New Jersey Department of Environmental Protection
Site Remediation Program

REMEDIAL ACTION PERMIT APPLICATION – GROUND WATER

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Hess Port Reading Refinery- AOC 1- The North Landfarm

List All AKAs:

Street Address: 750 Cliff Road

Municipality: Woodbridge Twp. (Township Borough or City)

County: Middlesex Zip Code: 07064

Program Interest (PI) Number(s): 006148 Case Tracking Number(s):

SECTION B. PERMIT TYPE AND FEES

- ☒ Natural Attenuation Permit Application $800.00
- ☐ Natural Attenuation Permit Modification.....$600.00
- ☐ Natural Attenuation Permit Termination.....$800.00
- ☐ Active System Permit Application $1,000.00
- ☐ Active System Permit Modification.....$800.00
- ☐ Active System Permit Termination $1,000.00

Fee Billing Contact:

Business Name: Hess Corporation Phone: (732) 750-6934

Contact: John Engdahl Title: Senior Specialist

Street Address: One Hess Plaza

City: Woodbridge State: NJ Zip Code: 07095

SECTION C. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION – CO-PERMITTEE

Affiliation/Name of Organization: Hess Corporation

First Name of Contact: John Last Name of Contact: 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

☒ Primary Responsibility for Permit Compliance

SECTION D. CURRENT OWNER OF THE SITE – CO-PERMITTEE

Affiliation/Name of Organization: Hess Corporation

First Name of Contact: John Last Name of Contact: 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

☒ Primary Responsibility for Permit Compliance

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SECTION E. CLASSIFICATION EXCEPTION AREA (CEA) INFORMATION (N.J.A.C. 7:26E-8.3)

☐ Not Applicable (No change to a previously established CEA)

1. Attach the following:
   - ☒ CEA Fact Sheet (with exhibits)
   - ☒ CEA Map (both in paper, PDF and GIS compatible format)
   - ☒ Fate and Transport Description and Model
   - ☒ A summary table of the ground water monitoring results
2. What is the aerial extent of the proposed CEA? Entire AOC extending N-NE (acres)
3. Does the ground water plume extend off-site? ☐ Yes ☒ No
4. What is the vertical depth of contamination? 17 (feet)
5. What is the name of the impacted aquifer? Historic Fill and Salt Marsh deposits
6. What is the direction of ground water flow? North-Northeast
7. What is the duration of the proposed CEA? 30 (years)
8. Are the Public Notification per the Technical Requirements for Site Remediation (N.J.A.C. 7:26E-8.3(b)5) completed? ☒ Yes ☐ No
9. Block(s): 757 Lot(s): 1

SECTION F. MONITORING, MAINTENANCE AND EVALUATION INFORMATION (N.J.A.C. 7:26E-6.2(a)18)

1. Type of Remediation
   a. ☒ Natural Attenuation
      1) Has all soil contamination in the unsaturated zone been remediated to the applicable numeric soil remediation standard for all area(s) of concern associated with this CEA? ☐ Yes ☒ No
      2) Has all free and/or residual product in the unsaturated and saturated zones, as determined pursuant to N.J.A.C. 7:26E-2.1(a)14, been treated or removed? NA

   b. ☐ Active Remediation
      - ☐ Treatment – Type: _____
      - ☐ Hydraulic Control
      1) Is there a decreasing trend of contaminant concentrations in the ground water? ☐ Yes ☐ No
      2) Is the ground water plume **NOT** migrating horizontally or vertically into an uncontaminated aquifer zone below and adjacent to the contaminant plume? ☐ Yes ☐ No
      3) Is the ground water plume contained and **NOT** reaching the sentinel wells? ☐ Yes ☐ No
      4) Is the ground water remedial action performing as designed? ☐ Yes ☐ No
2. Are the following attached?
   a. Is a copy (PDF) of the applicable Remedial Action Report describing the remedial action requiring the Monitoring, Maintenance and Evaluation plan for the remediation (N.J.A.C. 7:26E-6.2(a)18) attached? ☒ Yes ☐ No
   b. Is the Monitoring, Maintenance and Evaluation plan consistent with N.J.A.C. 7:26E-6.2(a)18, 6.3(e) or 6.3(f)? ☒ Yes ☐ No
   c. Complete the summary of the proposed Monitoring and Reporting schedule

Check **Monitoring Schedule** you plan to apply		Check **Reporting Schedule** you plan to apply	
☐ Monthly	☐ Annual	☐ Monthly	☒ Annual
☐ Quarterly	☐ Biennial	☐ Quarterly	☐ Biennial
☒ Semi Annual	☐ Other: _____	☐ Semi Annual	☐ Other: _____

   d. Attach the GW Monitoring Plan Spreadsheet.
   e. Attach a scaled map indicating the locations of the proposed sampling points.

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SECTION G. ENGINEERING CONTROL AND FINANCIAL ASSURANCE

1. Does the ground water remediation require an engineering control? ☐ Yes ☒ No

   If "No," posting of financial assurance is not required. Go to Section H.

   If "Yes," complete this section.

2. Are any of the entities identified in Section C or D exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.7(b)? ☐ Yes ☐ No

   Check the exemption that applies:

Person Responsible for Conducting the Remediation – Co-Permittee	Owner of the Site – Co-Permittee	
☐	☐	Government entity
☐	☐	A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
☐	☐	A person that conducted remediation at their primary or secondary residence
☐	☐	Owner or operator of a child care center
☐	☐	Public school or private school
☐	☐	Owner or operator of a small business responsible for conducting remediation at the location of the business

3. Is the current owner of the site either a homeowner association or a condominium association pursuant to the New Jersey Common Interest Association Act, N.J.S.A. 46:8A-1 et seq.? ☐ Yes ☐ No

   If "Yes," and the association is identified in Section C and D of this Permit Application, attach a copy of the association's annual budget that includes funds for monitoring and maintenance of the engineering control.

4. Identify the estimated cost of maintaining the engineering controls at the site: $_____

5. Is the estimate attached? ☐ Yes ☐ No

6. What is the Financial Assurance instrument? (check all that apply)

   ☐ Environmental Insurance Policy ☒ Line of Credit
   ☐ Remediation Trust Fund ☐ Letter of Credit

7. Identify the full amount established as a financial assurance: $_____

8. Contact information at the financial institution for the financial assurance:

Name: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

Phone Number: _____ Ext: _____ Fax: _____

9. Is the original financial assurance instrument attached? ☐ Yes ☐ No

SECTION H. PROPERTY USE (for overlying CEA)

1. **Current Site Use** (check all that apply)

   ☒ Industrial ☐ Commercial ☐ School or Child Care Facility ☐ Park or Recreational Use
   ☐ Residential ☐ Governmental ☐ Agricultural ☐ Vacant
   ☐ Other _____

2. **Off-site Land Use** (check all that apply for Blocks/Lots included in the areal extent of the CEA)

   ☒ Industrial ☐ Park or Recreational Use ☐ School ☐ Vacant
   ☐ Residential ☐ Agricultural ☐ Child Care Center ☐ Occupied
   ☐ Commercial ☐ Road/Right of Way ☐ Hospital
   ☐ Government Facility ☐ Other _____

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SECTION I. RECEPTOR EVALUATION SUMMARY

1. Have any of the following been identified within 200 feet of the AOC boundary?
   Check all that apply.

   ☐ Residences
   ☐ Potable wells
   ☐ Public and private schools (K-12)
   ☐ Child care facilities
   ☐ Public parks and playgrounds
   ☒ Surface water
   ☐ Tier 1 Well-head protection areas

2. Have any of these receptors been impacted? ..... ☐ Yes ☒ No

   If "Yes," date of Receptor Control: _____ Date of IEC Contaminant Source Control: _____

SECTION J. OTHER REMEDIATION PERMITS

Are other Remediation Permits also being applied for or already obtained? ..... ☒ Yes ☐ No

If "Yes," please list the Permit Type, Permit Number and Effective Date for other remediation permits.

Remedial Action Permit - Soil- Pending

SECTION K. OTHER INFORMATION PROVIDED

If there is other information, please list.

SECTION L. 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: _____

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

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SECTION M. 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, Suit #8

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

Email Address: davec@envirotrac.com

This statement shall be signed by the LSRP who is submitting this notification in accordance with SRRA Section 16 d. and Section 30 b.2.

[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:

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

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ADDENDUM
Additional Persons Responsible For Conducting Remediation

ADDENDUM TO SECTION C. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION – CO-PERMITTEE

Affiliation/Name of Organization: _____

First Name of Contact: _____ Last Name of Contact: _____

Phone Number: _____ Ext: _____ Fax: _____

Title: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

☐ Primary Responsibility for Permit Compliance

ADDENDUM TO SECTION G. ENGINEERING CONTROL AND FINANCIAL ASSURANCE

1. Did the Deed Notice include an engineering control? ..... ☐ Yes ☐ No

   If "Yes," complete this section.

2. Are you exempt from establishing financial assurance pursuant to N.J.A.C. 7:26C-7.7(b)? ..... ☐ Yes ☐ No

   Check the exemption that applies:

   - ☐ Government entity
   - ☐ A person not liable pursuant to the Spill Act that purchased contaminated property before May 7, 2009
   - ☐ A person that conducted remediation at their primary or secondary residence
   - ☐ Owner or operator of a child care center
   - ☐ Public school or private school
   - ☐ Owner or operator of a small business responsible for conducting remediation at the location of the business

3. Do you represent a homeowner association or a condominium association pursuant to the New Jersey Common Interest Association Act, N.J.S.A. 46:8A-1 et seq.? ..... ☐ Yes ☐ No

   If "Yes," and the association is identified in Section C and D of this Permit Application, attach a copy of the association's annual budget that includes funds for monitoring and maintenance of the engineering control.

ADDENDUM TO SECTION L. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: _____

Representative First Name: _____ Representative Last Name: _____

Title: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

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: _____

Name/Title: _____ **No Changes Since Last Submittal** ☐

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Ground Water Monitoring Plan for Ground Water Remedial Action Permit (version 1.0; May 17, 2012)

INSTRUCTIONS

RESET DATA

PRINT

Case Name: Hess-Port Reading Refinery- AOC 1
Program Interest (PI) ID #: 006148
Spreadsheet Submission Date:

Wells to Be Sampled	Type of Well	Easting	Northing	Sampling Schedule	Reporting Schedule	Parameters for Each Well	CASRN
LN-1	Plume fringe	563434	630469	Semi-annually	Other	Volatile Organics	NA
LN-2	Plume fringe	563700	630518	Semi-annually	Other	Volatile Organics	NA
LN-3	Plume fringe	563780	630454	Semi-annually	Other	Volatile Organics	NA
LN-4	Plume fringe	563881	630347	Semi-annually	Other	Volatile Organics	NA
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	Volatile Organics	NA
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	Volatile Organics	NA
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	Volatile Organics	NA
LN-1	Plume fringe	563434	630469	Semi-annually	Other	Methyl tertiary butyl ether (MTBE)	1634-04-4
LN-2	Plume fringe	563700	630518	Semi-annually	Other	Methyl tertiary butyl ether (MTBE)	1634-04-4
LN-3	Plume fringe	563780	630454	Semi-annually	Other	Methyl tertiary butyl ether (MTBE)	1634-04-4
LN-4	Plume fringe	563881	630347	Semi-annually	Other	Methyl tertiary butyl ether (MTBE)	1634-04-4
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	Methyl tertiary butyl ether (MTBE)	1634-04-4
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	Methyl tertiary butyl ether (MTBE)	1634-04-4
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	Methyl tertiary butyl ether (MTBE)	1634-04-4
LN-1	Plume fringe	563434	630469	Semi-annually	Other	tertiary-Butyl alcohol (TBA)	75-65-0
LN-2	Plume fringe	563700	630518	Semi-annually	Other	tertiary-Butyl alcohol (TBA)	75-65-0
LN-3	Plume fringe	563780	630454	Semi-annually	Other	tertiary-Butyl alcohol (TBA)	75-65-0
LN-4	Plume fringe	563881	630347	Semi-annually	Other	tertiary-Butyl alcohol (TBA)	75-65-0
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	tertiary-Butyl alcohol (TBA)	75-65-0
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	tertiary-Butyl alcohol (TBA)	75-65-0
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	tertiary-Butyl alcohol (TBA)	75-65-0
LN-1	Plume fringe	563434	630469	Semi-annually	Other	Arsenic (Total)	7440-38-2

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Ground Water Monitoring Plan for Ground Water Remedial Action Permit (version 1.0; May 17, 2012)

INSTRUCTIONS

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PRINT

Case Name: Hess-Port Reading Refinery- AOC 1
Program Interest (PI) ID #: 006148
Spreadsheet Submission Date:

Wells to Be Sampled	Type of Well	Easting	Northing	Sampling Schedule	Reporting Schedule	Parameters for Each Well	CASRN
LN-2	Plume fringe	563700	630518	Semi-annually	Other	Arsenic (Total)	7440-38-2
LN-3	Plume fringe	563780	630454	Semi-annually	Other	Arsenic (Total)	7440-38-2
LN-4	Plume fringe	563881	630347	Semi-annually	Other	Arsenic (Total)	7440-38-2
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	Arsenic (Total)	7440-38-2
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	Arsenic (Total)	7440-38-2
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	Arsenic (Total)	7440-38-2
LN-1	Plume fringe	563434	630469	Semi-annually	Other	Cadmium	7440-43-9
LN-2	Plume fringe	563700	630518	Semi-annually	Other	Cadmium	7440-43-9
LN-3	Plume fringe	563780	630454	Semi-annually	Other	Cadmium	7440-43-9
LN-4	Plume fringe	563881	630347	Semi-annually	Other	Cadmium	7440-43-9
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	Cadmium	7440-43-9
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	Cadmium	7440-43-9
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	Cadmium	7440-43-9
LN-1	Plume fringe	563434	630469	Semi-annually	Other	Chromium (Total)	7440-47-3
LN-2	Plume fringe	563700	630518	Semi-annually	Other	Chromium (Total)	7440-47-3
LN-3	Plume fringe	563780	630454	Semi-annually	Other	Chromium (Total)	7440-47-3
LN-4	Plume fringe	563881	630347	Semi-annually	Other	Chromium (Total)	7440-47-3
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	Chromium (Total)	7440-47-3
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	Chromium (Total)	7440-47-3
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	Chromium (Total)	7440-47-3
LN-1	Plume fringe	563434	630469	Semi-annually	Other	Iron	7439-89-6
LN-2	Plume fringe	563700	630518	Semi-annually	Other	Iron	7439-89-6

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Ground Water Monitoring Plan for Ground Water Remedial Action Permit (version 1.0; May 17, 2012)

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Case Name: Hess-Port Reading Refinery- AOC 1
Program Interest (PI) ID #: 006148
Spreadsheet Submission Date:

