BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS

DERSCH ENERGIES, INC.	)	
Petitioner,	)	
	)	
v.	)	PCB 2017-003
	)	(UST Appeal - Land)
ILLINOIS ENVIRONMENTAL	)	
PROTECTION AGENCY,	)	
Respondent.	)	

NOTICE

Don Brown, Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph Street
Suite 11-500
Chicago, IL 60601

Carol Webb, Hearing Officer
Illinois Pollution Control Board
1021 North Grand Avenue East
P. O. Box 19274
Springfield, IL 62794-9274

Patrick D. Shaw
Law Office of Patrick D. Shaw
80 Bellerive Road
Springfield, IL 62704

PLEASE TAKE NOTICE that I have today filed with the office of the Clerk of the Pollution Control Board an APPEARANCE and the ADMINISTRATIVE RECORD copies of which are herewith served upon you.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,
Respondent

_____

Melanie A. Jarvis
Assistant Counsel
Division of Legal Counsel
1021 North Grand Avenue, East
P.O. Box 19276
Springfield, Illinois 62794-9276
217/782-5544
217/782-9143 (TDD)
Dated: March 31, 2017

BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS

DERSCH ENERGIES, INC.	)	
Petitioner,	)	
	)	
v.	)	PCB 2017-003
	)	(UST Appeal - Land)
ILLINOIS ENVIRONMENTAL	)	
PROTECTION AGENCY,	)	
Respondent.	)	

APPEARANCE

The undersigned, as one of its attorneys, hereby enters her Appearance on behalf of the Respondent, the Illinois Environmental Protection Agency.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,
Respondent

_____

Melanie A. Jarvis
Assistant Counsel
Special Assistant Attorney General
Division of Legal Counsel
1021 North Grand Avenue, East
P.O. Box 19276
Springfield, Illinois 62794-9276
217/782-5544
217/782-9143 (TDD)
Dated: March 31, 2017

CERTIFICATE OF SERVICE

I, the undersigned attorney at law, hereby certify that on March 31, 2017, I served true and correct copies of an APPEARANCE and the ADMINISTRATIVE RECORD by the Board's COOL system and email, upon the following named persons:

Don Brown, Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph Street
Suite 11-500
Chicago, IL 60601

Carol Webb, Hearing Officer
Illinois Pollution Control Board
1021 North Grand Avenue East
P. O. Box 19274
Springfield, IL 62794-9274
(Notice and Appearance only)

Patrick D. Shaw
Law Office of Patrick D. Shaw
80 Bellerive Road
Springfield, IL 62704

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,
Respondent

_____

Melanie A. Jarvis
Assistant Counsel
Division of Legal Counsel
1021 North Grand Avenue, East
P.O. Box 19276
Springfield, Illinois 62794-9276
217/782-5544
217/782-9143 (TDD)

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

DERSCH ENERGIES, INC.	)	
	)	
Petitioner,	)	
	)	
v.	)	PCB 2017-003
	)	(UST Appeal)
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
Respondent.	)	

CERTIFICATE OF RECORD ON APPEAL

Pursuant to 35 Ill. Adm. Code 105.116(b) and 105.410, the following constitutes an index of documents comprising the record:

PAGES	DOCUMENT	DATE
R001-R010	IEPA Decision Letter	July 12, 2016
R011-R022	Review Notes and Electronic Mail Messages	July 8, 2016
R023-R027	Equipment Rental Rates/Duplication Fees	April 8, 2016
R028-R089	Corrective Action Plan and Budget	March 23, 2016
R090-R092	IEPA Decision Letter	January 21, 2016
R093-R097	Review Notes	January 19, 2016
R098-R225	Corrective Action Plan and Budget	November 9, 2015
R226-R420	Site Investigation Plan and Budget	February 23, 2007

I, Bradley Dilbaitis, certify on information and belief that the entire record of the Respondent's decision, as defined in 35 Ill. Adm. Code 105.410(b), is hereby enclosed.

BY: Bradley Dilbaitis

Bradley Dilbaitis, LUST Project Manager
Environmental Protection Specialist III
Leaking Underground Storage Tank Section
Illinois Environmental Protection Agency

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR ALEC MESSINA, ACTING DIRECTOR

217/524-3300

CERTIFIED MAIL

JUL 1 2 2016

7014 2120 0002 3289 1369

Dersch Energies, Inc.
Mr. Tom Dersch
620 Oak Street
Mt. Carmel, Illinois 62863

Re: LPC #1010155024—Lawrence County
Lawrenceville/ Dersch Croslow's Shell
1421 Lexington Avenue
Leaking UST Incident No. 20050374
Leaking UST Technical File

IEPA-DIVISION OF RECORDS MANAGEMENT
RELEASABLE
JUL 2 1 2016
REVIEWER: JKS

Dear Mr. Dersch:

The Illinois Environmental Protection Agency (Illinois EPA) has reviewed the Corrective Action Plan (plan) submitted for the above-referenced incident. This plan, dated March 23, 2016, was received by the Illinois EPA on March 25, 2016. Citations in this letter are from the Environmental Protection Act (415 ILCS 5) (Act) and Title 35 of the Illinois Administrative Code (35 Ill. Adm. Code).

Pursuant to Sections 57.7(b)(2) and 57.7(c) of the Act and 35 Ill. Adm. Code 734.505(b) and 734.510(a), the plan is approved. The activities proposed in the plan are appropriate to demonstrate compliance with Title XVI of the Act. Please note that all activities associated with the remediation of this release proposed in the plan must be executed in accordance with all applicable regulatory and statutory requirements, including compliance with the proper permits.

In addition, the budget is modified pursuant to Sections 57.7(b)(3) and 57.7(c) of the Act and 35 Ill. Adm. Code 734.505(b) and 734.510(b). Based on the modifications listed in Section 2 of Attachment A, the amounts listed in Section 1 of Attachment A have been approved. Please note that the costs must be incurred in accordance with the approved plan. Be aware that the amount of payment from the Fund may be limited by Sections 57.7(c), 57.8(d), 57.8(e), and 57.8(g) of the Act, as well as 35 Ill. Adm. Code 734.630 and 734.655.

If the owner or operator agrees with the Illinois EPA's modifications, submittal of an amended plan and/or budget, if applicable, is not required (Section 57.7(c) of the Act).

NOTE: Pursuant to Section 57.8(a)(5) of the Act, if payment from the Fund will be sought for any additional costs that may be incurred as a result of the Illinois EPA's modifications, an amended budget must be submitted. Amended plans and/or budgets must be submitted and approved prior to the issuance of a No Further Remediation (NFR) Letter. Costs associated with a plan or budget that have not been approved prior to the issuance of an NFR Letter will not be paid from the Fund.

Further, pursuant to 35 Ill. Adm. Code 734.145, it is required that the Illinois EPA be notified of field activities prior to the date the field activities take place. This notice must include a description

of the field activities to be conducted; the name of the person conducting the activities; and the date, time, and place the activities will be conducted. This notification of field activities may be done by telephone, facsimile, or electronic mail—and must be provided at least two weeks prior to the scheduled field activities.

Pursuant to Sections 57.7(b)(5) and 57.12(c) and (d) of the Act and 35 Ill. Adm. Code 734.100 and 734.125, the Illinois EPA requires that a Corrective Action Completion Report that achieves compliance with applicable remediation objectives be submitted within 30 days after completion of the plan to:

Illinois Environmental Protection Agency
Bureau of Land - #24
Leaking Underground Storage Tank Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, IL 62794-9276

Please submit all correspondence in duplicate and include the Re: block shown at the beginning of this letter.

If within four years after the approval of this plan, compliance with the applicable remediation objectives has not been achieved and a Corrective Action Completion Report has not been submitted, the Illinois EPA requires the submission of a status report pursuant to Section 57.7(b)(6) of the Act.

An underground storage tank system owner or operator may appeal this decision to the Illinois Pollution Control Board. Appeal rights are attached.

If you have any questions or need further assistance, please contact Brad Dilbaitis at (217) 785-8378 or Bradley.Dilbaitis@illinois.gov.

Sincerely,

SA. Colantino

Stephen A. Colantino
Acting Unit Manager
Leaking Underground Storage Tank Section
Division of Remediation Management
Bureau of Land

SAC:BD\CAP2appBUDmod.docx

Attachment: Attachment A
Appeal Rights

c: CWM Company, Inc.
BOL File

Attachment A

Re: LPC #1010155024—Lawrence County
Lawrenceville/ Dersch Croslow's Shell
1421 Lexington Avenue
Leaking UST Incident No. 20050374
Leaking UST Technical File

SECTION 1

As a result of Illinois EPA's modification(s) in Section 2 of this Attachment A, the following amounts are approved:

$1,486.97	Drilling and Monitoring Well Costs
$430.85	Analytical Costs
$0.00	Remediation and Disposal Costs
$0.00	UST Removal and Abandonment Costs
$0.00	Paving, Demolition, and Well Abandonment Costs
$13,793.44	Consulting Personnel Costs
$227.40	Consultant's Materials Costs

Handling charges will be determined at the time a billing package is reviewed by the Illinois EPA. The amount of allowable handling charges will be determined in accordance with Section 57.1(a) of the Environmental Protection Act (Act) and 35 Illinois Administrative Code (35 Ill. Adm. Code) 734.635.

