	

CHAIN OF CUSTODY

ACCUTEST Laboratories

GW
FB
WTB

2235 Route 130, Dayton NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

FED-EX Tracking #

Bottle Order Control #

Accutest Quote #

Accutest Job # JA31597

Client / Reporting Information

Company Name: ENVIROTRAC

Address: 400 CORPORATE CT

City: S. PLAINFIELD State: NJ Zip:

Project Contact: BILL GROELING E-mail:

Phone #:

Sampler's Name: R. DELACRUZ

Project Information

Project Name: PORT READING REFINERY

Street:

City: State:

Project #:

Fax #:

Client Purchase Order #:

Requested Analysis

624 ☐ 8021 ☐ 602 ☐ PAUG ☐
MTBE ☐ TBA ☐ NAP ☐ PALG ☐

8260 ☐ BTEX ☐

624 ☐ TC; ☐ PPL ☐ STARS ☐ MTBE ☐
NAP ☐ +'0 ☐ +15 ☐

8260 ☐ TBA ☐

625 ☐ TC; ☐ PPL ☐ STARS ☐
BN ☐ PAH ☐ PADF ☐ +TICs ☐

8270 ☐ ABN ☐

BN+15

VO+10

Matrix Codes

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

Accutest Sample #	Field ID / Point of Collection	SUMMA # / MEOH Vial #	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	BN+15	VO+10	LAB USE ONLY
-1	TK-7930-TW 1		10-28	0955	RD	GW	5	3				2				X	X	2163
-2	FIELD BLANK		↓	1010	↓	↓	3	2				1				X	X	EX81
-3	TRIP BLANK		↓		↓	↓	2										X	

Turnaround Time (Business Days)

☑ Std. 15 Business Days — Approved By: / Date:
☐ 10 Day *RUSH*
☐ 5 Day *RUSH*
☐ 3 Day *EMERGENCY*
☐ 2 Day *EMERGENCY*
☐ 1 Day *EMERGENCY*
☐ Other

Emergency & Rush T/A data available VIA LabLink

Data Deliverable Information

☐ Commercial "A"
☐ Commercial "B"
☒ NJ Reduced
☐ NJ Full
☐ Other _____
☐ FULL CLP
☐ NYASP Category A
☐ NYASP Category B
☐ State Forms
☐ EDD Format _____

Commercial "A" = Results Only

Comments / Remarks

• TB Rec 10.27.09 @ 0630 10.29.09

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

Relinquished by Sampler:	Date Time:	Received by:	Relinquished by:	Date Time:	Received by:
1	10-28	1 Cabin Temp 10-29-9 12:55	Cabin Temp 10-29-9	16:55	2
Relinquished by: 3	Date Time:	Received by: 3	Relinquished by: 4	Date Time:	Received by: 4
Relinquished by: 5	Date Time:	Received by: 5	Custody Seal # NO SEAL	Preserved where applicable ☐	On Ice ☒ Cooler Temp. 2.6°C

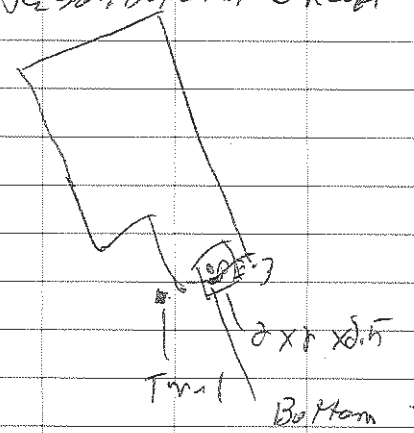
A. 1 Cooler

RPP

10/26/09
Alexandria

* meet w/ Chris O and other consultant to install temp well and excavate near PD-3

Jason Bottom - Rear



10/26/09 - PR arrive 0645

* continue temp well install w/ Summit.
* meet w/ Kevin to get Quarterly Sampling permits

cont →

TK-7930 SLF-TW-3-12
SLF-TW-1
SLF-TW-2 - Strong odors + staining - 6.5'

10/27/09 - PR
- Heavy Rain

* Scheduled to collect soil samples and install bollards... the Rain may halt this.

* Some notes from yesterday -
- late start on the Quarterly Sampling - Kevin was here around 7 but never contacted me, so he sat in the parking lot for 2 hours. Then he went to get his permit.

- I forgot to inform Kevin and Rich that the NLF should be sampled last due to the Coliform holding times. Because of this they sampled the NLF first and I had to bring the samples to the lab.

cont. →

- Kevin lost his sampling pump in a NOLF well. The NLF wells were not completed.

- Rich was not able to finish the SLF wells.

10/28/09 - PR

- Perform monthly pump out of monitoring wells.
- Rich will finish temp well sampling

Notes from yesterday's soil sampling -
- NLF 0-4 red med. to coarse sand
4-10 dark clay w organic mat.

11/9/09 - PR
- meet w/ Summit to Remove TF2 Pump, Repair PL-3R and install bollards.

* Summit sent to 2 new guys who were not signed up →

→ cont.

for the training class.

* Hess to Remove pump + tank.
* Pump removed and placed on ground for pick up.
- 15' of pipe

11/10/09 - PR

Meet w/ Summit to Repair PL-3R and install bollards at PL-3R, PL-9R, LS-2

11/12/09 - VZ - Asbury Park weather - cold, windy, Rainy
101 Memorial Dr, AP, NJ
* - perform site visit to look for any changes to site/environment.