Wells to Be Sampled	Type of Well	Easting	Northing	Sampling Schedule	Reporting Schedule	Parameters for Each Well	CASRN
LN-3	Plume fringe	563780	630454	Semi-annually	Other	Iron	7439-89-6
LN-4	Plume fringe	563881	630347	Semi-annually	Other	Iron	7439-89-6
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	Iron	7439-89-6
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	Iron	7439-89-6
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	Iron	7439-89-6
LN-1	Plume fringe	563434	630469	Semi-annually	Other	Lead (Total)	7439-92-1
LN-2	Plume fringe	563700	630518	Semi-annually	Other	Lead (Total)	7439-92-1
LN-3	Plume fringe	563780	630454	Semi-annually	Other	Lead (Total)	7439-92-1
LN-4	Plume fringe	563881	630347	Semi-annually	Other	Lead (Total)	7439-92-1
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	Lead (Total)	7439-92-1
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	Lead (Total)	7439-92-1
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	Lead (Total)	7439-92-1
LN-1	Plume fringe	563434	630469	Semi-annually	Other	Manganese	7439-96-5
LN-2	Plume fringe	563700	630518	Semi-annually	Other	Manganese	7439-96-5
LN-3	Plume fringe	563780	630454	Semi-annually	Other	Manganese	7439-96-5
LN-4	Plume fringe	563881	630347	Semi-annually	Other	Manganese	7439-96-5
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	Manganese	7439-96-5
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	Manganese	7439-96-5
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	Manganese	7439-96-5
LN-1	Plume fringe	563434	630469	Semi-annually	Other	Mercury (Total)	7439-97-6
LN-2	Plume fringe	563700	630518	Semi-annually	Other	Mercury (Total)	7439-97-6
LN-3	Plume fringe	563780	630454	Semi-annually	Other	Mercury (Total)	7439-97-6

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Ground Water Monitoring Plan for Ground Water Remedial Action Permit (version 1.0; May 17, 2012)

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Case Name: Hess-Port Reading Refinery- AOC 1
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Spreadsheet Submission Date:

Wells to Be Sampled	Type of Well	Easting	Northing	Sampling Schedule	Reporting Schedule	Parameters for Each Well	CASRN
LN-4	Plume fringe	563881	630347	Semi-annually	Other	Mercury (Total)	7439-97-6
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	Mercury (Total)	7439-97-6
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	Mercury (Total)	7439-97-6
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	Mercury (Total)	7439-97-6
LN-1	Plume fringe	563434	630469	Semi-annually	Other	Sodium	7440-23-5
LN-2	Plume fringe	563700	630518	Semi-annually	Other	Sodium	7440-23-5
LN-3	Plume fringe	563780	630454	Semi-annually	Other	Sodium	7440-23-5
LN-4	Plume fringe	563881	630347	Semi-annually	Other	Sodium	7440-23-5
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	Sodium	7440-23-5
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	Sodium	7440-23-5
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	Sodium	7440-23-6
LN-1	Plume fringe	563434	630469	Semi-annually	Other	Ammonia (Total)	7664-41-7
LN-2	Plume fringe	563700	630518	Semi-annually	Other	Ammonia (Total)	7664-41-7
LN-3	Plume fringe	563780	630454	Semi-annually	Other	Ammonia (Total)	7664-41-7
LN-4	Plume fringe	563881	630347	Semi-annually	Other	Ammonia (Total)	7664-41-7
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	Ammonia (Total)	7664-41-7
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	Ammonia (Total)	7664-41-7
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	Ammonia (Total)	7664-41-7
LN-1	Plume fringe	563434	630469	Semi-annually	Other	Chloride	16887-00-6
LN-2	Plume fringe	563700	630518	Semi-annually	Other	Chloride	16887-00-6
LN-3	Plume fringe	563780	630454	Semi-annually	Other	Chloride	16887-00-6
LN-4	Plume fringe	563881	630347	Semi-annually	Other	Chloride	16887-00-6

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Ground Water Monitoring Plan for Ground Water Remedial Action Permit (version 1.0; May 17, 2012)

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Program Interest (PI) ID #: 006148
Spreadsheet Submission Date:

Wells to Be Sampled	Type of Well	Easting	Northing	Sampling Schedule	Reporting Schedule	Parameters for Each Well	CASRN
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	Chloride	16887-00-6
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	Chloride	16887-00-6
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	Chloride	16887-00-6
LN-1	Plume fringe	563434	630469	Semi-annually	Other	Nitrate	14797-55-8
LN-2	Plume fringe	563700	630518	Semi-annually	Other	Nitrate	14797-55-8
LN-3	Plume fringe	563780	630454	Semi-annually	Other	Nitrate	14797-55-8
LN-4	Plume fringe	563881	630347	Semi-annually	Other	Nitrate	14797-55-8
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	Nitrate	14797-55-8
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	Nitrate	14797-55-8
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	Nitrate	14797-55-8
LN-1	Plume fringe	563434	630469	Semi-annually	Other	TDS (Total dissolved solids)	-
LN-2	Plume fringe	563700	630518	Semi-annually	Other	TDS (Total dissolved solids)	-
LN-3	Plume fringe	563780	630454	Semi-annually	Other	TDS (Total dissolved solids)	-
LN-4	Plume fringe	563881	630347	Semi-annually	Other	TDS (Total dissolved solids)	-
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	TDS (Total dissolved solids)	-
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	TDS (Total dissolved solids)	-
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	TDS (Total dissolved solids)	-
LN-1	Plume fringe	563434	630469	Semi-annually	Other	pH	-
LN-2	Plume fringe	563700	630518	Semi-annually	Other	pH	-
LN-3	Plume fringe	563780	630454	Semi-annually	Other	pH	-
LN-4	Plume fringe	563881	630347	Semi-annually	Other	pH	-
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	pH	-

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Ground Water Monitoring Plan for Ground Water Remedial Action Permit (version 1.0; May 17, 2012)

INSTRUCTIONS

RESET DATA

PRINT

Case Name: Hess-Port Reading Refinery- AOC 1
Program Interest (PI) ID #: 006148
Spreadsheet Submission Date:

Wells to Be Sampled	Type of Well	Easting	Northing	Sampling Schedule	Reporting Schedule	Parameters for Each Well	CASRN
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	pH	-
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	pH	-
LN-1	Plume fringe	563434	630469	Semi-annually	Other	Sulfate	14808-79-8
LN-2	Plume fringe	563700	630518	Semi-annually	Other	Sulfate	14808-79-8
LN-3	Plume fringe	563780	630454	Semi-annually	Other	Sulfate	14808-79-8
LN-4	Plume fringe	563881	630347	Semi-annually	Other	Sulfate	14808-79-8
LN-5	Plume fringe	630298.7	563841.3	Semi-annually	Other	Sulfate	14808-79-8
LN-6	Plume fringe	563734.7	630491.7	Semi-annually	Other	Sulfate	14808-79-8
LN-7	Plume fringe	563549	630491.3	Semi-annually	Other	Sulfate	14808-79-8

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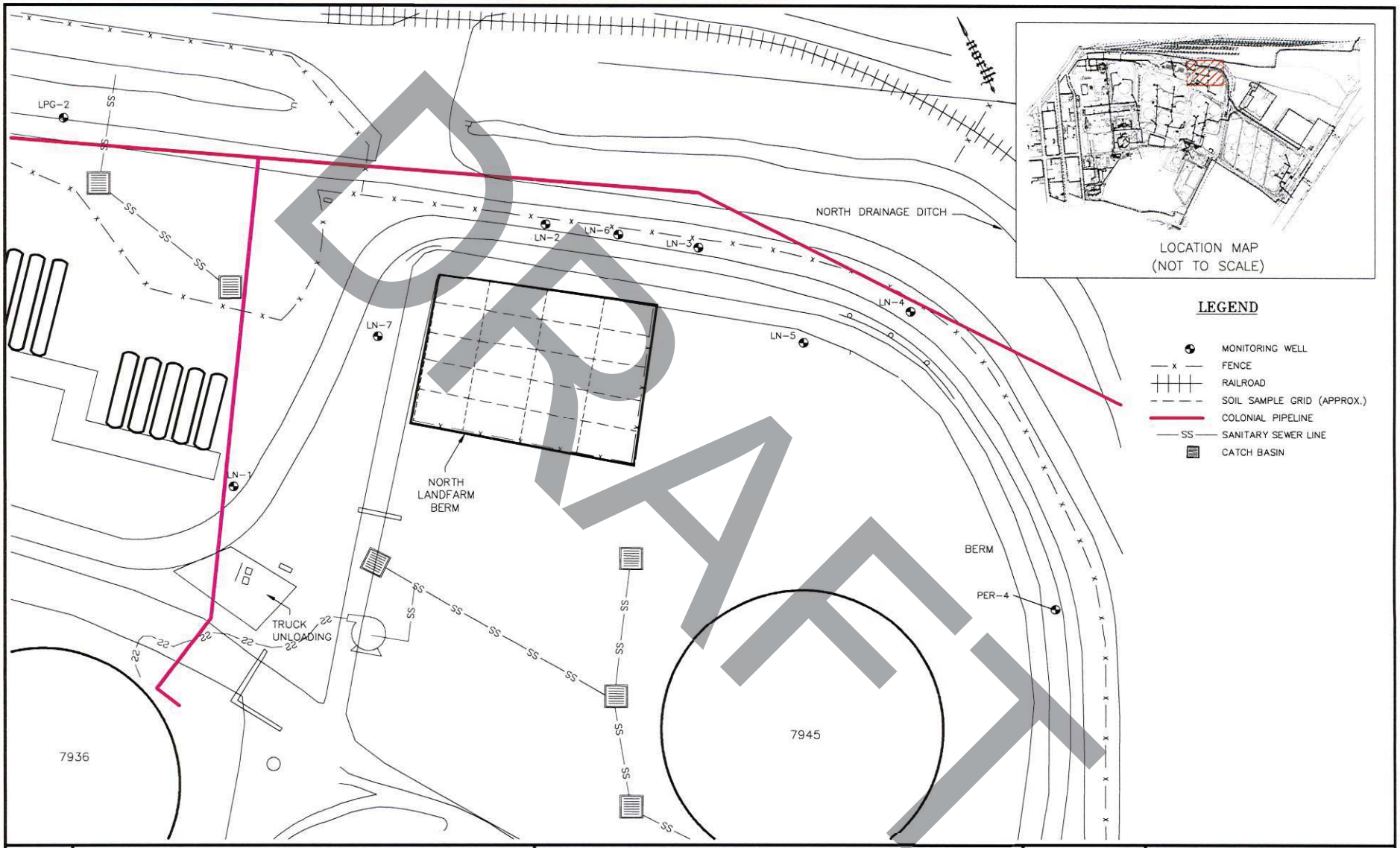

HESS CORPORATION
750 CLIFF ROAD
PORT READING, NEW JERSEY

HESS

PROPOSED SAMPLING POINTS

DRAWN BY: B.S.

REVISION DATE: 12/5/11

0 60
SCALE IN FEET

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

Well Construction Table - Sampling Point Wells

Permit_Number	Owners_Number	Construction	Sentinel	Source	Downgradient	Width	Cross_Section	Additional_Data	TOC_to_groundsurface_in_inches	TOC_Survey_MeanSeaLevel	TOC_to_static_water_before_purge
2600081303	LN-1	stick up	No	No	No	Yes	No		18.00	12.19	5.67
2600007562	LN-2	stick up	No	No	Yes	Yes	No		12.00	12.21	5.78
2600007563	LN-3	stick up	No	No	Yes	No	No		6.00	11.34	5.23
2600081311	LN-4	stick up	No	No	Yes	Yes	No		24.00	13.55	7.22
E201013003	LN-5	stick up	No	No	Yes	Yes	No		18.00	12.85	6.2
E201013004	LN-6	stick up	No	No	Yes	Yes	No		48.00	14.56	8.36
E201013005	LN-7	stick up	No	No	No	Yes	Yes		48.00	15.75	8.92
No Permit	B103	direct push	No	No	No	No	Yes				
No Permit	B107	direct push	No	No	No	No	Yes				
No Permit	NLF-3	direct push	No	No	No	No	Yes				

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Date_of_static_water_measurement	Cleanwater_lens_thickness	Direction Prevailing	Comment
1/14/2013			
1/14/2013			
1/14/2013			
1/14/2013			
1/14/2013			
1/14/2013			
1/14/2013			

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Hess Corporation- Port Reading Refinery- AOC- 1 the North Landfarm
P001

Address: 750 Cliff Road
Port Reading
NEW JERSEY
07077

Contact: David Carlson or Sarah Dyson
609-387-5553

Comments:

Activity	Units	Closure Cost
Post Closure Care	1	$749,177.35
		$749,177.35
Additional Costs		$0.00
Total Estimated Cost		**$749,177.35**

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New Jersey Department of Environmental Protection
Site Remediation Program

CLASSIFICATION EXCEPTION AREA / WELL RESTRICTION AREA (CEA/WRA) PERMIT FACT SHEET FORM

Date Stamp
(For Department use only)

SECTION A. SITE INFORMATION

Site Name: Hess Corporation- Port Reading Refinery- AOC 1- the North Landfarm

Program Interest (PI) Number(s): 006148 Case Tracking Number(s):

New CEA ☒ Revised CEA ☐ Type of Remedial Action (RA): Natural ☒ Active ☐ RA not yet selected ☐

SECTION B. CEA Component Information

1. **Contaminant(s):** This CEA/WRA applies only to the contaminants above the applicable numeric values established by Ground Water Quality Standards (GWQS), N.J.A.C. 7:9C, listed in the table below. List below the maximum value for all contaminants included in Exhibit A using any well or sampling point used to establish the CEA.

Contaminant	Concentration (1)	GWQS (2)	SWQS(3)	GWSL(4)
Lead	30.3	5	24	NA

Notes:
(1) Maximum concentration in Micrograms Per Liter
(2) New Jersey Ground Water Quality Standards, N.J.A.C. 7:9C
(3) Surface Water Quality Standards, N.J.A.C. 7:9B - Applicable only where contaminants in the CEA may discharge to a surface water body.
(4) Current NJDEP Vapor Intrusion Ground Water Screening Levels available at http://www.nj.gov/dep/srp/guidance/vaporintrusion/

☒ Check if attaching an Addendum to list additional contaminants and associated information.

☒ **Exhibit A: Monitor Well/Sampling Point Data** – Per N.J.A.C 7:26E-8.3(b) submit a copy of a table that includes the most recent 24 months of ground water sampling.

2. **CEA Boundaries:**
Lot(s) and Block(s) included in the areal extent of the Classification Exception Area:

Year of tax map used: 2008 For CEA revisions, check here if Block and Lot numbers have changed: ☐

Block(s)	Lot(s)	Check if off-site	Block(s)	Lot(s)	Check if off-site
757	1	☐			☐
		☐			☐
		☐			☐
		☐			☐
		☐			☐

☐ Check if attaching an Addendum to list additional Blocks/Lots and associated information.

☒ **Exhibit B: Site Location Maps** – USGS Quadrangle Map and Tax Lot and Block Map (N.J.A.C. 7:26E-8.3(b)3i and ii)

☒ **Exhibit C: Site Map(s) and Cross Section** – Including actual/predicted contaminant isopleths, ground water flow direction, CEA boundary, monitor well/sampling point/boring locations/IDs, area(s) of concern. See N.J.A.C 7:26E-8.3(b)3iii through v and instructions regarding maps, the cross section and applicable GIS deliverable requirements.