SECTION 2

1. $3,352.80 for Consulting Personnel Costs associated with Corrective Action Plan design and preparation by a Professional Geologist which lack supporting documentation. Such costs are ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 734.630(cc). Since there is no supporting documentation of costs, the Illinois EPA cannot determine that costs will not be used for activities in excess of those necessary to meet the minimum requirements of Title XVI of the Act. Therefore, such costs are not approved pursuant to Section 57.7(c)(3) of the Act because they may be used for site investigation or corrective action activities in excess of those required to meet the minimum requirements of Title XVI of the Act. In addition, this request is not reasonable as submitted. Such costs are ineligible for payment from the Fund pursuant to Section 57.7(c)(3) of the Act and 35 Ill. Adm. Code 734.630(dd).

   The Consulting Personnel Costs requests 30 hours for a Professional Geologist at a rate of $111.76 per hour for a total of $3,352.80 for Corrective Action Plan Design and Preparation. In addition, the budget also requests 6 hours for a Senior Project Manager and 4 hours for an Engineer III for Corrective Action Plan development and technical compliance. The plan is for the advancement of one soil boring to determine the parameters required for proposing on-site corrective action in accordance with Tier 2 remediation objectives as required in 734.410 and calculating the Tier 2 remediation objectives and groundwater modeling. The soil boring was requested by the IEPA Project Manager and the location of the soil boring and at what depth the soil sample needs to be collected for analysis was also communicated to the consultant in an email by the IEPA Project Manager. The time spent on Corrective Action Plan development by the consultant should be minimal, if any.

2. $334.05 for Consulting Personnel Costs associated with drafting for the Corrective Action Plan which lack supporting documentation. Such costs are ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 734.630(cc). Since there is no supporting documentation of costs, the Illinois EPA cannot determine that costs will not be used for activities in excess of those necessary to meet the minimum requirements of Title XVI of the Act. Therefore, such costs are not approved pursuant to Section 57.7(c)(3) of the Act because they may be used for site investigation or corrective action activities in excess of those required to meet the minimum requirements of Title XVI of the Act. In addition, these costs exceed the minimum requirements necessary to comply with the Act. Costs associated with site investigation and corrective action activities and associated materials or services exceeding the minimum requirements necessary to comply with the Act are not eligible for payment from the Fund pursuant to Section 57.7(c)(3) of the Act and 35 Ill. Adm. Code 734.630(o).

   The Consulting Personnel Costs requests 6 hours for a Draftsperson/CAD IV at a rate of $66.81 per hour for a total of $400.86 for the drafting of the Corrective Action Plan. This Corrective Action Plan requires one map, the proposed soil boring location map. The additional 11 maps that were submitted are not needed and exceed the minimum requirements necessary to comply with the Act. 35 Ill. Adm. Code 734.335 does not require that a map be submitted with the Corrective Action Plan. In this instance, a site map noting the location of the proposed soil boring is approved, but the other 11 maps are not useful. One hour is approved at a rate of $66.81 for updating the Soil Boring Location Map (Drawing 0004) to the Proposed Soil Boring Location Map (Drawing 0004A).

3. $2,964.14 for Consulting Personnel Costs associated with preliminary contaminant transport modeling and TAC calculations which lack supporting documentation. Such costs are ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 734.630(cc). Since there is no supporting documentation of costs, the Illinois EPA cannot determine that costs will not be used for activities in excess of those necessary to meet the minimum requirements of Title XVI of the Act. Therefore, such costs are not approved pursuant to Section 57.7(c)(3) of the Act because they may be used for site investigation or corrective action activities in excess of those required to meet the minimum requirements of Title XVI of the Act.

   The Consulting Personnel Costs requests 6 hours for a Senior Project Manager at a rate of $121.49 per hour for a total of $728.94 for contaminant transport modeling/oversight/technical compliance and 20 hours for a Professional Geologist for preliminary contaminant transport modeling and TACO calculations at a rate of $111.76 per hour for a total of $2,235.20. This is only an estimate on how long it will take the consultant to perform the modeling. The costs associated with the modeling and the determination of the site-specific Tier 2 soil remediation objectives should be submitted in the amended Corrective Action Plan that will be submitted to apply the modeling calculations. If the Consulting Personnel Costs associated with the Tier 2 calculations are submitted in the amended plan to address the results of this plan, the costs will be known and it will not be necessary to approve costs in excess of what is needed for the task or to approve additional costs if the original estimate did not include enough hours to complete the tasks. It should be noted that the Consulting Personnel Costs associated with the calculation of the site-specific Tier 2 soil remediation objectives are usually approved in a Corrective Action Budget after the calculations have been performed and the hours required to perform the tasks are known. An additional preliminary Corrective Action Plan is required in this case to collect the geotechnical soil sample used to determine the site-specific parameters for the TACO Tier 2 calculations but that should not change when the Consulting Personnel Costs associated with the TACO Tier 2 calculations are submitted and approved.

4. $148.00 for Consultant's Materials Costs associated with the use of a PID, which lack supporting documentation. Such costs are ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 734.630(cc). Since there is no supporting documentation of costs, the Illinois EPA cannot determine that costs will not be used for activities in excess of those necessary to meet the minimum requirements of Title XVI of the Act. Therefore, such costs are not approved pursuant to Section 57.7(c)(3) of the Act because they may be used for site investigation or corrective action activities in excess of those required to meet the minimum requirements of Title XVI of the Act.

   Pursuant to 35 Ill. Adm. Code 734.850(b) for costs associated with activities that do not have a maximum payment amount set forth in pursuant to 35 Ill. Adm. Code 734 Subpart H must be determined on a site specific basis and the owner/operator must demonstrate to the Agency the amounts sought for reimbursement are reasonable. The Agency has requested additional documentation to support the rate requested for a PID pursuant 35 Ill. Adm. Code 734.505(a). The documentation was either not provided or fails to provide sufficient information for the Agency to make a site specific reasonableness determination.

   In addition, without supporting documentation for the rate requested the PID costs are not reasonable as submitted. Such costs are ineligible for payment from the Fund pursuant to Section 57.7(c)(3) of the Act and 35 Ill. Adm. Code 734.630(dd).

5. $21.00 for indirect corrective action costs for a measuring wheel charged as direct costs. Such costs are ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 734.630(v). In addition, such costs are not approved pursuant to 35 Ill. Adm. Code 734.630(dd) and Section 57.7(c)(3) of the Act because they are not reasonable

6. $16.00 for Consultant's Materials Costs associated with gloves which lack supporting documentation. Such costs are ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 734.630(cc). Since there is no supporting documentation of costs, the Illinois EPA cannot determine that costs will not be used for activities in excess of those necessary to meet the minimum requirements of Title XVI of the Act. Therefore, such costs are not approved pursuant to Section 57.7(c)(3) of the Act because they may be used for site investigation or corrective action activities in excess of those required to meet the minimum requirements of Title XVI of the Act.

   Pursuant to 35 Ill. Adm. Code 734.850(b) for costs associated with activities that do not have a maximum payment amount set forth in pursuant to 35 Ill. Adm. Code 734 Subpart H must be determined on a site specific basis and the owner/operator must demonstrate to the Agency the amounts sought for reimbursement are reasonable. The Agency has requested additional documentation to support the rate requested for gloves pursuant 35 Ill. Adm. Code 734.505(a). The documentation was either not provided or fails to provide sufficient information for the Agency to make a site specific reasonableness determination.

   In addition, without supporting documentation for the rate requested the gloves are not reasonable as submitted. Such costs are ineligible for payment from the Fund pursuant to Section 57.7(c)(3) of the Act and 35 Ill. Adm. Code 734.630(dd).

7. $28.00 for Consultant's Materials Costs associated with a water level indicator which lack supporting documentation. Such costs are ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 734.630(cc). Since there is no supporting documentation of costs, the Illinois EPA cannot determine that costs will not be used for activities in excess of those necessary to

meet the minimum requirements of Title XVI of the Act. Therefore, such costs are not approved pursuant to Section 57.7(c)(3) of the Act because they may be used for site investigation or corrective action activities in excess of those required to meet the minimum requirements of Title XVI of the Act.

Pursuant to 35 Ill. Adm. Code 734.850(b) for costs associated with activities that do not have a maximum payment amount set forth in pursuant to 35 Ill. Adm. Code 734 Subpart H must be determined on a site specific basis and the owner/operator must demonstrate to the Agency the amounts sought for reimbursement are reasonable. The Agency has requested additional documentation to support the rate requested for the water level indicator pursuant 35 Ill. Adm. Code 734.505(a). The documentation was either not provided or fails to provide sufficient information for the Agency to make a site specific reasonableness determination.