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Narrative description of proposed CEA:

Encompasses AOC-1 the North Landfarm, expanding north east and east to the North Drainage ditch. Including the areas of LN-1 and LN-7, expanded to the edge of the North Drainage Ditch.

Name(s) of the affected Geologic Formation(s)/Unit(s): Raritan-Magothy

Direction of ground water flow: North Northeast

(See instructions. If multiple water bearing zones/predominate flow directions exist within the CEA, leave above blank.)

Ground Water Classification: II-A

Vertical Depth of CEA (ft bgs and msl)	Horizontal Extent of CEA (acres or square ft)
17 bgs or -3.75 msl	156,000 sq ft

☒ **Exhibit D (**CEA/WRA Spreadsheet)**: Vertical Contaminant Depth Data and GIS Deliverable for Cross Section** – A spreadsheet, for the most recent 24 months of data, for each sampling point used to establish the CEA, or the subset of wells indicated in N.J.A.C 7:26E-8.3(b)3iii, iv and v, that includes the depth in feet bgs and msl elevation to: the water table; the approximate maximum depth of contamination; and the thickness of any clean water lens, if one had been identified during the Remedial Investigation. See instructions for this form and spreadsheet for more details.

Exhibit E: Fate and Transport Description and Model Documentation

☒ Historic Fill exemption

☒ All information required pursuant to N.J.A.C. 7:26E-8.3(b)2 and applicable guidance is included.

3. Projected Term of CEA: Based on modeling/calculations in Exhibit E

Proposed Duration in Years: Indeterminate

SECTION C. CURRENT AND PROJECTED GROUND WATER USE DOCUMENTATION

☒ **Exhibit F: Well Search Results** – Include most recent well search per N.J.A.C. 7:26E-1.17.

Check each item where, pursuant to N.J.A.C. 7:26E-8.3(b)4, written documentation was obtained regarding future ground water use, in the aquifer(s) in which the CEA is located, for a 25-year planning horizon based on:

☒ Municipal master plans

☒ Zoning plans

☐ Local water purveyor plans and planning data pertaining to the existence of water lines and proposed future installation of water lines

☒ Local planning officials

☒ County and local boards of health

☒ Local and/or county ordinances restricting installation of potable wells

SECTION D. WELL RESTRICTION INFORMATION

For Class II-A ground water and pursuant to the GWQS at N.J.A.C. 7:9C-1.6(d), where ground water quality data indicate contaminants exceed the values listed in the Primary Drinking Water Regulations, the Department shall restrict, or require the restriction of, potable ground water uses within any CEA. Therefore, the CEA established for this site is also a Well Restriction Area, the extent of which coincides with the boundaries of the CEA.
Well Restrictions set within the boundaries of the CEA:

☒ Double Case Wells

☒ Sample Potable Wells

☒ Evaluate Production Wells

☐ Other

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SECTION E. PUBLIC NOTIFICATION REQUIREMENTS

See instructions regarding N.J.A.C. 7:26E-8.3(b)5vi, otherwise notify the NJDEP that letters were sent per N.J.A.C. 7:26E-8.3(b)5 by checking all applicable entities:

- ☒ Municipal and county clerk(s)
- ☒ Local, county or regional health department(s)
- ☒ Designated County Environmental Health Act agency (if applicable)
- ☒ County Planning Board
- ☐ Pinelands Commission (if applicable)
- ☐ Owners of real property overlying CEA foot print

List of Names and Addresses – Include all persons notified pursuant to N.J.A.C. 7:26E-8.3(b) based on the proposed CEA extent. See instructions regarding last column. Check here if no volatile contaminants in CEA: ☒.

Property Owner Name	Notification Address Used	Date notification sent	Property was evaluated for vapor impacts ☒ if "Yes"
			☐
			☐
			☐
			☐
			☐
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SECTION F. 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

This statement shall be signed by the LSRP who is submitting this notification in accordance with SRRA Section 16 d. and Section 30 b.2.

[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:

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

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Exhibit A
North Landfarm Groundwater Sampling Summary- Volatiles
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

Volatiles									
Sample ID	Date	Benzene	1,2-Dichlorobenzene	Ethylbenzene	Toluene	Vinyl Chloride	Xylenes (total)	Methyl Tert Butyl Ether	Tertiary Butyl Alcohol
NJDEP GWQS		1	600	700	600	1	1,000	70	100
LN-1	7/19/2002	ND	ND	ND	ND	ND	ND	ND	ND
	1/24/2003	ND	ND	ND	ND	ND	ND	ND	ND
	7/25/2003	ND	ND	ND	ND	ND	ND	ND	ND
	1/24/2004	ND	ND	ND	ND	ND	ND	ND	ND
	7/30/2004	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2005	ND	ND	ND	ND	ND	ND	ND	ND
	7/19/2006	ND	ND	ND	ND	ND	ND	1.5	ND
	7/26/2006	ND	ND	ND	ND	ND	ND	1.5	ND
	1/23/2007	ND	ND	ND	ND	ND	ND	3.7	ND
	7/27/2007	ND	ND	ND	ND	ND	ND	2.6	ND
	1/10/2008	ND	ND	1.1	ND	ND	ND	ND	ND
	7/21/2008	ND	ND	ND	ND	ND	ND	1.2	ND
	1/21/2009	ND	ND	ND	ND	ND	ND	1.1	ND
	7/28/2009	ND	ND	ND	ND	ND	ND	1	ND
	10/26/2009	ND	ND	ND	ND	ND	ND	1.3	ND
	1/27/2010	ND	ND	ND	ND	ND	ND	0.94	ND
	4/5/2010	ND	ND	ND	ND	ND	ND	0.91	ND
	7/21/2010	ND	ND	ND	ND	ND	ND	1.0	ND
	10/26/2010	ND	ND	ND	ND	ND	ND	1.5	ND
	1/19/2011	ND	ND	ND	ND	ND	ND	1.1	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	0.74	ND
	7/21/2011	ND	ND	ND	ND	ND	ND	1.0	ND
	10/20/2011	ND	ND	ND	ND	ND	ND	1.3	ND
	1/18/2012	ND	ND	ND	ND	ND	ND	0.59 J	ND
	4/24/2012	ND	ND	ND	ND	ND	ND	0.63 J	ND
	7/24/2012	ND	ND	ND	ND	ND	ND	0.96 J	ND
	10/24/2012	ND	ND	ND	ND	ND	ND	0.87J	ND
	1/15/2013	ND	ND	ND	ND	ND	ND	1.1	ND

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Exhibit A
North Landfarm Groundwater Sampling Summary- Volatiles
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

Volatiles									
Sample ID	Date	Benzene	1,2-Dichlorobenzene	Ethylbenzene	Toluene	Vinyl Chloride	Xylenes (total)	Methyl Tert Butyl Ether	Tertiary Butyl Alcohol
NJDEP GWQS		1	600	700	600	1	1,000	70	100
LN-2	7/19/2002	ND	ND	ND	ND	ND	ND	ND	ND
	1/24/2003	ND	ND	ND	ND	ND	ND	ND	ND
	7/25/2003	ND	ND	ND	ND	ND	ND	ND	ND
	1/24/2004	ND	ND	ND	ND	ND	ND	ND	ND
	7/30/2004	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2005	ND	ND	ND	ND	ND	ND	ND	ND
	7/19/2006	ND	ND	ND	ND	ND	ND	ND	ND
	7/26/2006	ND	ND	ND	ND	ND	ND	0.74	ND
	1/23/2007	ND	ND	ND	ND	ND	ND	ND	ND
	7/27/2007	ND	ND	ND	ND	ND	ND	0.74	ND
	1/10/2008	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2008	ND	ND	ND	ND	ND	ND	ND	ND
	1/21/2009	ND	ND	ND	ND	ND	ND	ND	ND
	7/28/2009	ND	ND	ND	ND	ND	ND	ND	11.6
	10/26/2009	ND	ND	ND	ND	ND	ND	0.61	33.2
	1/27/2010	ND	ND	ND	ND	ND	ND	0.5	21
	4/5/2010	ND	ND	ND	ND	ND	ND	ND	14.2
	7/21/2010	ND	ND	ND	ND	ND	ND	ND	ND
	10/26/2010	ND	ND	ND	ND	ND	ND	0.44	15.8
	1/19/2011	ND	ND	ND	ND	ND	ND	0.33	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2011	ND	ND	ND	ND	ND	ND	ND	ND
	10/20/2011	ND	ND	ND	ND	ND	ND	0.76 J	39.7
	1/18/2012	ND	ND	ND	ND	ND	ND	ND	ND
	4/24/2012	ND	ND	ND	ND	ND	ND	ND	ND
	7/24/2012	ND	ND	ND	ND	ND	ND	0.37 J	20.8 J
	10/24/2012	ND	ND	ND	ND	ND	ND	0.40 J	25.9
	1/15/2013	ND	ND	ND	ND	ND	ND	0.38 J	34.7

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Exhibit A
North Landfarm Groundwater Sampling Summary- Volatiles
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

Volatiles									
Sample ID	Date	Benzene	1,2-Dichlorobenzene	Ethylbenzene	Toluene	Vinyl Chloride	Xylenes (total)	Methyl Tert Butyl Ether	Tertiary Butyl Alcohol
NJDEP GWQS		1	600	700	600	1	1,000	70	100
LN-3	7/19/2002	ND	ND	ND	ND	ND	ND	ND	ND
	1/24/2003	ND	ND	ND	ND	ND	ND	ND	ND
	7/25/2003	ND	ND	ND	ND	ND	ND	ND	ND
	1/24/2004	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2005	ND	0.19	ND	ND	ND	ND	ND	ND
	7/19/2006	0.22	ND	ND	ND	ND	ND	ND	ND
	7/26/2006	ND	ND	ND	ND	ND	ND	1.2	52.7
	1/23/2007	ND	ND	ND	ND	ND	ND	0.68	35.8
	7/27/2007	ND	ND	ND	ND	ND	ND	0.8	30.3
	1/10/2008	ND	ND	ND	ND	ND	ND	0.63	44.5
	7/21/2008	ND	ND	ND	ND	ND	ND	0.59	17.4
	1/21/2009	ND	ND	ND	ND	ND	0.36	0.78	38
	7/28/2009	0.37	ND	ND	ND	ND	ND	0.69	40.7
	10/26/2009	ND	ND	ND	ND	ND	ND	0.36	11.2
	1/27/2010	ND	ND	ND	ND	ND	ND	0.5	17.4
	4/5/2010	ND	ND	ND	ND	ND	ND	0.36	19.7
	7/21/2010	ND	ND	ND	ND	ND	ND	ND	ND
	10/26/2010	ND	ND	ND	ND	ND	ND	0.28	ND
	1/19/2011	ND	ND	ND	ND	ND	ND	ND	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	0.48	23.8
	7/21/2011	ND	ND	ND	0.34 J	ND	0.53 J	0.52 J	19.6 J
	10/20/2011	ND	ND	ND	ND	ND	0.61 J	0.55 J	ND
	1/18/2012	ND	ND	ND	ND	ND	ND	0.29 J	ND
	4/24/2012	ND	ND	ND	ND	ND	ND	ND	ND
	7/24/2012	ND	ND	ND	ND	ND	ND	0.31 J	ND
	10/24/2012	ND	ND	ND	ND	ND	ND	0.26 J	ND
	1/15/2013	ND	ND	ND	ND	ND	ND	ND	ND

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Exhibit A
North Landfarm Groundwater Sampling Summary- Volatiles
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

Volatiles									
Sample ID	Date	Benzene	1,2-Dichlorobenzene	Ethylbenzene	Toluene	Vinyl Chloride	Xylenes (total)	Methyl Tert Butyl Ether	Tertiary Butyl Alcohol
NJDEP GWQS		1	600	700	600	1	1,000	70	100
LN-4	7/19/2002	ND	ND	ND	0.21	ND	1.1	ND	ND
	1/24/2003	ND	ND	ND	ND	ND	ND	ND	ND
	7/25/2003	ND	ND	ND	ND	ND	ND	ND	ND
	1/24/2004	ND	ND	ND	ND	ND	ND	ND	ND
	7/30/2004	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2005	ND	ND	ND	ND	ND	ND	ND	ND
	7/19/2006	ND	ND	ND	ND	ND	ND	ND	ND
	7/26/2006	ND	ND	ND	ND	ND	0.52	1.9	**162**
	1/23/2007	0.29	ND	ND	ND	ND	0.32	1.4	**127**
	7/27/2007	0.53	ND	ND	ND	ND	ND	1.6	**106**
	1/10/2008	ND	ND	ND	ND	ND	ND	0.54	ND
	7/21/2008	ND	ND	ND	ND	ND	ND	0.73	27.5
	1/21/2009	ND	ND	ND	ND	ND	0.36	0.78	38.1
	7/28/2009	ND	ND	ND	ND	ND	ND	ND	ND
	10/26/2009	ND	ND	ND	ND	ND	ND	1.1	67.8
	1/27/2010	ND	ND	ND	ND	ND	ND	1.2	41.6
	4/5/2010	ND	ND	ND	ND	ND	ND	0.91	29.5
	7/21/2010	ND	ND	ND	ND	ND	ND	0.45	11.2
	10/26/2010	ND	ND	ND	ND	ND	0.92	0.86	34.2
	1/19/2011	ND	ND	ND	ND	ND	ND	0.33	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	0.73	18.8
	7/21/2011	ND	ND	ND	0.27 J	ND	0.37 J	0.85 J	17.9 J
	10/20/2011	0.43 J	ND	ND	0.29 J	ND	0.92 J	1	44.2
	1/18/2012	ND	ND	ND	ND	ND	ND	0.58 J	18.9 J
	4/24/2012	0.52 J	ND	ND	ND	ND	0.58 J	0.58 J	ND
	7/24/2012	ND	ND	ND	ND	ND	0.99 J	0.87 J	23.1 J
	10/24/2012	ND	ND	ND	ND	ND	ND	ND	ND
	1/15/2013	ND	ND	ND	ND	ND	0.28 J	0.60 J	12.8 J

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Exhibit A
North Landfarm Groundwater Sampling Summary- Volatiles
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

Volatiles									
Sample ID	Date	Benzene	1,2-Dichlorobenzene	Ethylbenzene	Toluene	Vinyl Chloride	Xylenes (total)	Methyl Tert Butyl Ether	Tertiary Butyl Alcohol
NJDEP GWQS		1	600	700	600	1	1,000	70	100
LN-5	10/26/2010	ND	ND	ND	ND	ND	ND	ND	ND
	1/19/2011	Could not locate due to snow							
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2011	ND	ND	ND	0.26 J	ND	ND	ND	ND
	10/20/2011	ND	ND	ND	ND	ND	ND	ND	ND
	1/18/2012	ND	ND	ND	ND	ND	ND	ND	ND
	4/24/2012	ND	ND	ND	ND	ND	ND	ND	ND
	7/24/2012	ND	ND	ND	ND	ND	ND	ND	ND
	10/24/2012	ND	ND	ND	ND	ND	ND	ND	ND
	1/15/2013	ND	ND	ND	ND	ND	ND	ND	ND
LN-6	10/26/2010	ND	ND	ND	ND	ND	ND	ND	ND
	1/19/2011	ND	ND	0.22	ND	ND	2.3	ND	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2011	ND	ND	ND	ND	ND	ND	ND	ND
	10/20/2011	ND	ND	ND	ND	ND	ND	0.62 J	22.5 J
	1/18/2012	ND	ND	ND	ND	ND	ND	ND	ND
	4/24/2012	ND	ND	ND	ND	ND	ND	0.29 J	ND
	7/24/2012	ND	ND	ND	ND	ND	ND	0.38 J	ND
	10/24/2012	ND	ND	ND	ND	ND	ND	ND	ND
	1/15/2013	ND	ND	ND	ND	ND	ND	ND	ND
LN-7	10/26/2010	ND	ND	ND	ND	ND	ND	0.59	32.2
	1/19/2011	ND	ND	ND	ND	ND	ND	0.34	20.7
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2011	ND	ND	ND	ND	ND	ND	0.30 J	ND
	10/20/2011	**12.1**	ND	0.30 J	0.60 J	ND	1.1	1.2	42.0
	1/18/2012	ND	ND	ND	ND	ND	ND	1.0	28.0
	4/24/2012	ND	ND	ND	ND	ND	ND	0.38 J	12.8 J
	7/24/2012	ND	ND	ND	ND	ND	ND	0.33 J	17.1 J
	10/24/2012	ND	ND	ND	ND	ND	ND	0.80 J	19.8 J
	1/15/2013	ND	ND	ND	ND	ND	ND	0.79 J	21.2 J

All data is reported in ug/l unless otherwise noted
ND- Not Detected
NS- Not Sampled
J- Estimate Value
Shaded values in bold are above GWQS

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Exhibit A
North Landfarm Groundwater Sampling Summary Table - General Chemistry
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

General Chemistry															
Sample ID	Date	Nitrogen, Ammonia (mg/L)	Nitrogen, Nitrate (mg/L)	Nitrogen, Nitrite (mg/L)	Nitrogen, Nitrate + Nitrite (mg/L)	Phenols (mg/L)	Total Organic Carbon (mg/L)	Fluoride (mg/L)	Total Organic Halides (mg/L)	Solids, Total Dissolved (mg/L)	Fecal Coliform (col/100mL)	Chloride (mg/L)	Sulfate (mg/L)	Specific Conductivity (umhos/cm)	pH
NJDEP GWQS		**3**	**10**	**1**	**10**	**2**	**NA**	**2**	**NA**	**500**	**NA**	**250**	**250**	**NA**	**6.5 - 8.5**
LN-1	1/27/2005	**4.0**	<0.11	<0.010	<0.10	<0.20	7.0	0.83	<0.20	**1,410**	<2	**509**	**379**	97.2	**6.23**
	4/27/2005	NA	NA	NA	NA	NA	9.1	NA	<0.20	NA	NA	NA	NA	1,490	6.87
	7/19/2005	**4.1**	0.13	<0.010	0.13	<0.20	6.8	0.81	<0.20	**1,080**	NA	**368**	**292**	1,500	**6.42**
	10/10/2005	NA	NA	NA	NA	NA	5.6	NA	<0.20	NA	NA	NA	NA	1,310	**6.36**
	4/27/2006	NA	NA	NA	NA	NA	7.1	NA	<0.20	NA	NA	NA	NA	1,910	6.72
	7/20/2006	**3.8**	<0.11	<0.010	<0.10	<0.20	9.0	1.1	<0.10	**979**	<5	**292**	245	1,850	**6.22**
	10/20/2006	NA	NA	NA	NA	NA	8.1	NA	<0.050	NA	NA	NA	NA	1,640	7.35
	1/23/2007	**7.7**	<0.11	<0.010	<0.10	<0.20	13.6	0.48	0.35	**6,000**	<5	**5,170**	**1080**	11,000	**6.2**
	4/17/2007	NA	NA	NA	NA	NA	10.1	NA	<0.10	NA	NA	NA	NA	16,800	7.0
	7/27/2007	**6.1**	<0.15	<0.050	<0.10	<0.20	10.3	0.77	<0.10	**6,250**	<2	**3,750**	**608**	11,300	**6.23**
	10/29/2007	NA	NA	NA	NA	NA	10.5	NA	<0.050	NA	NA	NA	NA	6,500	**6.31**
	1/10/2008	**3.6**	<0.11	<0.010	<0.10	<0.20	7.9	0.83	<0.10	**2,550**	<2	**1,390**	**283**	505	**6.48**
	4/14/2008	NA	NA	NA	NA	NA	8.9	NA	<0.10	NA	NA	NA	NA	2,910	6.65
	7/21/2008	**4.9**	<0.11	<0.010	<0.10	<0.20	9.4	1.2	<0.050	**1,900**	<5	**925**	188	3,630	6.56
	10/27/2008	NA	NA	NA	NA	NA	8.1	NA	<0.050	NA	NA	NA	NA	3,030	6.58
	1/21/2009	**5.1**	<0.11	<0.010	<0.10	<0.20	7.9	0.88	<0.050	**1,610**	<4	**840**	136	2,900	6.6
	4/28/2009	NA	NA	NA	NA	NA	6.6	NA	<0.050	NA	NA	NA	NA	2,940	**6.38**
	7/28/2009	**4.3**	<0.11	<0.010	<0.10	<0.20	6.4	1.7	<0.050	**1,030**	<4	**602**	132	2,370	**6.38**
	10/26/2009	**5.4**	<0.11	<0.010	<0.10	<0.20	9.8	1.2	<0.10	**1,510**	12	**779**	100	2,990	**6.37**
	1/27/2010	**5.0**	<0.11	<0.010	<0.10	<0.20	8.6	0.88	<0.10	**1,380**	<4	**655**	60	728	7.33
	4/5/2010	**5.9**	0.17	<0.010	0.17	<0.20	9.5	1.0	<0.10	**1,390**	<5	**591**	80	0.402	7.09
	7/21/2010	**4.7**	<0.11	<0.010	<0.10	<0.20	16.0	1.4	<0.10	**1,170**	<4	**492**	77.8	1.84	**6.42**
	10/26/2010	**4.5**	<0.11	<0.010	<0.10	<0.20	12.5	1.6	<0.050	**1,090**	<4	**435**	53.2	2.06	**6.31**
	1/19/2011	**4.4**	<0.11	<0.010	<0.10	<0.20	9.2	1.1	<0.050	**1,020**	<4	**416**	37.5	2.18	6.66
	4/20/2011	**3.6**	<0.11	<0.010	<0.10	<0.20	9.7	1.1	<0.050	**1,040**	<4	**389**	51.6	1.95	6.96
	7/21/2011	**5.3**	<0.11	<0.010	<0.10	<0.20	9.9	<0.20	<0.060	**754**	2	2.5	<10	1.58	7.00
	10/20/2011	**5.0**	<0.11	<0.010	<0.10	<0.20	8.1	1.4	<0.20	**913**	400	**381**	22.5	1.76	**6.09**
	1/18/2012	**3.5**	<0.11	<0.010	<0.10	<0.20	10.4	1.1	<0.20	**998**	<4	**364**	28.4	1.71	7.18
	4/24/2012	**4.8**	<0.11	<0.010	<0.10	<0.20	8.1	1.1	<0.20	**998**	<4	**380**	33.4	1.98	6.78
	7/24/2012	NA	NA	<0.010	NA	<0.20	NA	NA	<0.10	40.0	4	NA	NA	NA	NA
	10/24/2012	**4.1***	<0.11	<0.010	<0.10*	<0.20*	10.1	1.4	<0.10*	**785**	104	247	74.9	1,330*	**6.23***
	1/15/2013	**4.6**	<0.11[d]	<0.010	<0.10	<0.20	11.3	1	<0.20	**1,140**	4	449	25.1	2,050	6.70[a]

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Exhibit A
North Landfarm Groundwater Sampling Summary Table - General Chemistry
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

General Chemistry															
Sample ID	**Date**	**Nitrogen, Ammonia (mg/L)**	**Nitrogen, Nitrate (mg/L)**	**Nitrogen, Nitrite (mg/L)**	**Nitrogen, Nitrate + Nitrite (mg/L)**	**Phenols (mg/L)**	**Total Organic Carbon (mg/L)**	**Fluoride (mg/L)**	**Total Organic Halides (mg/L)**	**Solids, Total Dissolved (mg/L)**	**Fecal Coliform (col/100mL)**	**Chloride (mg/L)**	**Sulfate (mg/L)**	**Specific Conductivity (umhos/cm)**	**pH**
NJDEP GWQS		**3**	**10**	**1**	**10**	**2**	**NA**	**2**	**NA**	**500**	**NA**	**250**	**250**	**NA**	**6.5 - 8.5**
LN-2	7/20/2006	1.6	<0.11	<0.010	<0.10	<0.20	4.4	0.48	<0.050	264	<5	68.9	4.9	806	6.83
	10/20/2006	NA	NA	NA	NA	NA	3.9	NA	<0.050	NA	NA	NA	NA	593	7.18
	1/23/2007	1.9	<0.11	<0.010	<0.10	<0.20	3.6	1.2	0.21	441	<5	156	21.8	811	6.99
	4/17/2007	NA	NA	NA	NA	NA	2.7	NA	<0.050	NA	NA	NA	NA	410	7.66
	7/27/2007	2.7	<0.11	<0.10	<0.10	<0.20	4.5	0.84	<0.050	441	<4	159	<10	1,090	**6.47**
	10/29/2007	NA	NA	NA	NA	NA	4.2	NA	<0.10	NA	NA	NA	NA	7,990	6.54
	1/10/2008	1.5	<0.11	0.01	<0.10	<0.20	3.6	1.0	<0.050	411	<4	144	<10	723	6.84
	4/14/2008	NA	NA	NA	NA	NA	2.2	NA	<0.050	NA	NA	NA	NA	277	6.68
	7/21/2008	2.3	<0.11	<0.010	<0.10	<0.20	4.1	1.0	<0.050	469	TNTC	166	<20	842	6.71
	10/27/2008	NA	NA	NA	NA	NA	5.6	NA	<0.050	NA	NA	NA	NA	560	6.87
	1/21/2009	1.3	<0.11	<0.010	<0.10	<0.20	3.1	1.0	<0.050	284	<4	103	10.2	353	7.02
	4/28/2009	NA	NA	NA	NA	NA	2.4	NA	<0.050	NA	NA	NA	NA	1,010	**6.39**
	7/28/2009	1.2	<0.11	<0.010	<0.10	<0.20	3.3	0.63	<0.050	240	<4	95.4	<10	874	6.68
	10/26/2009	2.7	<0.11	<0.010	<0.10	<0.20	4.8	1.3	<0.050	469	<4	158	11.3	9,290	8.23
	1/27/2010	1.9	<0.11	<0.010	<0.10	<0.20	4.4	1.2	<0.10	317	<4	110	<10	728	7.26
	4/5/2010	1.5	<0.11	<0.010	<0.10	<0.20	3.3	1.3	<0.050	288	500	79.2	11.3	0.558	**6.42**
	7/21/2010	2.8	<0.11	<0.010	<0.10	<0.20	4.4	1.4	<0.050	**507**	4	178	10.2	0.358	6.9
	10/26/2010	2.5	<0.11	<0.010	<0.10	<0.20	4.4	1.4	<0.050	422	<5	130	12.3	0.911	6.55
	1/19/2011	2.1	<0.11	<0.010	<0.10	<0.20	3.5	1.1	<0.050	400	<4	134	<10	0.802	6.81
	4/20/2011	1.6	<0.11	<0.010	<0.10	<0.20	3.2	1.2	<0.050	327	16	105	<10	0.55	7.00
	7/21/2011	1.0	<0.11	<0.010	<0.10	<0.20	2.8	0.45	<0.050	199	28	47.6	<10	0.843	7.13
	10/20/2011	2.5	<0.11	<0.010	<0.10	<0.20	3.3	1.1	<0.20	379	16	119	11.8	0.842	7.12
	1/18/2012	1.2	<0.11	<0.010	<0.10	<0.20	3.5	0.99	<0.050	299	20	104	<10	0.664	7.00
	4/24/2012	2.1	<0.11	<0.010	<0.10	<0.20	3.8	0.48	<0.20	356	<4	134	<10	0.705	7.05
	7/24/2012	NA	NA	<0.010	NA	<0.20	NA	NA	<0.10	445	<4	NA	NA	NA	NA
	10/24/2012	2.2*	<0.11	<0.010	<0.10*	<0.20*	3.9*	0.88	<0.10*	486	28	147	<10	811*	**6.32***
	1/15/2013	2.7	<0.11[d]	<0.010	<0.10	<0.20	6.4	0.66	<0.10[e]	696	12	**318**	<10	1,210	6.79[a]

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Exhibit A
North Landfarm Groundwater Sampling Summary Table - General Chemistry
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