In addition, without supporting documentation for the rate requested the water level indicator is not reasonable as submitted. Such costs are ineligible for payment from the Fund pursuant to Section 57.7(c)(3) of the Act and 35 Ill. Adm. Code 734.630(dd).

8. $36.00 for Consultant's Materials Costs associated with a slug used in hydraulic conductivity determination which lack supporting documentation. Such costs are ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 734.630(cc). Since there is no supporting documentation of costs, the Illinois EPA cannot determine that costs will not be used for activities in excess of those necessary to meet the minimum requirements of Title XVI of the Act. Therefore, such costs are not approved pursuant to Section 57.7(c)(3) of the Act because they may be used for site investigation or corrective action activities in excess of those required to meet the minimum requirements of Title XVI of the Act.

Pursuant to 35 Ill. Adm. Code 734.850(b) for costs associated with activities that do not have a maximum payment amount set forth in pursuant to 35 Ill. Adm. Code 734 Subpart H must be determined on a site specific basis and the owner/operator must demonstrate to the Agency the amounts sought for reimbursement are reasonable. The Agency has requested additional documentation to support the rate requested for the slug pursuant 35 Ill. Adm. Code 734.505(a). The documentation was either not provided or fails to provide sufficient information for the Agency to make a site specific reasonableness determination.

In addition, without supporting documentation for the rate requested the slug are not reasonable as submitted. Such costs are ineligible for payment from the Fund pursuant to Section 57.7(c)(3) of the Act and 35 Ill. Adm. Code 734.630(dd).

9. $34.10 for Consultant's Materials Costs associated with mileage costs which lack supporting documentation. Such costs are ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 734.630(cc). Since there is no supporting documentation of costs, the Illinois EPA cannot determine that costs will not be used for activities in excess of those necessary to meet the minimum requirements of Title XVI of the Act. Therefore, such costs are not approved pursuant to Section 57.7(c)(3) of the Act because they may be used for site investigation or corrective action activities in excess of those required to meet the minimum requirements of Title XVI of the Act. In addition, this request is not reasonable as submitted. Such costs are ineligible for payment from the Fund pursuant to Section 57.7(c)(3) of the Act and 35 Ill. Adm. Code 734.630(dd).

The Consultant's Materials Costs requests 310 miles at $0.65 per mile for a total of $201.50 for a round trip from Springfield to the site in Lawrenceville to drill the TACO boring. The federal

mileage rate of $0.54 per mile for a total of $167.40 is what is approved by the Agency for mileage costs.

10. $127.80 for Consultant's Materials Costs associated with copies which lack supporting documentation. Such costs are ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 734.630(cc). Since there is no supporting documentation of costs, the Illinois EPA cannot determine that costs will not be used for activities in excess of those necessary to meet the minimum requirements of Title XVI of the Act. Therefore, such costs are not approved pursuant to Section 57.7(c)(3) of the Act because they may be used for site investigation or corrective action activities in excess of those required to meet the minimum requirements of Title XVI of the Act. In addition, this request is not reasonable as submitted. Such costs are ineligible for payment from the Fund pursuant to Section 57.7(c)(3) of the Act and 35 Ill. Adm. Code 734.630(dd).

    The Consultant's Materials Costs requests a total of 1,100 copies, including 800 for the plan, 200 for the budget, and 100 for field/plan/maps/bore logs at a rate of $0.15 per copy. The Corrective Action Plan and Budget that was submitted is 62 pages long (48 for the plan and 14 for the budget). The 1,100 copies represent almost 18 copies of the plan and budget. The IEPA received 2 copies, or 124 pages. The deduction is for 976 copies at $0.15 per copy.

11. $37.20 for Consultant's Materials Costs associated with copies for the Corrective Action Plan and Budget which lack supporting documentation. Such costs are ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 734.630(cc). Since there is no supporting documentation of costs, the Illinois EPA cannot determine that costs will not be used for activities in excess of those necessary to meet the minimum requirements of Title XVI of the Act. Therefore, such costs are not approved pursuant to Section 57.7(c)(3) of the Act because they may be used for site investigation or corrective action activities in excess of those required to meet the minimum requirements of Title XVI of the Act.

    Pursuant to 35 Ill. Adm. Code 734.850(b) for costs associated with activities that do not have a maximum payment amount set forth in pursuant to 35 Ill. Adm. Code 734 Subpart H must be determined on a site specific basis and the owner/operator must demonstrate to the Agency the amounts sought for reimbursement are reasonable. The Agency has requested additional documentation to support the rate requested for copies pursuant 35 Ill. Adm. Code 734.505(a). The documentation was either not provided or fails to provide sufficient information for the Agency to make a site specific reasonableness determination.

    In addition, without supporting documentation for the rate requested the copies are not reasonable as submitted. Such costs are ineligible for payment from the Fund pursuant to Section 57.7(c)(3) of the Act and 35 Ill. Adm. Code 734.630(dd).

12. $150.00 for Consultant's Materials Costs associated with copies for the reimbursement claim which lack supporting documentation. Such costs are ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 734.630(cc). Since there is no supporting documentation of costs, the Illinois EPA cannot determine that costs will not be used for activities in excess of those necessary to meet the minimum requirements of Title XVI of the Act. Therefore, such costs are not approved pursuant to Section 57.7(c)(3) of the Act because they may be used for site investigation or corrective action activities in excess of those required to meet the minimum requirements of Title XVI of the Act.

Pursuant to 35 Ill. Adm. Code 734.850(b) for costs associated with activities that do not have a maximum payment amount set forth in pursuant to 35 Ill. Adm. Code 734 Subpart H must be determined on a site specific basis and the owner/operator must demonstrate to the Agency the amounts sought for reimbursement are reasonable. The Agency has requested additional documentation to support the rate requested for copies pursuant 35 Ill. Adm. Code 734.505(a). The documentation was either not provided or fails to provide sufficient information for the Agency to make a site specific reasonableness determination.

In addition, without supporting documentation for the rate requested the copies are not reasonable as submitted. Such costs are ineligible for payment from the Fund pursuant to Section 57.7(c)(3) of the Act and 35 Ill. Adm. Code 734.630(dd).

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Appeal Rights

An underground storage tank owner or operator may appeal this final decision to the Illinois Pollution Control Board pursuant to Sections 40 and 57.7(c)(4) of the Act by filing a petition for a hearing within 35 days after the date of issuance of the final decision. However, the 35-day period may be extended for a period of time not to exceed 90 days by written notice from the owner or operator and the Illinois EPA within the initial 35-day appeal period. If the owner or operator wishes to receive a 90-day extension, a written request that includes a statement of the date the final decision was received, along with a copy of this decision, must be sent to the Illinois EPA as soon as possible.

For information regarding the filing of an appeal, please contact:

John Therriault, Assistant Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph, Suite 11-500
Chicago, IL 60601
312/814-3620

For information regarding the filing of an extension, please contact:

Illinois Environmental Protection Agency
Division of Legal Counsel
1021 North Grand Avenue East
Post Office Box 19276
Springfield, IL 62794-9276
217/782-5544

LEAKING UST TECHNICAL REVIEW NOTES

Reviewed by: Brad Dilbaitis
Date Reviewed: 7/8/2016

Re: LPC #1010155024—Lawrence County
Lawrenceville/ Dersch Croslow's Shell
1421 Lexington Avenue
Leaking UST Incident No. 20050374
Leaking UST Technical File

Document(s) Reviewed:
3/23/2016 Corrective Action Plan and Budget—received 3/25/16

General Site Information:

Site subject to: 734

IEMA date: 3/17/2005	Payment from the Fund: yes
UST system removed: yes—5/5/5	OSFM Fac. ID #: 7009254
Encountered groundwater: yes	SWAP mapping and evaluation completion date: 1/15/2016
Free product: no	Site placement correct in SWAP: yes
Current/past land use: gas station	MTBE > 40 ppb in groundwater: yes MW-3, MW-4 and MW-5
Size & product of USTs: : (3) 6,000-gallon gasoline and (1) 1,000-gallon diesel USTs	
Is site located in EJ area? Yes—low income	Is investigation of indoor inhalation exposure route required? Possibly, MW-5 had both soil and groundwater contamination in 2006

- Soil type silty clay according to boring logs
- Soil and groundwater plumes delineated on-site to the north and off-site to the east, west and south
- On-site soil contamination exceeding Tier 1 SROs in (5) soil samples
  - B-1 (13' bgs)—0.16 mg/kg benzene—exceeds SCGIER SRO
  - B-3 (7.5' bgs)—0.8 mg/kg benzene—exceeds SCGIER SRO
    (12.5' bgs)—0.13 mg/kg benzene—exceeds SCGIER SRO
  - B-4 (7.5' bgs)—4.7 mg/kg benzene—exceeds SCGIER, INH, C/wrkr SROs
    1.2 mg/kg MTBE—exceeds SCGIER SRO
    (13' bgs)—0.082 mg/kg benzene—exceeds SCGIER SRO
  - B-5 (5' bgs)—1.2 mg/kg benzene—exceeds SCGIER SRO
    0.35 mg/kg MTBE—exceeds SCGIER SRO
    (7.5' bgs)—3.4 mg/kg benzene—exceeds SCGIER, INH, C/wrkr SROs
    22 mg/kg ethylbenzene—exceeds SCGIER SRO
    64 mg/kg total xylenes—exceeds const. worker inh. SRO
    2 mg/kg MTBE—exceeds SCGIER SRO
  - B-6 (7.5' bgs)—5.2 mg/kg benzene—exceeds SCGIER, INH, C/wrkr SROs
    21 mg/kg ethylbenzene—exceeds SCGIER SRO
    10 mg/kg total xylenes—exceeds const. worker inh. SRO
    1.9mg/kg MTBE—exceeds SCGIER SRO
- Tier 1 GROs exceeded in (4) monitoring wells
  - MW-1—0.038 mg/l benzene

• MW-3—0.24 mg/l benzene		0.21 mg/l MTBE
• MW-4—0.065 mg/l benzene	0.11 mg/l ethylbenzene	0.26 mg/l MTBE
• MW-5—1 mg/l benzene	3.1 mg/l ethylbenzene	0.16 mg/l MTBE

Previous Corrective Action Plan Notes:

- The consultant previously submitted Tier 2 SROs using default values for soil bulk density, particle density and fraction of organic carbon (sub surface) for:
  - Benzene SCGIER (S-17)
  - Benzene I/C inhalation (S-6)
  - Benzene construction worker inhalation (S-7)
  - Ethylbenzene SCGIER (S-17))
  - Total xylenes construction worker inhalation (S-5)
  - MTBE SCGIER (S-17)
- The Tier 2 SROs were calculated using default values for soil bulk density, particle density and fraction of organic carbon (sub surface)
- Consultant is proposing a groundwater ordinance, which would address all of the Tier 2 SCGIER exceedances, leaving B-4, B-5 and B-6 with Tier 2 exceedances needing to be addressed
  - B-4 (7.5' bgs) exceeding I/C inhalation and construction worker inhalation SROs
  - B-5 (7.5' bgs) exceeding I/C inhalation and construction worker inhalation SROs
  - B-6 (7.5' bgs) exceeding I/C inhalation SRO
- Proposed to excavate the soil around B-4, B-5 and B-6—however, the consultant is proposed to advance (4) soil borings to further define the limits of the excavation
- groundwater contamination modeled to the south—should have been modeled to the southeast and may affect other off-site properties—need to address with the ordinance
- Proposed Highway Authority Agreements for 15th Street to the west and Lexington Avenue to the south of the site to address the soil contamination in B-3 and B-4

Current Corrective Action Plan Notes:

- The consultant is proposing to advance (1) soil boring to the north of MW-9 to a depth of approximately 10' bgs (groundwater typically encountered between 9' and 11' bgs)
- The soil sample will be taken in the strata directly above the groundwater table
- Groundwater depth measurements will be collected from all on- and off-site monitoring wells—will re-determine flow direction, hydraulic gradient
- Will conduct another slug test to determine the hydraulic conductivity (did not indicate which well would be used—previously done on MW-1 in October 2006)

Corrective Action Budget:

Drilling and Monitoring Well Costs	$1,486.97	
Analytical Costs	$430.85	
Remediation and Disposal Costs	$0.00	
UST Removal and Abandonment Costs	$0.00	
Paving, Demo, and Well Abandonment Costs	$0.00	
Consulting Personnel Costs	$20,444.43	(approving $13,793.44)
Consultant's Materials Costs	$825.50	(approving $227.40)

- Emailed the consultant concerns about the budget 6/14/2016 (email attached)

- The Consulting Personnel Costs requests 30 hours for a Professional Geologist at a rate of $111.76 per hour for a total of $3,352.80 for "Corrective Action Plan Design and Preparation"—the plan is for the advancement of a soil boring to determine the parameters required for proposing on-site corrective action in accordance with Tier 2 remediation objectives as required in 734.410 and calculating the Tier 2 remediation objectives and groundwater modeling—designing and preparing this Corrective Action Plan should not take 30 hours for a PG (in addition to 6 hours for a Senior Project Manager and 4 hours for an Engineer III for CAP development/technical compliance)—in addition, I told the consultant where to advance the soil boring and at which depth (7.5' bgs) to collect the sample so there should be no hours for development—emailed consultant about justification for the 30 hours, the explanation had something to do with submitting hours for the previous plan that was denied—deducting the requested 30 hours for lack of supporting documentation and being unreasonable—a $3,352.80 deduction
- The Consulting Personnel Costs requests 6 hours for a Draftsperson/CAD IV at a rate of $66.81 per hour for a total of $400.86 for the drafting of the Corrective Action Plan—this Corrective Action Plan requires one map, the proposed soil boring location map, the consultant submitted 12 maps—734.335 does not require that a map be submitted with the Corrective Action Plan—in this case, a site map noting the location of the proposed soil boring is approved, but the other 11 maps exceed the minimum requirements necessary to comply with the Act—will approve one hour at a rate of $66.81 for updating the Soil Boring Location Map (Drawing 0004) to the Proposed Soil Boring Location Map (Drawing 0004A)—a $334.05 deduction
- The Consulting Personnel Costs requests 6 hours for a Senior Project Manager at a rate of $121.49 per hour for a total of $728.94 for contaminant transport modeling/oversight/technical compliance and 20 hours for a Professional Geologist for preliminary contaminant transport modeling and TACO calculations at a rate of $111.76 per hour for a total of $2,235.20 —this is only an estimate on how long it will take the consultant to perform the modeling and the costs associated with the modeling should be submitted in the amended Corrective Action Plan that will be submitted to apply the modeling calculations—that way, the costs will be known and it will not be necessary to approve costs in excess of what is needed for the task—a $2,964.14 deduction
- The Consultant's Materials Costs requests $148.00 for the use of a PID for one day—the consultant submitted no documentation to justify the requested daily rate—will deduct the $148.00 for lack of supporting documentation and being unreasonable
- The Consultant's Materials Costs requests the use of a measuring wheel for one day at a rate of $21.00—this is considered an indirect cost—deducting the $21.00
- The Consultant's Materials Costs requests one box of gloves use at a rate of $16.00 per box—should only use maybe one or two pairs of gloves—did not document the cost of the gloves—will deduct the $16.00 for the gloves—lack of supporting documentation and unreasonable
- The Consultant's Materials Costs requests the use of a water level indicator for one day at a rate of $28.00—the consultant submitted no documentation to justify the requested daily rate—will deduct the $28.00—lack of supporting documentation and unreasonable
- The Consultant's Materials Costs request $36.00 for a slug to conduct the slug test to determine the hydraulic conductivity of the groundwater beneath the site the consultant submitted no documentation to justify the requested daily rate—will deduct the $36.00—lack of supporting documentation and unreasonable
- The Consultant's Materials Costs requests 310 miles at $0.65 per mile for a total of $201.50 for a round trip from Springfield to the site in Lawrenceville to drill the TACO boring—will approve

the federal mileage rate of $0.54 per mile for a total of $167.40—deducting $34.10—lack of supporting documentation and unreasonable

- The Consultant's Materials Costs requests a total of 1,100 copies, including 800 for the plan, 200 for the budget, and 100 for field/plan/maps/bore logs—the Corrective Action Plan and Budget that was submitted is 62 pages long (48 for the plan and 14 for the budget)—the 1,100 copies represents almost 18 copies of the plan and budget—we received 2 copies, or 124 pages—deducting 852 copies at a rate of $0.15 per copy for a total deduction of $127.80—lack of supporting documentation and unreasonable—approving (4) copies: the two that were sent to us and the two extra copies indicated in the plan for the owner/operator and the consultant
- The Consultant's Materials Costs requests $0.15 per copy for copies—the consultant indicated that this was done because the Agency charges $0.15 per copy for FOIA documents—this is not entirely true—FOIA charges $0.15 per copy after the first 400 copies so you'd actually have to request more than 10,000 copies before you could get to a point where you were able to round up to $0.15 per copy—deducting the remainder of the copies request, $37.20, for lack of supporting documentation and unreasonable
- The Consultant's Materials Costs requests 1,000 copies for the two applications for payment at a rate of $0.15 per copy for a total of $150.00—provided no documentation to support the requested rate—deducting the requested $150.00 for lack of supporting documentation and unreasonable

Illinois EPA Decision:

- Will approve the geotechnical boring and all of the associated analysis—the information was presented in the 2/23/2007 Site Investigation Plan but the analysis was for TOC, not organic carbon content and the bulk density/particle density results didn't include the lab report, will also analyze for soil classification—previous analysis completed on a soil sample from a contaminated area
- Will also approve the slug testing after consulting the consultant—the most conservative hydraulic conductivity should be used for modeling
- The Corrective Action Budget will be modified as listed above