General Chemistry															
Sample ID	**Date**	**Nitrogen, Ammonia (mg/L)**	**Nitrogen, Nitrate (mg/L)**	**Nitrogen, Nitrite (mg/L)**	**Nitrogen, Nitrate + Nitrite (mg/L)**	**Phenols (mg/L)**	**Total Organic Carbon (mg/L)**	**Fluoride (mg/L)**	**Total Organic Halides (mg/L)**	**Solids, Total Dissolved (mg/L)**	**Fecal Coliform (col/100mL)**	**Chloride (mg/L)**	**Sulfate (mg/L)**	**Specific Conductivity (umhos/cm)**	**pH**
NJDEP GWQS		**3**	**10**	**1**	**10**	**2**	**NA**	**2**	**NA**	**500**	**NA**	**250**	**250**	**NA**	**6.5 - 8.5**
LN-3	1/27/2005	1.9	<0.11	<0.010	<0.10	<0.20	23.7	0.81	0.22	**628**	<2	**291**	3.1	1,240	6.54
	4/27/2005	NA	NA	NA	NA	NA	14.7	NA	0.27	NA	NA	NA	NA	1,550	6.76
	7/19/2005	**3.8**	0.13	<0.010	0.13	<0.20	42.0	0.57	<0.050	**854**	NA	**382**	<20	1,200	6.59
	10/10/2005	NA	NA	NA	NA	NA	11.3	NA	<0.20	NA	NA	NA	NA	1,250	6.66
	4/27/2006	NA	NA	NA	NA	NA	13.2	NA	<0.20	NA	NA	NA	NA	38	6.78
	7/20/2006	**3.8**	<0.11	<0.010	<0.10	<0.20	12.2	0.71	<0.10	**710**	<5	245	2	1,160	6.65
	10/20/2006	NA	NA	NA	NA	NA	13.8	NA	<0.050	NA	NA	NA	NA	1,260	6.57
	1/23/2007	**3.9**	<0.11	<0.010	<0.10	<0.20	16.2	0.84	<0.20	**571**	<5	170	<10	988	**6.46**
	4/17/2007	NA	NA	NA	NA	NA	14.2	NA	<0.10	NA	NA	NA	NA	1,190	**6.27**
	7/27/2007	**4.2**	<0.11	<0.010	<0.10	<0.20	16.0	0.84	<0.10	**666**	NA	249	<10	1,150	**5.98**
	10/29/2007	NA	NA	NA	NA	NA	15.8	NA	<0.050	NA	NA	NA	NA	14,700	**6.39**
	1/10/2008	**3.3**	0.13	0.025	0.15	<0.20	16.4	0.77	<0.050	**606**	<4	208	<10	1,240	6.57
	4/14/2008	NA	NA	NA	NA	NA	16.4	NA	<0.050	NA	NA	NA	NA	1,750	6.71
	7/21/2008	**3.4**	<0.11	<0.010	<0.10	<0.20	12.0	0.8	<0.050	**772**	TNTC	**341**	<20	1,630	6.68
	10/27/2008	NA	NA	NA	NA	NA	11.3	NA	<0.050	NA	NA	NA	NA	1,160	6.73
	1/21/2009	**3.9**	<0.20	<0.10	<0.10	<0.20	15.1	0.62	0.01	**618**	<4	**261**	<10	1,230	6.73
	4/28/2009	NA	NA	NA	NA	NA	12.8	NA	<0.10	NA	NA	NA	NA	3,280	**6.34**
	7/28/2009	**3.6**	<0.11	<0.010	<0.10	<0.20	20.6	0.68	<0.050	**935**	<4	**517**	<10	1,620	6.59
	10/26/2009	**3.9**	<0.11	<0.010	<0.10	<0.20	16.3	0.77	<0.20	**893**	<4	**391**	<10	1,780	**6.26**
	1/27/2010	2.9	<0.11	<0.010	<0.10	<0.20	9.7	0.54	<0.10	**798**	<4	**385**	<10	189	7.9
	4/5/2010	**3.5**	0.25	<0.010	0.25	<0.20	13.1	0.48	<0.050	**1,530**	35	**876**	<10	2.71	**6.14**
	7/21/2010	**3.1**	<0.11	<0.010	<0.10	<0.20	13.7	0.72	<0.10	**964**	<4	**445**	<10	2.04	6.71
	10/26/2010	**3.4**	<0.11	<0.010	<0.10	<0.20	14.0	0.66	<0.10	**977**	40	**319**	<10	1.78	7.05
	1/19/2011	2.6	0.13	<0.010	0.13	<0.20	9.1	0.54	<0.20	**623**	<4	216	<10	1.32	7.00
	4/20/2011	**3.2**	<0.11	<0.010	<0.10	<0.20	8.1	0.43	<0.10	**2,120**	8	**1,090**	<10	4.09	7.04
	7/21/2011	**3.3**	<0.11	<0.010	<0.10	<0.20	15.2	0.60	<0.060	**869**	70	**395**	<10	2.09	6.72
	10/20/2011	**3.0**	<0.11	<0.010	<0.10	<0.20	9.9	0.65	0.33[a]	**739**	48	234	<10	1.35	7.28
	1/18/2012	1.2	<0.11	<0.010	<0.10	<0.20	13.2	0.56	<0.10	**557**	28	191	<10	1.23	7.90
	4/24/2012	2.9	<0.11	<0.010	<0.10	<0.20	4.3	0.28	<0.050	**3,450**	<4	**1,720**	18.3	6.06	6.60
	7/24/2012	NA	NA	<0.010	NA	<0.20	NA	NA	<0.20	**1,270**	1,340	NA	NA	NA	NA
	10/24/2012	**3.0***	<0.11	<0.010	<0.10*	<0.20*	10.6*	0.70	<0.10*	**978**	<4	**375**	<10	1,770*	6.53*
	1/15/2013	**3.2**	<0.11[d]	<0.010	<0.10	<0.20	6.7[c]	0.35[b]	<0.20	**2,020**	4	**1,040**	<10	3,230	6.52[a]

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Exhibit A
North Landfarm Groundwater Sampling Summary Table - General Chemistry
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

General Chemistry															
Sample ID	**Date**	**Nitrogen, Ammonia (mg/L)**	**Nitrogen, Nitrate (mg/L)**	**Nitrogen, Nitrite (mg/L)**	**Nitrogen, Nitrate + Nitrite (mg/L)**	**Phenols (mg/L)**	**Total Organic Carbon (mg/L)**	**Fluoride (mg/L)**	**Total Organic Halides (mg/L)**	**Solids, Total Dissolved (mg/L)**	**Fecal Coliform (col/100mL)**	**Chloride (mg/L)**	**Sulfate (mg/L)**	**Specific Conductivity (umhos/cm)**	**pH**
NJDEP GWQS		**3**	**10**	**1**	**10**	**2**	**NA**	**2**	**NA**	**500**	**NA**	**250**	**250**	**NA**	**6.5 - 8.5**
LN-4	1/27/2005	1.7	<0.11	<0.010	<0.10	<0.20	<10	1.6	<0.20	**586**	<2	**256**	3.9	909	7.16
	4/27/2005	NA	NA	NA	NA	NA	9.0	NA	0.29	NA	NA	NA	NA	931	7.25
	7/19/2005	2.1	<0.11	<0.010	<0.10	<0.20	5.9	1.3	<0.050	400	NA	165	<20	700	6.9
	10/10/2005	NA	NA	NA	NA	NA	4.7	NA	<0.20	NA	NA	NA	NA	799	7.01
	4/27/2006	NA	NA	NA	NA	NA	7.4	NA	<0.20	NA	NA	NA	NA	753	7.11
	7/20/2006	2.3	<0.11	<0.010	<0.10	<0.20	5.5	1.2	<0.050	**513**	<5	206	<2.0	1,210	6.73
	10/20/2006	NA	NA	NA	NA	NA	6.9	NA	<0.10	NA	NA	NA	NA	878	6.68
	1/23/2007	2.2	<0.11	<0.010	<0.10	<0.20	6.9	1.4	<0.20	469	<5	184	<10	810	6.88
	4/17/2007	NA	NA	NA	NA	NA	6.2	NA	<0.050	NA	NA	NA	NA	723	6.7
	7/27/2007	1.8	<0.11	<0.010	<0.10	<0.20	6.1	1.5	<0.10	420	<4	147	<10	869	6.7
	10/29/2007	NA	NA	NA	NA	NA	7.3	NA	<0.050	NA	NA	NA	NA	6,860	6.6
	1/10/2008	1.9	<0.11	<0.010	<0.10	<0.20	5.0	1.3	<0.050	407	<4	173	<10	850	6.98
	4/14/2008	NA	NA	NA	NA	NA	4.8	NA	<0.050	NA	NA	NA	NA	369	7.17
	7/21/2008	1.8	<0.11	<0.010	<0.10	<0.20	3.9	1.3	<0.050	457	TNTC	196	<20	951	7.02
	10/27/2008	NA	NA	NA	NA	NA	4.4	NA	<0.050	NA	NA	NA	NA	793	7.06
	1/21/2009	1.8	<0.15	<0.050	<0.10	<0.20	4.5	1.2	<0.20	421	<4	213	<10	999	7.11
	4/28/2009	NA	NA	NA	NA	NA	4.4	NA	<0.050	NA	NA	NA	NA	485	6.82
	7/28/2009	1.7	<0.11	<0.010	<0.10	<0.20	4.9	1.5	<0.050	228	<4	76.4	<10	518	6.76
	10/26/2009	2.9	<0.11	<0.010	<0.10	<0.20	5.0	1.4	<0.10	**595**	<4	**269**	<10	127	7.5
	1/27/2010	2.7	<0.11	<0.010	<0.10	<0.20	4.1	1.4	<0.10	**641**	<4	**291**	<10	147	8.08
	4/5/2010	1.8	0.12	<0.010	0.12	<0.20	4.4	1.5	<0.050	451	95	189	<10	0.519	6.89
	7/21/2010	1.9	<0.11	<0.010	<0.10	<0.20	5.9	1.6	<0.050	488	<4	192	<10	0.875	7.14
	10/26/2010	2.4	<0.11	<0.010	<0.10	<0.20	4.7	1.5	<0.050	**589**	100	238	<10	1.12	7.47
	1/19/2011	2.1	<0.11	<0.010	<0.10	<0.20	4.4	1.4	<0.050	418	<4	143	<10	0.992	7.49
	4/20/2011	1.9	<0.11	<0.010	<0.10	<0.20	5.8	1.6	<0.20	474	24	139	<10	0.864	7.53
	7/21/2011	2.3	<0.11	<0.010	<0.10	<0.20	4.4	1.4	<0.050	433	<2	148	<10	0.918	7.32
	10/20/2011	2.7	<0.11	<0.010	<0.10	<0.20	<0.20	1.4	<0.20	**544**	4,300	201	<10	1.04	**6.23**
	1/18/2012	1.8	<0.11	<0.010	<0.10	<0.20	4.0	<0.20	<0.050	327	76	140	<10	0.764	7.50
	4/24/2012	2.0	<0.11	<0.010	<0.10	<0.20	4.1	1.2	<0.050	418	<4	144	<10	0.817	7.05
	7/24/2012	NA	NA	<0.010	NA	<0.20	NA	NA	<0.050	443	172	NA	NA	NA	NA
	10/24/2012	1.6*	<0.11	<0.010	<0.10*	<0.20*	3.8*	1.5	<0.050*	286	76	116	<10	667*	6.82*
	1/15/2013	2.2	<0.11[d]	<0.010	0.10	<0.20	5.6	1.4	<0.20	**1,100**	32	**499**	27.7	1,850	6.77[a]

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Exhibit A
North Landfarm Groundwater Sampling Summary Table - General Chemistry
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

General Chemistry															
Sample ID	**Date**	**Nitrogen, Ammonia (mg/L)**	**Nitrogen, Nitrate (mg/L)**	**Nitrogen, Nitrite (mg/L)**	**Nitrogen, Nitrate + Nitrite (mg/L)**	**Phenols (mg/L)**	**Total Organic Carbon (mg/L)**	**Fluoride (mg/L)**	**Total Organic Halides (mg/L)**	**Solids, Total Dissolved (mg/L)**	**Fecal Coliform (col/100mL)**	**Chloride (mg/L)**	**Sulfate (mg/L)**	**Specific Conductivity (umhos/cm)**	**pH**
NJDEP GWQS		**3**	**10**	**1**	**10**	**2**	**NA**	**2**	**NA**	**500**	**NA**	**250**	**250**	**NA**	**6.5 - 8.5**
LN-5	10/26/2010	<0.20	2.7	<0.010	2.7	<0.20	2.4	<0.20	<0.050	103	40	7.3	34.4	0.136	7.02
	1/19/2011	Could not locate due to snow.													
	4/20/2011	<0.21	0.70	<0.010	0.70	<0.20	1.3	<0.20	<0.050	116	<2	12.8	33.1	0.139	**4.87**
	7/21/2011	<0.20	0.90	<0.010	0.90	<0.20	2.4	<0.20	<0.050	128	<4	18.6	33.0	0.177	**4.50**
	10/20/2011	<0.20	1.1	<0.010	1.1	<0.20	2.7	<0.20	<0.20	65.0	16	2.6	25.8	0.118	6.70
	1/18/2012	<0.20	0.91	<0.010	0.91	<0.20	1.6	<0.20	<0.050	<10	8	2.6	20.6	0.069	7.19
	4/24/2012	<0.20	1.2	<0.010	1.2	<0.20	1.0	<0.20	>0.050	72.0	<4	6.1	24.1	0.14	**6.19**
	7/24/2012	NA	NA	<0.010	NA	<0.20	NA	NA	<0.050	111	920	NA	NA	NA	NA
	10/24/2012	<0.20*	2.5	<0.010	2.5*	<0.20	2.4*	<0.20	<0.050*	16.0	12	6.0	26.8	109*	**4.67***
	1/15/2013	<0.20	1.2[d]	<0.010	1.2	<0.20	2.4	0.42[b]	<0.050	**1,990**	<4	**1,040**	148	3,270	**4.01[a]**
LN-6	10/26/2010	2.9	<0.11	<0.010	<0.10	<0.20	12.2	1.3	<0.10	**692**	24	247	82.2	1.36	7.12
	1/19/2011	2.5	<0.11	<0.010	<0.10	<0.20	7.2	0.86	<0.10	**643**	<4	245	71	1.44	7.85
	4/20/2011	<0.20	<0.11	<0.010	<0.10	<0.20	5.0	0.74	<0.050	**704**	12	**268**	55.6	1.30	6.69
	7/21/2011	**3.8**	<0.11	<0.010	<0.10	<0.20	7.3	1.3	<0.050	**670**	<2	191	92.0	1.31	**6.09**
	10/20/2011	**3.1**	<0.11	<0.010	<0.10	<0.20	5.4	1.1	<0.20	**675**	72	170	54.1	1.32	7.33
	1/18/2012	1.3	<0.11	<0.010	<0.10	<0.20	9.8	0.91	<0.10	339	8	102	30.6	0.87	7.49
	4/24/2012	2.0	<0.11	<0.010	<0.10	<0.20	7.9	1.0	<0.20	438	<4	133	40.3	1.06	6.93
	7/24/2012	NA	NA	<0.010	NA	<0.20	NA	NA	<0.10	**537**	<4	NA	NA	NA	NA
	10/24/2012	2.0*	<0.11	<0.010	<0.10*	<0.20*	8.1*	1.1	<0.10*	**560**	185	108	36.0	731*	**6.3***
	1/15/2013	2.9	<0.11[d]	<0.010	<0.10	<0.20	7.0	0.75[b]	<0.050	**1,060**	5,200	**407**	51.0	1,530	**6.08[a]**
LN-7	10/26/2010	2.3	<0.11	<0.010	<0.10	<0.20	5.5	1.3	<0.050	**830**	<4	**343**	17.1	1.62	6.83
	1/19/2011	1.3	<0.11	<0.010	<0.10	<0.20	4.5	1.2	<0.10	**737**	<4	**253**	39.4	1.58	7.09
	4/20/2011	1.7	<0.11	<0.010	<0.10	<0.20	11.4	0.86	<0.050	**718**	NR	231	34.5	1.35	7.29
	7/21/2011	**3.0**	<0.11	<0.010	<0.10	<0.20	10.1	1.0	<0.050	**816**	28	**308**	23.5	1.55	7.39
	10/20/2011	2.3	<0.11	<0.010	<0.10	<0.20	5.8	1.4	<0.20	**705**	88	**250**	<10	1.41	**6.15**
	1/19/2012	1.4	0.47	<0.010	0.47	<0.20	4.6	1.2	<0.050	**702**	<4	248	<10	1.23	7.57
	4/24/2012	1.6	<0.11	<0.010	<0.10	<0.20	6.4	1.1	<0.10	**577**	<4	173	25.9	0.327	**5.68**
	7/24/2012	NA	NA	<0.010	NA	<0.20	NA	NA	<0.10	**500**	276	NA	NA	NA	NA
	10/24/2012	2.1*	<0.11	<0.010	<0.10*	<0.20*	5.0*	1.2	<0.10*	**608**	7,100	176	<10	995*	6.59
	1/15/2013	1.7	<0.11[d]	0.013	<0.10	<0.20	9.5	1.0[b]	<0.10[e]	**513**	<4	181	<10	1,030	6.56[a]