BD\CAP2notes.docx

Dilbaitis, Bradley

From: Dilbaitis, Bradley
Sent: Friday, July 01, 2016 11:05 AM
To: 'cwm@cwmcompany.com'
Subject: RE: Croslow's Shell CAP

Good morning Carol,

I agree with you about the Corrective Action Budget needing to cover the entirety of the work that was submitted but I don't agree with submitting extra hours for the anticipation of possible modifications to the plan, possible IEPA correspondences or possible owner/operator explanations of a possible modification. These would not be expected activities for a normal plan. When I look at a budget I look at the tasks and whether the time requested seems reasonable for that task. If these tasks include extra time for possible modifications, correspondence, etc. then they start looking unreasonable for the task. Then, questions get asked, then correspondence, then possible modifications. It's a self-fulfilling prophecy. Are most of these modifications from the IEPA budget related or technical modifications? How do you determine the extra amount you're billing for these extra scenarios? Is it a set amount of hours added to each budget, based on a percentage of the Consulting Personnel Costs total or another way? 734.510(b) states *that the overall goal of the financial review must be to assure that costs associated with materials, activities, and services must be reasonable, must be consistent with the associated technical plan, must be incurred in the performance of corrective action activities, must not be used for corrective action activities in excess of those necessary to meet the minimum requirements of the Act and regulations, and must not exceed the maximum payment amounts.* It's difficult for us to do this if the consultant is requesting additional personnel time for activities that are not part of the submitted plan (i.e. anticipated problems). If you're having problems with your Consulting Personnel Costs being approved, this policy of over-inflating the requested Consulting Personnel Costs to account for possible modifications may be causing the questions to be asked and the modifications to be made.

If I read your explanation correctly for Item 1, you're including some costs from the preparation of the first Corrective Action Plan that was denied. You can't do this. That plan was denied because you need site-specific Tier 2 soil remediation objectives and site-specific modeling for the execution of the proposed Corrective Action Plan. The geotechnical boring was actually already done by the previous consultant; this wasn't even addressed in your plan even though they were presented in your Site Investigation Completion Report. Granted, we can't use the foc because it was collected from a contaminated area but site-specific Tier 2 SROs or modeling wasn't proposed when the plan talked about an excavation and modeling for an ordinance. If you're planning on submitting another Corrective Action Plan and Budget to address the contamination using the site-specific parameters that are determined from this Corrective Action Plan then you shouldn't be submitting any costs other than what is anticipated for the execution of this Corrective Action Plan, and that's only the TACO boring and the modeling calculations. The time submitted to design and prepare the plan is too much (e.g. 30 hours for a PG for Corrective Action Plan design and preparation). This Corrective Action Plan has nothing to do with the Corrective Action Plan that was denied. None of the information from the previous Corrective Action Plan has anything to do with this Corrective Action Plan. The plan is simply to advance a soil boring in a clean area on site to collect a geotechnical sample. Your plan to address the information gathered from this plan is forthcoming. That's where you would apply the applicable hours you originally spent on the original Corrective Action Plan that was denied.

As far as the possibility of my modifying the original Corrective Action Plan to include the TACO boring goes, I won't do that. I need to see the site-specific Tier 2 soil remediation objectives and the site-specific modeling before I can make a determination on the Corrective Action Plan. On the other hand, I gave you notice that a TACO boring had to be done, where it needed to be advanced, and at what depth it needed to be sampled. I emailed Vince on 1/15/16 and discussed this before the denial letter was issued. Rob Stanley replied to my email on 1/18/16 and said that you understood that the plan would need to be rejected and appreciated my contacting you for possible options. I even stated where to place the boring in the email (north of MW-9). You didn't need to submit this Corrective Action Plan. You could have just added the costs for the boring, analysis, personnel (etc.) into your next Corrective Action Plan and budget. That would have made a lot more sense. You know that you need to do geotechnical analysis. You know where it should be located and at what depth the sample should be collected because I told this to Rob and Vince in my email dated 1/15/2016. It's always approved and it's in our regulations (734.410) so you know it'll be paid. You don't need to submit a plan for that, especially considering that I stated that it needed to be done in the denial letter and also told you where to place the boring and at which depth it should be sampled. You've submitted a plan that includes almost $13,000 in Consulting Personnel Costs for unneeded plan, budget and claims preparations for this plan that includes less than $5,000 in personnel field costs. The implication that I should have approved the plan with the TACO boring modification is not

reasonable to use because I contacted you prior to the letter being issued and you guys stated that you understood that it needed to be rejected.

There's also 6 hours of CAD time totaling $400.86 for one proposed soil boring map (the only map required for this plan, the rest exceed the minimum requirements). How much time would you say was devoted to placing the PSB-TACO boring on the Proposed Soil Boring Location Map?

Item 2) the explanation given for the 12 hours for the TACO sampling seems reasonable. But we'll need to use the most conservative hydraulic conductivity value, whether it's the one you determine or the one that the previous consultant determined.

Item 3) No problem. I just needed some sort of clarification concerning the phrasing of the task.

Item 4) I guess this is appropriate. Thanks for the explanation.

I realize that the Consultant's Materials Costs questioning is causing a temporary upheaval but we're not just looking at $249 or 1% of the budget. For me, it's not a question of money but more a question of paying appropriate costs. I personally did a check on the Consultant's Materials Costs of a consultant for 2014 and estimated over $50,000 for the year for use of a PID, $20,000 for gloves, $20,000 for a metal detector, $25,000 for the use of a digital camera and $30,000 for a measuring wheel. These were also extremely conservative estimates. Trust me, these costs do add up.

I don't want to deny any appropriate costs, whether it's $0.10 or $10,000. This stock items/buying gloves per event argument has been presented to me before by another consultant and I would say that doing it that way certainly seems unreasonable as well. You're asking for $16.00 for the use of possibly one pair of gloves. This is obviously unreasonable. The cost of a pair gloves can easily be determined and budgeted accordingly from what you have. Why shouldn't the cost savings of bulk purchasing of gloves be passed on to the person/entity paying for them, in this case the LUST Section? Taking this to the other extreme is not constructive. As it stands, I don't see any cost benefit of doing it the current way at $16 for this plan, for example. This $16 request is an entire box of gloves for this one plan to collect one soil sample. The gloves quote that you attached does not indicate that these are the gloves that you use nor does it indicate that there is any cost benefit to ordering in bulk ($15.93 per box of 100). Again, this is why we'd like to see invoices or receipts for previous purchases.

I can't speak for anyone else but, yes, I have read 734.875. I have nothing to do with the Agency's review of the maximum payment amounts. It's not appropriate for me to comment on this because it's not something I would be involved with.

I don't think it's appropriate to compare an IEPA employee's salary with the increase in the Subpart H maximum payment amounts. This information could also be used to show that Brian is grossly underpaid and making about a third of what we reimburse for a Senior Project Manager. If Brian Bauer were making the Senior Project Manager rate of $123.91 per hour he would have earned almost $250,000 last year. In 2015 he earned less per hour than 35 of the 37 personnel titles we reimburse, earning just over the Subpart H Maximum Payment Amount that we reimburse for an entry level administrative assistant. It's just not appropriate to compare the two.

As far as the impact on prevailing wage, we were under the impression that prevailing wages were already being paid and I believe it's our contention that prevailing wages should have been paid in the first place. But, again, I have nothing to do with these decisions.

The IEPA website shows that we pay $0.15 per copy after 400 copies. We actually pay less than $0.15 per copy for paper, much less depending on how many pages exceeding 400 are requested. In fact, you'd have to FOIA over 10,000 pages of documents to reach a point where you could round up to $0.15 per copy. But now everything in our DocuWare system is now accessible online and most LUST documents don't even need to go through FOIA. The plan (48 pages) and budget (14 pages) are 62 pages total. The Consultant's Materials Costs requests a total of 1,100 pages for the Corrective Action Plan and Budget at $0.15 per copy. I don't think $165.00 is an appropriate cost for the paper used in this Corrective Action Plan and Budget and the copy (124 pages). It's $1.33 per page for the amount of paper that you submitted to the Agency.

The rental sheet from Envirotech is basically just a product rental sheet from an online company located in California. It's not appropriate for use to document the rates you charge for a PID because you wouldn't be renting a PID from California. I'm not sure you could rent a PID here in Springfield if you wanted to. But that's not what you and I should be doing. We are trying to determine an appropriate daily rate for a piece of equipment that you own. Is it appropriate to compare the rate you've requested to a rental rate? I personally don't think so. A rental rate includes enough profit in the

daily rate to account for company costs such as overhead and employee payroll. I don't think it's appropriate to make a profit off of equipment charges for equipment that you own. I understand that we pay reasonable rates for equipment usage but is a rental rate really reasonable for a PID that you own? It seems to me that the best way to determine a rate for a piece of equipment (PID) would be to take the initial price of the equipment, add in any expected indirect costs (batteries, expected costs for calibration, repairs, thorough cleaning from an equipment company, if applicable) then divide that total by the number of years the equipment is expected to last, then divide that by the number of days of expected use during a year. You stated in your email that you will have to replace your PID relatively soon. You can determine a rough life expectancy based on how long you owned the MSA Orion, although this might not be technically accurate because it's not broken and parts for repair and maintenance of discontinued PIDs might be readily available at msagasmonitors.com.