ND- Not Detected
NA- Not Applicable
NA- Not Sampled
NR- Not Reported
J- Estimate Value
Values in bold reported above their respective GWQS

* Storage temperature exceeded 6˚C due to power outage from the tropical cyclone of Oct 29th and 30th
a- Sample Received out of holding time
b- Peak shape indicates matrix interference, and possible positive bias
c- Detection limit raised due to dilution required for possible matrix interference
d- Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)
e- Detection limit raised due to possible matrix interference indicated by high second column

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Exhibit A
North Landfarm Groundwater Sampling Summary Table - Metals
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

		Metals										
Sample ID	**Date**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Selenium**	**Silver**	**Sodium**
NJDEP GWQS		**3**	**6,000**	**4**	**70**	**300**	**5**	**50**	**2**	**40**	**40**	**50,000**
LN-1	1/27/2005	**6.8**	<200	<4.0	<10	**103,000**	3.6	**2,450**	<0.20	<5.0	<10	**287,000**
	4/27/2005	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/19/2005	**14.0**	<200	<4.0	<10	**104,000**	<3.0	**2,260**	<0.20	<5.0	<10	**221,000**
	10/10/2005	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	4/27/2006	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/20/2006	**11.0**	<200	**4**	<10	**89,000**	**5.5**	**1,850**	<0.20	<10	<10	**210,000**
	10/20/2006	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	1/23/2007	**8.9**	368	**13.6**	<10	**296,000**	**6.9**	**9,100**	<0.20	<10	<10	**2,070,000**
	4/17/2007	NA	NA	NA	<10	NA	**11.2**	NA	NA	NA	NA	NA
	7/27/2007	**<8**	<200	<4.0	<10	**145,000**	<3.0	**4,830**	<0.20	<10	<10	**2,160,000**
	10/29/2007	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	1/10/2008	**<8**	<200	<4.0	<10	**106,000**	<3.0	**2,690**	<0.20	<10	<10	**740,000**
	4/14/2008	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/21/2008	**13.7**	<200	<4.0	<10	**150,000**	<3.0	**2,090**	<0.20	23.5	<10	**566,000**
	10/27/2008	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	1/21/2009	<3.0	<200	<3.0	<10	**98,800**	<3.0	**1,880**	<0.20	<10	<10	**416,000**
	4/28/2009	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/28/2009	**7.4**	<200	<4.0	<10	**59,400**	4.9	**1,200**	<0.20	<10	<10	**331,000**
	10/26/2009	<3.0	<200	<3.0	<10	**59,500**	<3.0	**2,140**	<0.20	<10	<10	**406,000**
	1/27/2010	<3.0	<200	<3.0	<10	**44,200**	<3.0	**1,810**	<0.20	<10	<10	**384,000**
	4/5/2010	<3.0	<200	<3.0	<10	**61,800**	<3.0	**1,680**	<0.20	<10	<10	**358,000**
	7/21/2010	**3.6**	<200	<3.0	<10	**46,400**	<3.0	**1,440**	<0.20	<10	<10	**333,000**
	10/26/2010	<3.0	<200	<3.0	<10	**3,770**	<3.0	**1,320**	<0.20	<10	<10	**289,000**
	1/19/2011	<3.0	<200	<3.0	<10	**34,700**	<3.0	**1,670**	<0.20	<10	<10	**274,000**
	4/20/2011	<3.0	<200	<3.0	<10	**36,400**	<3.0	**1,530**	<0.20	<10	<10	**264,000**
	7/21/2011	**6.1**	<200	<3.0	<10	**105,000**	4.4	**1,380**	<0.20	<10	<10	**197,000**
	10/20/2011	**4.5**	<200	<3.0	<10	**35,100**	<3.0	**1,110**	<0.20	<10	<10	**237,000**
	1/18/2012	<3.0	<200	<3.0	<10	**44,500**	<3.0	**1,330**	<0.20	<10	<10	**272,000**
	4/24/2012	<3.0	<200	<3.0	<10	**31,000**	<3.0	**1,520**	<0.20	<10	<10	**271,000**
	7/24/2012	<3.0	<200	<3.0	<10	**38,700**	NA	**1,110**	NA	<10	<10	**238,000**
	10/24/2012	**3.3**	<200	<3.0	<10	**38,500**	<3.0	**1,040**	<0.20	<10	<10	**198,000**
	1/15/2013	<3.0	246	<3.0	<10	**54,800**	<3.0	**1,100**	<0.20	<10	<10	**373,000**

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Exhibit A
North Landfarm Groundwater Sampling Summary Table - Metals
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

		Metals										
Sample ID	**Date**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Selenium**	**Silver**	**Sodium**
NJDEP GWQS		**3**	**6,000**	**4**	**70**	**300**	**5**	**50**	**2**	**40**	**40**	**50,000**
LN-2	1/27/2005	**13.4**	<200	<4.0	<10	**64,400**	<3.0	**312**	<0.20	<5.0	<10	**83,500**
	4/27/2005	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/19/2005	**<5.0**	<200	<4.0	<10	**21,600**	<3.0	**267**	<0.20	<5.0	<10	**102,000**
	10/10/2005	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	4/27/2006	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/20/2006	**<8.0**	<200	<4.0	<10	**26,600**	3.8	**252**	<0.20	<10	<10	**81,500**
	10/20/2006	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	1/23/2007	**<8.0**	<200	<4.0	<10	**33,500**	<3.0	**342**	<0.20	<10	<10	**99,000**
	4/17/2007	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/27/2007	**<8.0**	<200	<4.0	<10	**19,100**	<3.0	**208**	<0.20	<10	<10	**85,200**
	10/29/2007	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	1/10/2008	**<8.0**	<200	<4.0	<10	**37,200**	<3.0	**201**	<0.40	<10	<10	**62,200**
	4/14/2008	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/21/2008	**10.1**	<200	<4.0	<10	**44,900**	<3.0	**297**	<0.20	<10	<10	**110,000**
	10/27/2008	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	1/21/2009	<3.0	<200	<3.0	<10	**23,200**	<3.0	**150**	<0.20	<10	<10	36,100
	4/28/2009	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/28/2009	**3.7**	<200	<4.0	<10	**23,200**	<3.0	**227**	<0.20	<10	<10	**75,900**
	10/26/2009	<3.0	<200	<3.0	<10	**23,700**	<3.0	**349**	<0.20	<10	<10	**129,000**
	1/27/2010	**8.6**	<200	<3.0	<10	**50,700**	<3.0	**283**	<0.20	<10	<10	**86,300**
	4/5/2010	<3.0	<200	<3.0	<10	**16,500**	<3.0	**209**	<0.20	<10	<10	**73,900**
	7/21/2010	<3.0	<200	<3.0	<10	**24,300**	<3.0	**331**	<0.20	<10	<10	**136,000**
	10/26/2010	<3.0	<200	<3.0	<10	**19,000**	<3.0	**251**	<0.20	<10	<10	**115,000**
	1/19/2011	<3.0	<200	<3.0	<10	**27,000**	<3.0	**363**	<0.20	<10	<10	**98,900**
	4/20/2011	<3.0	<200	<3.0	<10	**23,300**	<3.0	**256**	<0.20	<10	<10	**71,200**
	7/21/2011	**9.1**	<200	<3.0	<10	**36,200**	<3.0	**148**	<0.20	<10	<10	42,500
	10/20/2011	<3.0	<200	<3.0	<10	**17,300**	<3.0	**276**	<0.20	<10	<10	**94,700**
	1/18/2012	<3.0	<200	<3.0	<10	**19,700**	<3.0	**309**	<0.20	<10	<10	**81,600**
	4/24/2012	**10.5**	<200	<3.0	<10	**82,800**	<3.0	**409**	<0.20	17.4	<10	**64,200**
	7/24/2012	<3.0	<200	<3.0	<10	**24,600**	NA	**340**	NA	<10	<10	**99,300**
	10/24/2012	<3.0	<200	<3.0	<10	**24,100**	<3.0	**312**	<0.20	<10	<10	**106,000**
	1/15/2013	**15.4**	<200	<3.0	<10	**149,000**	<3.0	**505**	<0.20	<10	<10	**124,000**

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Exhibit A
North Landfarm Groundwater Sampling Summary Table - Metals
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

		Metals										
Sample ID	**Date**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Selenium**	**Silver**	**Sodium**
NJDEP GWQS		**3**	**6,000**	**4**	**70**	**300**	**5**	**50**	**2**	**40**	**40**	**50,000**
LN-3	1/27/2005	**8.4**	<200	<4.0	<10	**84,700**	<3.0	**1,220**	<0.20	<5.0	<10	**168,000**
	4/27/2005	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/19/2005	**<5.0**	<200	<4.0	<4.0	**71,000**	<3.0	**555**	<0.20	<5	<10	**226,000**
	10/10/2005	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	4/27/2006	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/20/2006	**<8.0**	<200	<4.0	<10	**50,900**	<3.0	**675**	<0.20	<10	<10	**175,000**
	10/20/2006	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	1/23/2007	**<8.0**	<200	<4.0	<10	**65,400**	<3.0	**1,050**	<0.20	<10	<10	**144,000**
	4/17/2007	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/27/2007	**<8.0**	<200	<4.0	<10	**52,500**	<3.0	**807**	<0.20	<10	<10	**174,000**
	10/29/2007	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	1/10/2008	**<8.0**	<200	<4.0	<10	**64,500**	<3.0	**1,150**	<0.20	<10	<10	**157,000**
	4/14/2008	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/21/2008	**16.1**	<200	<4.0	<10	**107,000**	<3.0	**645**	<0.20	12.8	<10	**223,000**
	10/27/2008	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	1/21/2009	**4.6**	<200	<3.0	<10	**49,300**	<3.0	**1,300**	<0.20	<10	<10	**150,000**
	4/28/2009	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/28/2009	**10.8**	<200	<4.0	<10	**56,700**	<3.0	**971**	<0.20	<10	<10	**247,000**
	10/26/2009	**5.7**	<200	<3.0	<10	**47,800**	<3.0	**845**	<0.20	<10	<10	**245,000**
	1/27/2010	**6.4**	<200	<3.0	<10	**41,400**	<3.0	**674**	<0.20	<10	<10	**222,000**
	4/5/2010	**4.8**	<200	<3.0	<10	**61,600**	<3.0	**1,070**	<0.20	<10	<10	**321,000**
	7/21/2010	**28.0**	<200	<3.0	<10	**75,500**	<3.0	**489**	<0.20	<10	<10	**282,000**
	10/26/2010	**15.0**	<200	<3.0	<10	**43,700**	<3.0	**505**	<0.20	<10	<10	**275,000**
	1/19/2011	**23.0**	<200	<3.0	<10	**99,400**	<3.0	**356**	<0.20	<10	<10	**166,000**
	4/20/2011	**5.8**	<200	<3.0	<10	**96,100**	<3.0	**1,380**	<0.20	<10	<10	**427,000**
	7/21/2011	**17.2**	<200	<3.0	<10	**52,800**	<3.0	**616**	<0.20	<10	<10	**230,000**
	10/20/2011	**13.8**	<200	<3.0	<10	**36,000**	<3.0	**639**	<0.20	<10	<10	**205,000**
	1/18/2012	**48.5**	<200	3.1	<10	**128,000**	<3.0	**532**	<0.40	<10	<10	**149,000**
	4/24/2012	**11.7**	<200	<3.0	<10	**87,500**	<3.0	**1,390**	<0.20	16.2	<10	**714,000**
	7/24/2012	**43.6**	<200	<3.0	<10	**90,400**	NA	**527**	NA	<10	<10	**335,000**
	10/24/2012	**20.7**	<200	<3.0	<10	**36,900**	<3.0	**339**	<0.20	<10	<10	**279,000**
	1/15/2013	**17.7**	<200	<3.0	<10	**83,100**	4.5	**818**	<0.20	<10	<10	**432,000**

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Exhibit A
North Landfarm Groundwater Sampling Summary Table - Metals
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

		Metals										
Sample ID	**Date**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Selenium**	**Silver**	**Sodium**
NJDEP GWQS		**3**	**6,000**	**4**	**70**	**300**	**5**	**50**	**2**	**40**	**40**	**50,000**
LN-4	1/27/2005	**28.8**	<200	<4.0	<10	**105,000**	**6.3**	**702**	<0.20	<5.0	<10	**134,000**
	4/27/2005	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/19/2005	**11.0**	<200	<4.0	<10	**27,300**	<3.0	**445**	<0.20	<5.0	<10	**84,100**
	10/10/2005	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	4/27/2006	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/20/2006	**14.9**	<200	<4.0	<10	**46,300**	<3.0	**555**	<0.20	<10	<10	**119,000**
	10/20/2006	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	1/23/2007	**15.1**	<200	<4.0	<10	**43,800**	<3.0	**513**	<0.20	<10	<10	**138,000**
	4/17/2007	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/27/2007	**14.4**	<200	<4.0	<10	**26,200**	**<15**	**346**	<0.20	<10	<10	**469,000**
	10/29/2007	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	1/10/2008	**10.5**	<200	<4.0	<10	**34,700**	<3.0	**468**	<0.20	<10	<10	**90,900**
	4/14/2008	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/21/2008	**15.1**	<200	<4.0	<10	**37,300**	<3.0	**575**	<0.20	<10	<10	**97,900**
	10/27/2008	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	1/21/2009	**6.7**	<200	<3.0	<10	**19,800**	<3.0	**513**	<0.20	<10	<10	**117,000**
	4/28/2009	NA	NA	NA	<10	NA	<3.0	NA	NA	NA	NA	NA
	7/28/2009	**13.4**	<200	<4.0	<10	**24,400**	<3.0	**357**	<0.20	<10	<10	**70,800**
	10/26/2009	**10.7**	<200	<3.0	<10	**25,400**	<3.0	**435**	<0.20	<10	<10	**163,000**
	1/27/2010	**10.8**	<200	<3.0	<10	**24,900**	<3.0	**420**	<0.20	<10	<10	**181,000**
	4/5/2010	**6.8**	<200	<3.0	<10	**20,200**	<3.0	**306**	<0.20	<10	<10	**121,000**
	7/21/2010	**16.9**	<200	<3.0	**173**	**34,600**	<3.0	**393**	<0.20	<10	<10	**137,000**
	10/26/2010	**11.8**	<200	<3.0	<10	**21,400**	<3.0	**353**	<0.20	<10	<10	**153,000**
	1/19/2011	**5.3**	<200	<3.0	<10	**20,000**	<3.0	**373**	<0.20	<10	<10	**120,000**
	4/20/2011	**10.7**	<200	<3.0	<10	**23,300**	<3.0	**327**	<0.20	<10	<10	**119,000**
	7/21/2011	**13.4**	<200	<3.0	<10	**21,400**	<3.0	**318**	<0.20	<10	<10	**107,000**
	10/20/2011	**24.2**	<200	<3.0	<10	**40,700**	<3.0	**483**	<0.20	<10	<10	**139,000**
	1/18/2012	**10.0**	<200	<3.0	<10	**17,300**	<3.0	**233**	<0.20	<10	<10	**107,000**
	4/24/2012	**10.9**	<200	<3.0	<10	**29,100**	<3.0	**532**	<0.20	<10	<10	**94,700**
	7/24/2012	**16.3**	<200	<3.0	<10	**30,300**	NA	**342**	NA	<10	<10	**118,000**
	10/24/2012	**6.5**	<200	<3.0	<10	**11,400**	<3.0	**214**	<0.20	<10	<10	**99,800**
	1/15/2013	**22.3**	<200	<3.0	<10	**31,900**	**7.8**	**497**	<0.20	<10	<10	**239,000**