There's also postage in here for the plan, budget and claim (two copies each). To whom are these documents mailed? I was under the impression that your plans, budgets and claims were brought into the IEPA by you guys and not actually mailed. Do you submit the postal receipts with the claim?

I understand that requiring the justification/verification of the requested rates for the Consultant's Materials Costs that don't have Subpart H maximum payable amounts is currently causing a problem on both sides of the fence with respect to time spent addressing these issues. I've personally spent a lot of time with several consultants dealing with these very issues over the last few months. But the results show that this was justified and long overdue. These issues will continue to arise if the current Consultant's Materials Costs rates continue to be submitted without justification. If you would like to submit a set of rates with justification for use in the Consultant's Materials Costs for the next year I'd be happy to see if they would be acceptable. That could solve the entire issue and save a whole lot of time for you and us. From what I have right now I'd have to cut the PID rental, the measuring wheel (as indirect), the gloves, the water level indicator, the slug, and the copies for being unreasonable and lacking supporting documentation. The mileage has to be approved at the Federal mileage rate of $0.54 per mile.

Brad Dilbaitis
Project Manager
Illinois Environmental Protection Agency
Leaking Underground Storage Tanks
1021 North Grand Avenue East
P.O. Box 19276
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fax: (217) 524-4193

From: cwm@cwmcompany.com [mailto:cwm@cwmcompany.com]
Sent: Tuesday, June 28, 2016 3:27 PM
To: Dilbaitis, Bradley
Subject: Croslow's Shell CAP

Brad,

We have looked into your questions regarding the Corrective Action Plan (CAP) and budget which was recently submitted for the Dersch Energies site known as Croslow's Shell in Lawrenceville, Illinois. As always, we appreciate you asking questions and seeking to resolve issues in advance of issuing decisions.

Prior to our explanation of the individual questions, we must stress that it is common understanding that a budget or cost proposal is merely an estimate of the costs anticipated for a certain phase of a project. It is not a final billing which is typically documented with hours, costs and receipts. It is in everyone's best interest that budgets include various scenarios that may be encountered during a segment of activities; corrective action in this case, so that additional time is not required to present a scenario that was probable but not budgeted to make the budget seem as low as possible. Cost estimates must include additional time for correspondences with the Agency, such as this response or requested for plan modifications, additional samples, borings, etc., and time to explain to the property owner / operator why

the Agency is requesting such information and what it means to the overall project timing and costs. These extra estimated costs would not be necessary or included in budgets if they didn't frequently arise. It would be not only costly, and not pragmatic to budget the lowest expected costs and then request budget amendments for additional or actual hours incurred, but the Agency would not likely approve this method.

Item 1) The time to prepare the original CAP was included in the November 10, 2015 submittal; however, that CAP and Budget was denied by the Agency on January 21, 2016. The denial letter requested a TACO boring be advanced in order to use site specific data rather than default values. In all likelihood, the additional soil borings with monitoring wells will still be needed and the TACO boring could have been simply added to an approval with modifications letter. A short letter itemizing the sampling and soil boring costs could have been submitted as a small budget amendment. Information gathered and prepared for the November 2015 CAP was used to prepare the current CAP adding the TACO boring; thus, a portion of the time from that original submittal was prorated and utilized for the current CAP (i.e. the base and information of the design document). The time to prepare and design the further soil sampling portion from the previous submittal was removed from the current budget. Conversely, the time for the preparation and design of the additional TACO boring was then added to the current CAP and budget. Once the activities of the current CAP are approved and completed, an amended CAP will be submitted with the results and calculations, and likely proposing further sampling and/or an excavation proposal.

A portion of this question requested information for a Senior Project Manager. This descriptive "plan development and technical compliance" is meant to encompass project management from the time of working with the staff to assessing the project and determining the course of action that will be taken through plan development and formal review of the plan to ensure it meets the technical requirements as well as the site requirement and needs of the owner / operator. This includes communicating strategies and plans with the owner / operator.

Item 2) We budgeted 12 hours for the TACO sampling based on several factors. A one way trip from theSpringfield office to the site in Lawrenceville is approximately 3.5 hours. If you factor in a 10% factor for fuel stop, restroom breaks and road construction delays, it adds 21 minutes to the time which is approximately 4 hours. A return trip adds 4 more hours. The time to conduct the setup and take down for drilling the TACO boring is estimated at 1 hour. It is prudent to obtain current groundwater depths and a slug test. It is our professional opinion that current data to match the site specific TACO data would be necessary for accurate calculations and modeling. Slug tests can take less than a half hour up to several hours to complete; thus, 2 hours were estimated. Groundwater measurements from existing wells were estimated at 1 hours; which at 9 monitoring wells is probably a little low. By the time all of the wells are located, some requiring a metal detector if they aren't immediately found and uncovered (a charge that was inadvertently forgotten in the budget), should likely be around 2 or 3 hours. If you add the hours together they sum to 12 hours even though on a closer look they should have been closer to 13 or 14 hours.

Item 3) Preliminary was probably not the best choice of words. We simply meant that calculations would be performed on the current data that had previously been obtained from the soil borings and monitoring wells to submit to the Agency for the next CAP submittal. Essentially, correcting and recalculating the calculations based on the current TACO data. Additional calculations and modeling will possibly be needed once a corrective action is completed and the additional wall and floor samples are obtained. Further modeling will be required for those samples to determine the full number of properties that will need to be included in a localized groundwater ordinance since the City of Lawrenceville on has localized ordinances.

Item 4) Two packages are requested so that the cost for preparing the plan, which will be several months old, can be submitted once the plan approval is received. The second claim will be submitted once the activities proposed in the plan are completed. Partial or complete claims for this stage will be submitted no more than once ever ninety days (734.605 (e)). Only actual costs incurred will be submitted.

Moving on to the equipment and material questions, the short answer to the provide cost breakdown on equipment is, we never have been asked to. We have not tracked what a PID, an individual box of gloves, or a water meter costs to purchase and maintain. The rates we use were originally developed from what

others were charging in this field in the distant past (approximately 1991), adjusted for inflation a few times. In the preparation of this response, we did some checking online to compare our rates, and find them to be less than true rental rates. We are attaching a price list from one supplier we found because it has a comprehensive list of environmental equipment for rent, and the rates were similar to others we were finding. We searched and found many suppliers, this one just had the largest variety of equipment available in a single listing. Shipping, taxes, and the time we would have to spend ordering, cleaning and returning the items is obviously not included in these prices. We also found out that our PID, an Orion model from MSA, is no longer available, which means that it will need to be replaced in the near future, as parts for repair and maintenance will be difficult to find and expensive. For comparison purposes, it is similar to the 3000 model from RAE, both of which read in ppb, not ppm as the cheaper models do.

This recent crusade by the Agency to cut material costs is nonsense. Items 1 through 5 add up to a grand total of $249.00 in a proposed budget of $23,187.55, or 1.07% of the total. It would cost more than $249.00 in the additional time required to obtain / copy / include receipts, and cost justification. For instance, we have several water level meters, and no two are alike. Which one do we "propose" to use, and what happens if we actually use a different one on this project? Are we really supposed to count gloves, and who pays if one rips? If we provide a cost for a meter, then how many times do we have to use it to recover that cost? Do we need to question a manufacturer or vendor about the cost of a piece of equipment to determine if it is reasonable? How do we get paid for the batteries they take? How do we collect costs for calibration materials and time, maintenance, service, and repair? Does the time it takes us to obtain a rental rate factor into our cost? Who pays for shipping and taxes? What if the rented item does not get returned due to time constraints and a late charge applies? At first glance, we see the Agency's position; that there could be a cost savings. If we take a couple of steps back, it really does not make sense. The costs for the required additional proof of cost exceed any potential savings and the documentation costs may exceed the costs entirely.

We stock items like gloves, bailers, string, etc. We do not purchase these items specifically for a particular project. For instance, we stock multiple sizes and types of gloves, as some of our employees are allergic to latex, and a specific type of glove may not be able to withstand certain chemicals or concentrations of chemicals. We buy them by the case, and frequently find that when we go to reorder, a particular model is no longer available. To try to predict which brand and size of gloves that will be used on a particular project (or what were used and which order or orders they came from) is not practical. To purchase them individually, rather than provide them as stock items, would drive up the costs, and be a logistical nightmare (who has the partial box of gloves left for Croslow Shell and will they even fit me?). To do a fair assessment and to provide the real cost of a box of gloves, they cannot be provided as a stock item. They will be treated as a field purchase, and will be ordered, invoiced, shipped and tracked with documentation., along with all the appropriate time to do so. The invoice will be included in the reimbursement claim. There is no other way to provide you with the information you requested. Please note that the benefits of bulk purchasing are lost.