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Exhibit A
North Landfarm Groundwater Sampling Summary Table - Metals
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

		Metals										
Sample ID	**Date**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Selenium**	**Silver**	**Sodium**
NJDEP GWQS		**3**	**6,000**	**4**	**70**	**300**	**5**	**50**	**2**	**40**	**40**	**50,000**
LN-5	10/26/2010	<3.0	<200	<3.0	<10	**2,410**	**6.9**	45.2	<0.20	<10	<10	10,300
	1/19/2011	Could not locate due to snow.										
	4/20/2011	<3.0	<200	<3.0	<10	**3,440**	**6.6**	**95.9**	<0.20	<10	<10	<10,000
	7/21/2011	<3.0	<200	<3.0	<10	**2,660**	**7.2**	41.8	<0.20	<10	<10	13,000
	10/20/2011	**5.1**	<200	<3.0	<10	**7,160**	**14.1**	46.6	<0.20	<10	<10	<10,000
	1/18/2012	**6.6**	<200	<3.0	12.6	**12,300**	**23.2**	**64.6**	0.26	<10	<10	<10,000
	4/24/2012	<3.0	<200	<3.0	<10	**601**	<3.0	20.1	<0.20	<10	<10	<10,000
	7/24/2012	**3.4**	<200	<3.0	<10	**6,070**	NA	49.5	NA	<10	<10	11,500
	10/24/2012	**8.4**	<200	<3.0	17.8	**18,100**	**30.3**	**79.5**	0.32	<10	<10	<10,000
	1/15/2013	<3.0	<200	<3.0	<10	**10,300**	**6.4**	**175**	<0.20	<10	<10	**404,000**
LN-6	10/26/2010	**35.8**	<200	<3.0	36.1	**73,700**	**58.5**	**1,150**	0.77	<10	<10	**146,000**
	1/19/2011	**9.0**	<200	<3.0	<10	**47,300**	<3.0	**949**	<0.20	<10	<10	**143,000**
	4/20/2011	**3.0**	<200	<3.0	<10	**32,400**	<3.0	**1,060**	<0.20	<10	<10	**167,000**
	7/21/2011	**9.2**	<200	<3.0	<10	**48,000**	<3.0	**1,120**	<0.20	<10	<10	**144,000**
	10/20/2011	**9.3**	<200	<3.0	<10	**43,600**	<3.0	**1,300**	<0.20	<10	<10	**159,000**
	1/18/2012	**25.2**	<200	<3.0	<10	**87,800**	<3.0	**436**	<0.20	<10	<10	**71,500**
	4/24/2012	**12.9**	<200	<3.0	<10	**48,400**	<3.0	**545**	<0.20	11.2	<10	**85.800**
	7/24/2012	**7.9**	<200	<3.0	<10	**41,200**	NA	**1,080**	NA	<10	<10	**131,000**
	10/24/2012	**13.5**	<200	<3.0	<10	**28,500**	<3.0	**181**	<0.20	<10	<10	**41,500**
	1/15/2013	<3.0	<200	<3.0	<10	**43,300**	<3.0	**869**	<0.20	<10	<10	**135,000**
LN-7	10/26/2010	**9.6**	<200	<3.0	<10	**14,900**	4	**788**	<0.20	<10	<10	**196,000**
	1/19/2011	**7.9**	<200	<3.0	<10	**23,100**	<3.0	**1,050**	<0.20	<10	<10	**209,000**
	4/20/2011	**9.3**	<200	<3.0	<10	**23,400**	<3.0	**1,100**	<0.20	<10	<10	**135,000**
	7/21/2011	**9.5**	<200	<3.0	<10	**20,800**	<3.0	**1,220**	<0.20	<10	<10	**198,000**
	10/20/2011	**11.0**	<200	<3.0	<10	**12,900**	<3.0	**729**	<0.20	<10	<10	**211,000**
	1/18/2012	**5.0**	<200	<3.0	<10	**13,500**	<3.0	**791**	<0.20	<10	<10	**205,000**
	4/24/2012	**8.1**	<200	<3.0	<10	**39,600**	<3.0	**1,170**	<0.20	<10	<10	22,400
	7/24/2012	**8.3**	<200	<3.0	<10	**15,500**	NA	**736**	NA	<10	<10	**139,000**
	10/24/2012	**10.6**	<200	<3.0	<10	**17,100**	<3.0	**690**	<0.20	<10	<10	**142,000**
	1/15/2013	<3.0	<200	<3.0	<10	<100	<3.0	<15	<0.20	<10	<10	<10,000

All data is reported in ug/l unless otherwise noted
ND- Not Detected
NA- Not Analyzed or Not Applicable
NA- Not Sampled
J- Estimate Value
Shaded values in bold are above applicable GWQS

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Exhibit A
Historic Groundwater Sampling Table - Pesticides/Radium
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

		Pesticides						*Radium/Radionuclides			
Sample ID	Date	2,4-D	2,4,5-TP (Silvex)	Gamma-BHC (Lindane)	Endrin	Methoxychlor	Toxaphene	Radium- 226	Radium- 228	Gross Alpha	Gross Beta
NJDEP GWQS		70	60	NA	2	40	0.03	** 5 (combined)		** 15	NA
LN-1	1/18/2012	ND	ND	ND	ND	ND	ND	0.20 +/- 0.23	0.91 +/- 0.48	1.9 +/- 1.8	21.7 +/- 4.2
	4/24/2012	ND	ND	ND	ND	ND	ND	0.53 +/- 0.27	0.10 +/-0.49	2.54 +/- 1.85	18.82 +/- 3.29
	7/24/2012	ND	ND	ND	ND	ND	ND	0.39 +/- 0.24	0.20 +/- 0.19	0.7 +/- 1.5	23.2 +/- 4.4
	10/24/2012	ND	ND	ND	ND	ND	ND	0.55 +/- 0.32	0.72 +/- 0.27	0.4 +/- 1.1	30.3 +/- 5.2
	1/15/2013	ND	ND	ND	ND	ND	ND	0.48 +/- 0.30	0.67 +/- 0.32	-2.5 +/- 2.4	28.3 +/- 5.3
LN-2	1/18/2012	ND	ND	ND	ND	ND	ND	0.12 +/- 0.17	0.20 +/- 0.33	-0.17 +/- 0.78	8.4 +/- 1.9
	4/24/2012	ND	ND	ND	ND	ND	ND	0.15 +/- 0.26	0.63 +/- 0.50	0.88 +/- 1.14	9.54 +/-1.40
	7/24/2012	ND	ND	ND	ND	ND	ND	0.05 +/- 0.16	0.32 +/- 0.21	0.8 +/- 1.1	15.0 +/- 3.0
	10/24/2012	ND	ND	ND	ND	ND	ND	0.26 +/- 0.21	0.35 +/- 0.23	0.5 +/- 1.0	15.2 +/- 3.1
	1/15/2013	ND	ND	ND	ND	ND	ND	0.43 +/- 0.28	0.47 +/- 0.28	-1.2 +/- 1.2	13.0 +/- 2.6
LN-3	1/18/2012	ND	ND	ND	ND	ND	ND	0.05 +/- 0.18	0.45 +/- 0.42	2.7 +/- 1.2	9.4 +/- 2.1
	4/24/2012	ND	ND	ND	ND	ND	ND	0.77 +/- 0.26	1.08 +/- 0.46	6.51 +/- 5.68	17.13 +/- 11.12
	7/24/2012	ND	ND	ND	ND	ND	ND	0.63 +/- 0.33	0.95 +/- 0.31	-2.0 +/- 3.0	15.1 +/- 5.1
	10/24/2012	ND	ND	ND	ND	ND	ND	0.15 +/- 0.23	0.54 +/- 0.25	0.7 +/- 1.3	12.7 +/- 2.8
	1/15/2013	6.3[a]	ND	ND	ND	ND	ND	0.20 +/- 0.22	0.84 +/- 0.35	-8.5 +/- 3.6	14.1 +/-4.1
LN-4	1/18/2012	ND	ND	ND	ND	ND	ND	0.12 +/- 0.20	0.28 +/- 0.34	0.26 +/- 0.96	9.1 +/- 2.1
	4/24/2012	ND	ND	ND	ND	ND	ND	0.23 +/- 0.26	0.13 +/- 0.45	- 0.17 +/- 1.12	9.44 +/- 1.63
	7/24/2012	ND	ND	ND	ND	ND	ND	0.39 +/- 0.28	0.25 +/- 0.20	-0.2 +/- 1.2	10.6 +/- 2.4
	10/24/2012	ND	ND	ND	ND	ND	ND	1.16 +/- 0.49	0.31 +/- 0.22	-0.52 +/- 0.99	12.1 +/- 2.6
	1/15/2013	ND	ND	ND	ND	ND	ND	0.21 +/- 0.25	0.17 +/- 0.27	-0.6 +/- 1.5	21.4 +/- 4.0
LN-5	1/18/2012	ND	ND	ND	ND	ND	ND	0 +/- 0.26	0.37 +/- 0.35	4.0 +/- 1.5	4.7 +/- 1.5
	4/24/2012	ND	ND	ND	ND	ND	ND	0.60 +/- 0.23	0.97 +/- 0.47	0.84 +/- 0.79	2.00 +/- 1.29
	7/24/2012	ND	ND	ND	ND	ND	ND	0.09 +/- 0.14	0.26 +/- 0.21	1.49 +/- 0.64	6.9 +/- 1.7
	10/24/2012	ND	ND	ND	ND	ND	ND	0.18 +/- 0.16	0.07 +/- 0.20	3.1 +/- 1.6	11.1 +/- 2.6
	1/15/2013	ND	ND	ND	ND	ND	ND	0.35 +/- 0.26	0.76 +/- 0.32	-1.9 +/- 2.8	6.2 +/- 3.4
LN-6	1/18/2012	ND	ND	ND	ND	ND	ND	0.13 +/- 0.25	0.14 +/-0.39	1.5 +/- 1.0	9.0 +/- 2.1
	4/24/2012	ND	ND	ND	ND	ND	ND	0.90 +/- 0.33	0.51 +/- 0.52	2.09 +/- 0.95	8.68 +/- 1.43
	7/24/2012	ND	ND	ND	ND	ND	ND	0.09 +/- 0.18	0.13 +/- 0.20	- 0.2 +/- 1.0	12.2 +/- 2.6
	10/24/2012	ND	ND	ND	ND	ND	ND	0.20 +/- 0.17	0.12 +/- 0.23	0.7 +/- 1.1	8.9 +/- 2.3
	1/15/2013	ND	ND	ND	ND	ND	ND	0.41 +/- 0.26	0.77 +/- 0.34	-1.5 +/- 1.6	12.4 +/- 2.8
LN-7	1/18/2012	ND	ND	ND	ND	ND	ND	0.10 +/- 0.21	0.46 +/- 0.39	1.7 +/- 1.2	12.2 +/- 2.6
	4/24/2012	ND	ND	ND	ND	ND	ND	0.53 +/- 0.26	1.37 +/- 0.51	1.18 +/- 1.80	11.69 +/- 2.12
	7/24/2012	ND	ND	ND	ND	ND	ND	0.29 +/- 0.24	0.35 +/- 0.23	1.2 +/- 1.2	16.8 +/- 3.3
	10/24/2012	ND	ND	ND	ND	ND	ND	0.21 +/- 0.21	0.62 +/- 0.29	2.5 +/- 1.1	17.1 +/- 3.1
	1/15/2013	ND	ND	ND	ND	ND	ND	0.37 +/- 0.25	1.15 +/- 0.42	2.4 +/- 1.2	14.6 +/- 2.7

All data is reported in ug/l unless otherwise noted
ND- Not Detected
NA- Not Applicable
J- Estimate Value
NJDEP - New Jersey Department of Environmental Protection
GWQS- Groundwater Quality Standards
* Results reported in pico Curies per liter +/- Total Propogated Uncertainty
** Represents Federal Maximum Contaminant Limits for Drinking Water
a- Result is from Run # 2

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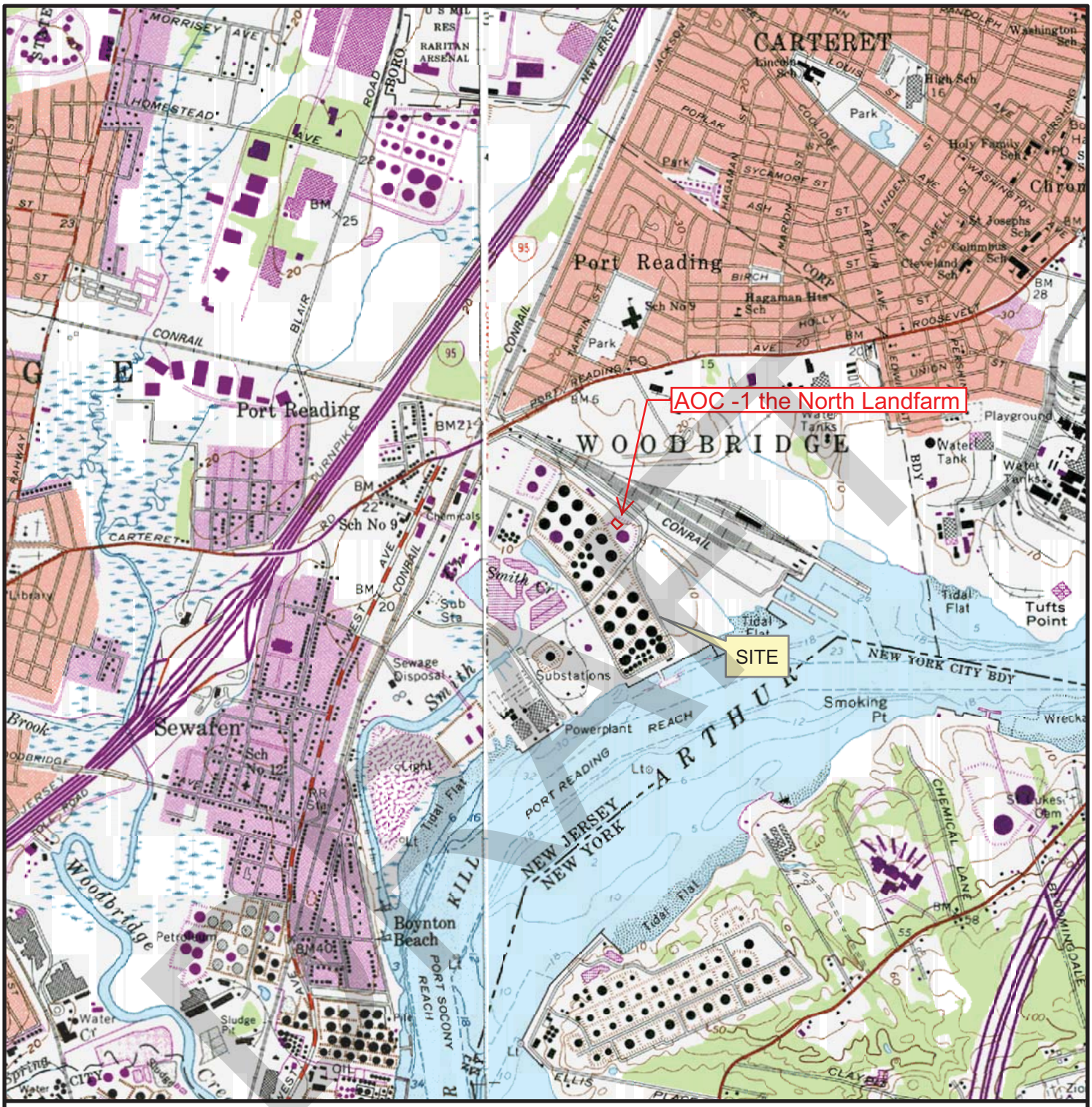
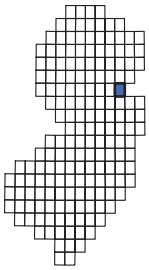




QUADRANGLE LOCATION:
ARTHUR KILL, NEW JERSEY

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

N W E S

Exhibit B-1	Vicinity Map- AOC-1 The North Landfarm HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	DRAWN BY: B.J.S. DATE: 7/15/10	EnviroTrac ENVIRONMENTAL SERVICES 400E CORPORATE COURT, So. PLAINFIELD NJ 07080 PHONE: (908)757-1900 FAX: (908)757-0017

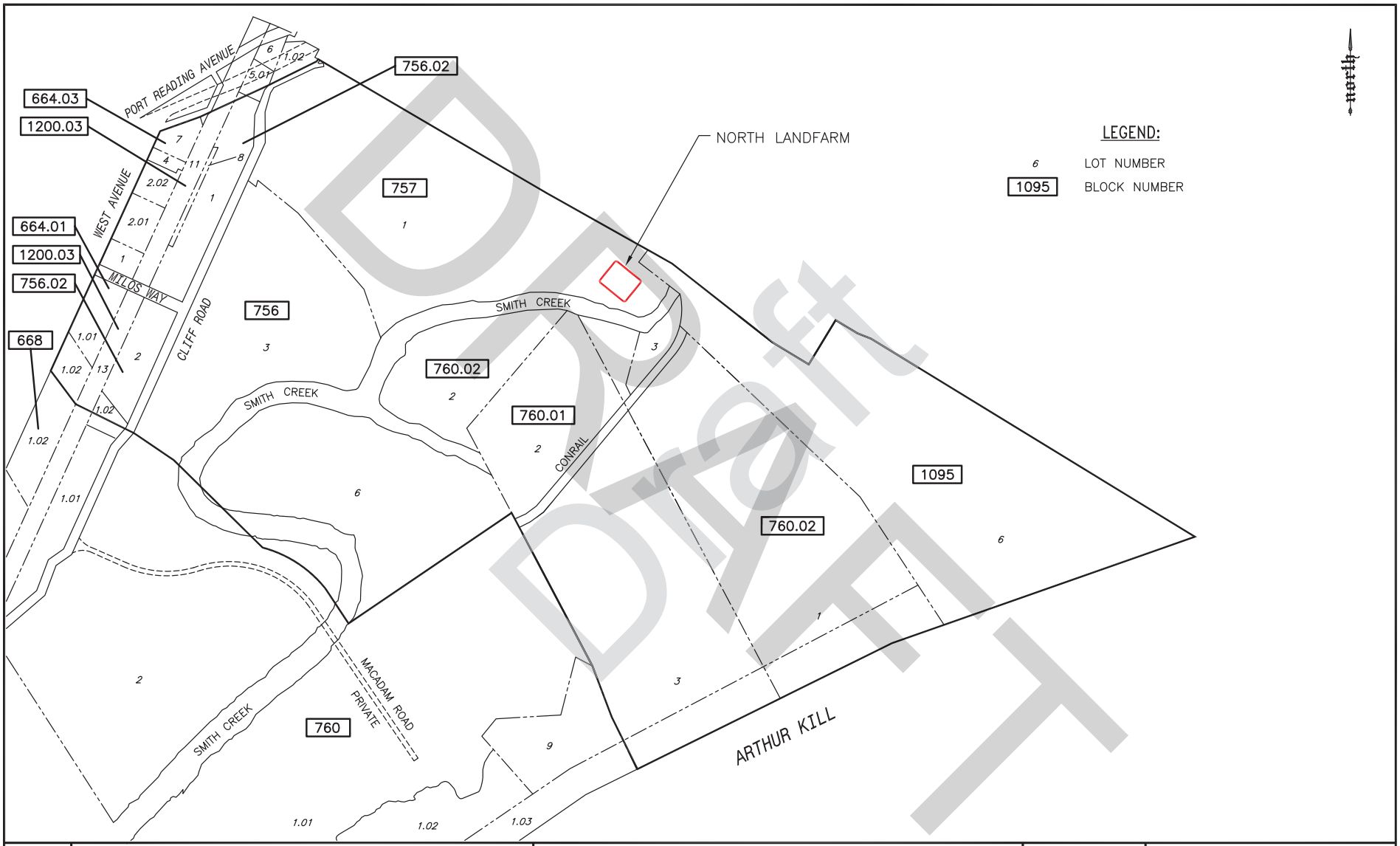


EXHIBIT
B-2

HESS CORPORATION
750 CLIFF ROAD
PORT READING, NEW JERSEY

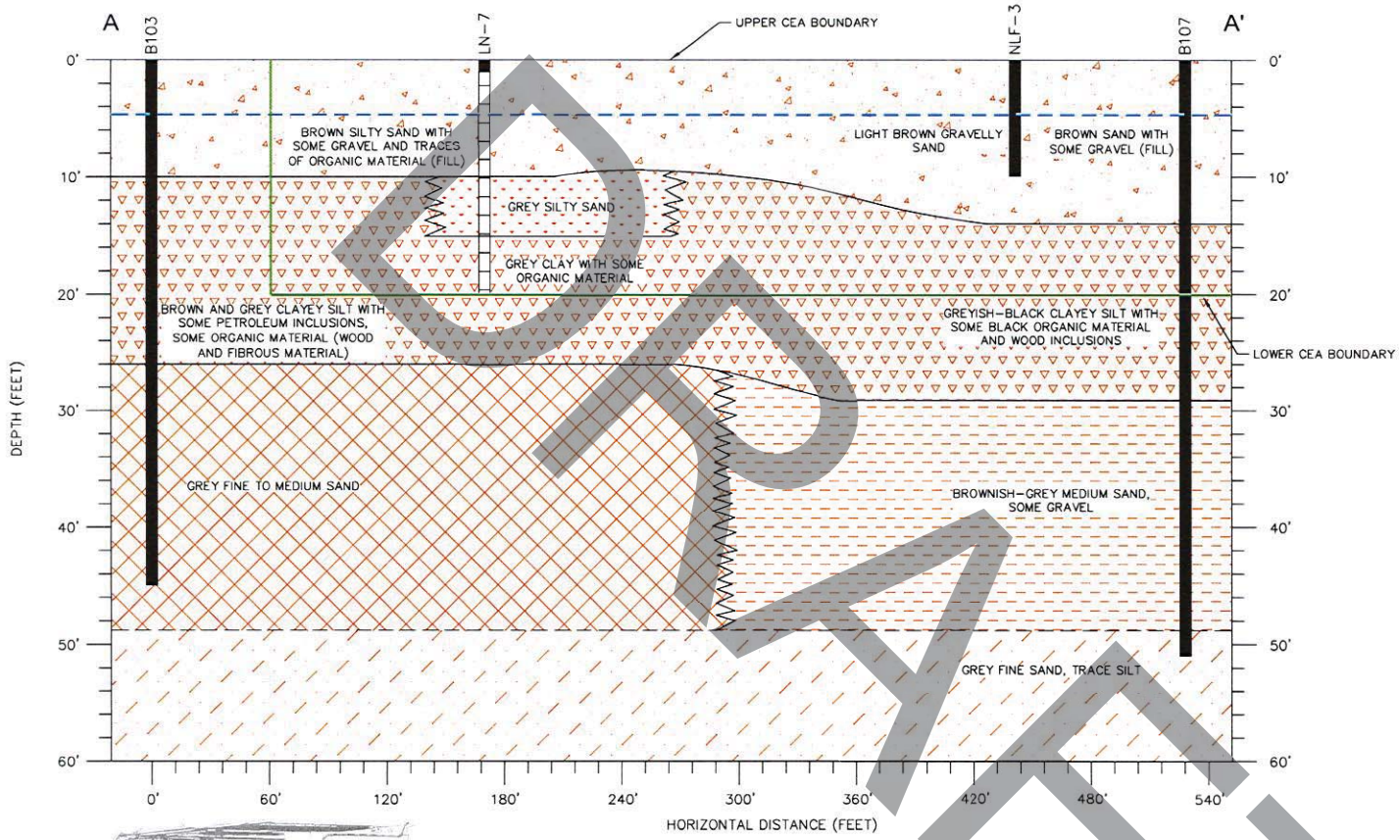
TAX MAP

DRAWN BY: J.M.

REVISION DATE: 4/5/13

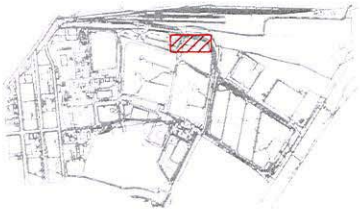
0 250 500
SCALE IN FEET

EnviroTrac
ENVIRONMENTAL SERVICES
3 TERRI LANE, SUITE #8, BURLINGTON, NJ 08016
PHONE: (609)387-5553 FAX: (609)387-5533

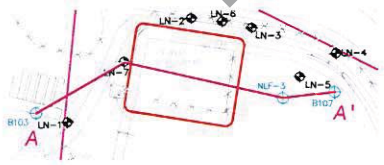


LEGEND:

- = WELL CASING
- = SCREENED INTERVAL
- = SOIL BORING
- LITHIOLOGIC CONTACT INFERRED
- APPROXIMATE DEPTH TO GROUNDWATER



LOCATION MAP (NOT TO SCALE)



CROSS SECTION LOCATION (1" = 200')

BORING LOG SOURCE:

B103 AND B107 – DAMES AND MOORE – COMPLETED JULY 1968

NLF3 – ENVIROTRAC – COMPLETED OCTOBER 2009

LN7 – ENVIROTRAC – COMPLETED OCTOBER 2010

FIGURE #					
C-1	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	HESS	CROSS SECTION AOC 1 (NORTH LANDFARM)	VERTICAL SCALE: 1 INCH = 10 FEET HORIZONTAL SCALE: 1 INCH = 60 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: 4/8/13		

DRAFT

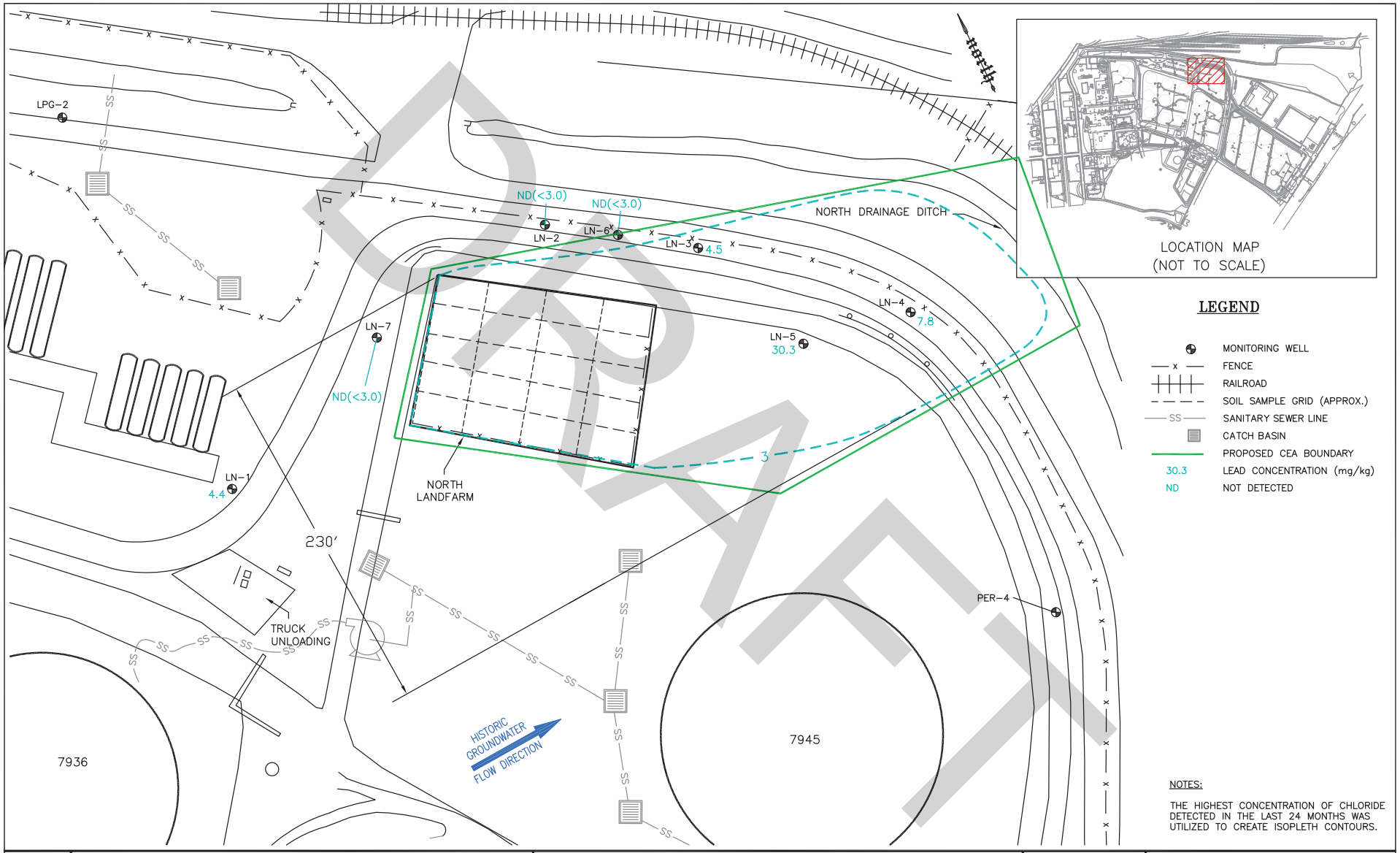


FIGURE # C-2

HESS CORPORATION
750 CLIFF ROAD
PORT READING, NEW JERSEY

PROPOSED CEA MAP
LEAD ISOPLETH

DRAWN BY: J.M.

REVISION DATE: 4/29/13

0 60
SCALE IN FEET

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