In the Agency's comprehensive review of regulations and costs, have they bothered to read 734.875? Now, not only have the rates never been reviewed, but consultants are being asked to add additional costs that were direct costs when Subpart H rates were developed.

In the spirit of the manner the original Subpart H rates were developed, we "randomly" selected an IEPA employee (Brian Bauer) and obtained his salary information from the State of Illinois website for the years 2008 – 2015. For that time span (we couldn't go back further), his salary increased 21.92%. For the same timeframe, the Subpart H inflation factor raised the consultant personnel rates 13.62%. This amounts to over an 8% loss over the timeframe for Subpart H, and does not take into account the timeframe between the proposal of Subpart H and 2008. Even at 8%, this makes the proposed personnel on this project short $1,635.55, which is a much larger problem than the $249.00 of material costs in dispute. If the rates had been correctly adjusted per 734.875, then the movement of items from direct to indirect would be a lot easier to accept, and likewise if adjustments to other the rates are needed. While this comparison between personnel rates in Subpart H and an IEPA salary is in no means all inclusive, it does raise questions.

Has anyone considered the impact to the Subpart H rates from the requirement that now requires consultants and their contractors to pay prevailing wage? This makes all of the issues raised by the IEPA

seem petty. While the consultants are busy preparing documentation to defend water meter and glove costs, the Agency should be preparing documentation to defend the ETD rate, which for us at least, saw a more than doubling of our labor costs when prevailing wages became required.

On top of these problems, let us not forget that we are now at one year without the program actually paying anyone anything, other than IEPA to administer the program. So while we wait to be paid less than what market conditions say we should (if we actually looked at it, as required by 734.875), interest free of course, let us spend some time to figure out how we can get paid even less for the same work in the future, assuming the program starts paying again.

By the way, on item 6, we are attaching a page from the IEPA website that shows we are charging the same price per copy as IEPA itself. We assume IEPA charges a reasonable rate, and our rate matches yours.
On item 1, we do not have the original invoice, and have not tracked our costs to maintain the PID. After doing some quick on-line research, all of our rental items rates appear to be comparable to significantly less than available rental rates for comparable equipment, especially once taxes, shipping, and the time required to locate, order, and return the item. For the items other than the PID, our time would cost more than the item rented. For instance, for us to rent a comparable PID from the attached pricelist, the daily rental rate for a ppb capable PID is $150 plus the cost of the calibration kit of $15, plus taxes and shipping. Just the rental rate alone is more than our requested rate.

On item 2, when the Subpart H personnel rates were developed, prior reimbursements were used to determine the rates. On at least some of the reimbursements used, these items were billed as direct costs. If items which were direct costs when the rates were developed are now included as indirect costs, then the rates need to be adjusted to reflect the additional items included in them.

On item 3, we cannot argue that we would use more than a couple of pairs of gloves, so just cut the entire cost, or pay the full retail price as a field purchase. Although not necessarily the brand and type we will use, but our most common glove used is Ansell model 69-210 in size large, which were purchased from Grainger. On the Grainger website, a box of those particular gloves are listed for $15.93, which doesn't include the sales tax and shipping, or any of our time to order the gloves. We requested $16.00. To count and document the number and type of gloves actually used on the project will cost more than $16.00. On items 4 and 5, the daily rate was based on what others were charging years ago, adjusted for inflation a few times. Our water level rate and slug test equipment are cheaper than the rental rates we could find, not even factoring in shipping, taxes, and our time to rent and return one. We do not have receipts for any of our water meters or slugs, and we cannot guess which ones will be used on the project.

Please do not view this response as an attack on you or anyone at the Agency. The intent is to provide you with some information you requested, and hopefully to start a dialogue that will lead to a peaceful resolution of the issues the Agency has, along with the resolution of issues the Owner / Operators have been having. We understand that some people at the Agency do not understand that these material costs were tracked for years, and have not been closely scrutinized by current management until now. Our fear is that the level of scrutiny and documentation asked for by the Agency today will lead to more costs to the program (and / or more unreimbursable costs for the Owner / Operators) than any potential savings. The Agency has not declared how it will utilize the data it collects or how it will determine what is reasonable in future budgets. While the low hanging fruit of equipment and material costs does make a good target, let us also step back and look at the entire tree, including the harder to reach items like the Subpart H personnel rates, and the rates which include prevailing wage classifications.

We realize that individual consultants have different approaches to how equipment and materials are budgeted and billed for. Maybe the solution is a set of standardized Subpart H rates for at least the commonly used items. CW^3M is more than willing to work with the Agency to eliminate any confusion about how we budget or bill for materials and equipment, but we cannot turn back the clock and determine costs (in both our time and expenses) for a particular item that we have never been asked to track before. That information is not available. In just a cursory comparison to online rental rates, our rates are already below, or would be below if time, shipping and taxes were added to the costs. To prepare the same or a similar justification every time a budget is proposed, or a claim is submitted is a waste of time. If a daily or per item rate is deemed reasonable on one site, the rate should be reasonable

on every site, and not need rejustification. Maybe the solution is an approval process for each consultant where a set of rates can be submitted by the consultant with justification and approved by the Agency, for use on all the consultant's projects. The way this is heading, the only winner in this will be the attorneys filing and arguing the appeals.

-------- Original Message --------
Subject: Fw: Croslow's Shell
From: Carol Rowe <carol_rowe@sbcglobal.net>
Date: Fri, June 17, 2016 7:13 am
To: Vince Smith <vince@cwmcompany.com>, Rob Stanley <rob@cwmcompany.com>, Matt Rives <matt@cwmcompany.com>

----- Forwarded Message -----
From: Carol Rowe <carol_rowe@sbcglobal.net>
To: "Dilbaitis, Bradley" <Bradley.Dilbaitis@Illinois.gov>
Sent: Friday, June 17, 2016 9:13 AM
Subject: Re: Croslow's Shell

Thanks Brad. That was one of our worries. You're absolutely correct and it is better to be safe. If we were by chance to get a reading, we would want to relocate to clean area. Appreciate you giving that some additional thought.

Carol

From: "Dilbaitis, Bradley" <Bradley.Dilbaitis@Illinois.gov>
To: Carol Rowe <carol_rowe@sbcglobal.net>
Sent: Friday, June 17, 2016 8:47 AM
Subject: RE: Croslow's Shell

Thanks Carol,

By the way, I was doing some thinking about the necessity of the PID for the geotechnical sample after I sent the previous email and it should obviously be used when drilling the boring. We have to know that the soil is clean, even if the area was previously investigated. I was completely wrong about that. It's definitely better to be safe and use the PID.

Brad

From: Carol Rowe [mailto:carol_rowe@sbcglobal.net]
Sent: Friday, June 17, 2016 8:43 AM
To: Dilbaitis, Bradley; Vince Smith; Rob Stanley
Subject: Re: Croslow's Shell

Hi Brad

Just wanted to let you know we are gathering info and working responses to your questions.

Thanks
Carol

From: "Dilbaitis, Bradley" <Bradley.Dilbaitis@Illinois.gov>
To: "carol_rowe@sbcglobal.net" <carol_rowe@sbcglobal.net>
Sent: Tuesday, June 14, 2016 11:11 AM
Subject: Croslow's Shell

Hi Carol,

I'm reviewing the Corrective Action Plan that was submitted for incident #20050374 and have a couple of questions about the budget

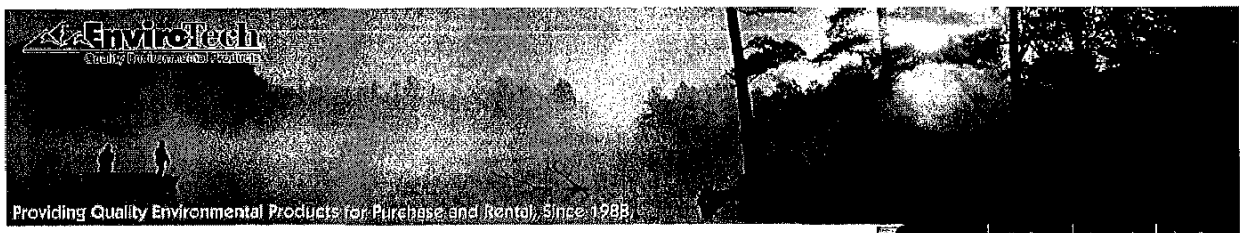
1. The Consulting Personnel Costs requests 6 hours for a Senior Project Manager at a rate of $121.49 per hour ($728.94 total) for "Corrective Action Plan development and technical compliance." I don't understand what this is. The last Corrective Action Plan was denied because the Tier 2 calculations were done using default values and the plan was denied stating that the parameters had to be determined on a site-specific basis. If the Agency requested a geotechnical sample and this Corrective Action Plan is essentially for a geotechnical sample, why are there so many hours for the plan development? This also applies to the 30 hours for a PG ($3,352.80 total) and 4 hours for an Engineer III ($485.96 total).
2. The Consulting Personnel Costs requests 12 hours for the on-site drilling for the TACO sampling. Why so many hours? The slug test was done back in 2006 and doesn't need to be done again. We don't need to take any groundwater measurements either so I'm confused as to the amount of hours.
3. The Consulting Personnel Costs requests 20 hours for a Professional Geologist ($2,235.20 total) for 'preliminary contaminant transport modeling & TACO calculations.' The word 'preliminary' implies that there will be more TACO charges in the future. Are these all of the TACO hours you expect to accumulate and, if not, why do they need to be re-calculated later?
4. The Consulting Personnel Costs request 2 claims packages for this budget. Why request 2 packages for the 1 budget? This appears to exceed the minimum requirements.

As I'm sure you're well aware by now, we have to determine if the rates not subject to Subpart H maximum payment amounts are reasonable per 734.850(b) so I have to figure out the Consultant's Materials Costs.

1. The budget requests the use of a PID for one day at a rate of $148.00. First, why is the PID needed? The boring is to be done in an area that was previously investigated and found to be clean (that's why you proposed the boring there). I don't see the need for a PID. Also, how did you determine your $148.00 daily rate? We need supporting documentation to determine if the $148.00 daily rate is appropriate. Whatever goes into the rate is what we'd like to see.
2. Cameras and measuring wheels are now considered indirect costs and are not being approved as Consultant's Materials Costs. The indirect cost classification for the camera and measuring wheel use is because their respective purchase costs are so low that a daily rate for their use is no longer appropriate. For example, when the regulations were written our supplemental instructions list film and development costs. This is no longer appropriate. All of the pictures are now taken with a digital camera, emailed or connected to a computer via USB and then simply printed out just as any other page is printed for the plan/report. IEPA field personnel have also noted that consultants are often using iPhones or other smartphones to take photos, which is a piece of equipment that we do not pay for.
3. The Consultant's Materials Costs request the use of 1 box of gloves at $16.00 per box. We need to know what brand of gloves you're using and how big the box of gloves is. We'd prefer to see the invoice/receipt for the gloves you usually use to help determine the appropriate rate. Also, an entire box of gloves should not be used for the collection of a geotechnical sample. I would actually expect only 1 pair of gloves to be used.
4. How did you determine your $28.00 daily rate for a water level indicator? Is it based on a daily rate based on the initial cost? What does the rate include?
5. The Consultant's Materials Costs requests $36.00 for the use of a slug for one day. How much did the slug cost? How did you determine the daily rate of $36.00 for its use?
6. The Consultant's Materials Costs requests a total of 2,100 copies for the plan, budget and claim at $0.15 per copy. How did you determine the $0.15 per copy?

Thanks for your help with this. I know it's a lot to address but it has to be done before the plan can be approved.

Brad Dilbaitis



June 14, 2016

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ITEM/DESCRIPTION	Daily	Weekly	Monthly
GROUNDWATER SAMPLING INSTRUMENTATION			
Water Level Indicators			
Solinst Mdl. 101/Heron Dipper-T: 100'-300'	$30.00	$90.00	$180.00
Solinst Mdl. 101/Heron Dipper-T: 500'-1000'	45.00	135.00	405.00
Solinst Mdl. 102 w/ .25" probe: 100'-300'	30.00	90.00	180.00
Sonic Depth Meter	45.00	135.00	405.00
Solinst TLC (Temp/Level /EC)	75.00	225.00	675.00
Oil/Water Interface Meters			
Solinst Mdl 122/Heron H.Oil: 100'-300'	75.00	225.00	675.00
Solinst Mdl. 122/Heron H.Oil: 500'	85.00	255.00	765.00
Single Parameter Instruments			
Dissolved Oxygen			
YSI 550A DO Meter	45.00	135.00	405.00
YSI ProDO Optical DO	60.00	180.00	540.00
Turbidity			
LaMotte 2020e/2020WE	40.00	120.00	360.00
Oakton T-100	40.00	120.00	360.00
Multi Parameter Instruments			
Horiba U-10, 2m/10m cable pH/Temp/EC/ORP/DO/Turb/TDS	70.00	210.00	630.00
Horiba U-22, 4m/10m cable, w/Flow Cell pH/Temp/EC/ORP/DO/Turb/TDS/SSG/Depth/Salinity	125.00	375.00	1125.00
Horiba U-52, 2m/10m Cable w/ Flow CellpH/Temp/EC/ORP/DO/Turb/TDS/Salinity	125.00	375.00	1125.00
YSI 556, 4m/10m/20m cable, w/Flow Cell pH/Temp/EC/ORP/DO/Salinity/TDS	100.00	300.00	900.00
UltraMeter II 6P (pH/Cond./Temp./ORP/Resistivity)	35.00	105.00	315.00
Oakton Con10 (pH/Temp/EC)	35.00	105.00	315.00
Dataloggers			
Solinst Levelogger (Direct Read System Available) *priced per logger	60.00	180.00	560.00
GROUNDWATER SAMPLING PUMPS AND EQUIPMENT			
Grundfos Redi-Flo2 Submersible Pump: 100'-300'	200.00	600.00	1800.00
Grundfos Redi-Flo2 Pump Controller, 115V	95.00	285.00	855.00
Honda EU2000 Generator (2000w)	60.00	180.00	540.00
Proactive Purge Pump w/controller: 40'-85'	45.00	135.00	405.00
Proactive Purge Pump w/ Controller : 90'-150'	65.00	195.00	585.00
Proactive Mega-Monsoon w/ Controller: 200'	85.00	255.00	765.00
Low Flow Sampling			
GeoPRO Bladder Pump System (.5"/1.6" dia.)	165.00	495.00	1485.00
QED Sample Pro System: MP10, 1.6" pump	165.00	495.00	1485.00
Waterra Hydrolift 2 Inertial Pump (Ideal for Well Development) *HDPE/LDPE Tubing Required w/ Footvalve	100.00	300.00	900.00
Geotech II Peristaltic Pump	30.00	90.00	270.00
AIR MONITORING EQUIPMENT			
Single Gas Instruments			
MiniRAE 2000/3000 PID, 10.6eV lamp	95.00	285.00	855.00
MiniRAE 2000 PID, 11.7eV lamp	125.00	375.00	1125.00
ppBRAE 3000, 10.6eV lamp	150.00	450.00	1350.00
ION Science G3 Helium Detector	125.00	375.00	1125.00
PID Rental Accessories			
Calibration Kit: 100ppm Iso, Regulator & Tubing *Price based on 25% gas usage per week. Overages billed accordingly.	15.00	45.00	135.00
Multi-Gas Instruments			
MultiRAE: PID & 4-gas (LEL/O2/H2S/CO)	95.00	285.00	855.00
QRAE: 4-gas Meter (LEL/O2/H2S/CO)	80.00	240.00	720.00
GasTech: LEL/O2	50.00	150.00	450.00
GasTech: LEL/O2/CO/H2S	60.00	180.00	540.00
RKI GX-2012: LEL/O2/H2S/CO	60.00	180.00	540.00
RKI Eagle 2: LEL/O2/H2S/CO/PID	95.00	285.00	855.00
Multi-Gas Instrument Rental Accessories			
Calibration Kit: 100ppm Iso, 4-gas mix, Regulator & Tubing *Price based on 25% gas usage per week. Overages billed accordingly.	25.00	75.00	180.00
Landfill, Particulate, Mercury Monitors, and Air Sampling			
Landtec GEM-2000+: CH4/O2/LEL/H2S/Temp	150.00	450.00	1200.00
GasTech Methane Landfill Monitor	100.00	300.00	900.00
RKI Gas Tracer : LEL/O2/CO	60.00	180.00	540.00
Thermo DataRAM pDR-1000: Personal Particulate Monitor	100.00	300.00	900.00
Casella Micro Dust PRO: Real Time Dust monitoring.	85.00	255.00	765.00
Jerome 431X Mercury Vapor Analyzer	150.00	450.00	1350.00
GilAir 5 Sampling Pump	40.00	80.00	240.00
SOIL SAMPLING, PIPELINE and MISC. EQUIPMENT			
AMS Hand Auger w/3' extension and t-handle, 3.25" stainless steel	25.00	75.00	225.00
AMS Complete Basic Soil Sampling Kit: 3.25"	85.00	255.00	765.00
AMS Flighted Auger Kit w/Hammer Drill	150.00	450.00	1350.00

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Enviro-Tech Services

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Flowmeter: Global Water FP101: 3' to 6' extendable	30.00	100.00	300.00
Anemometer: VelociCalc 9545A	50.00	90.00	230.00
Rotary Hammer Drill: Bosch/Dewalt	50.00	150.00	450.00
Honda EU2000 Generator (2000w)	60.00	180.00	540.00
GVP Kit ; Soil Vapor(Vadose Zone Sampling) *w/ Removal Jack & Hammer Drill	200.00	600.00	1800.00

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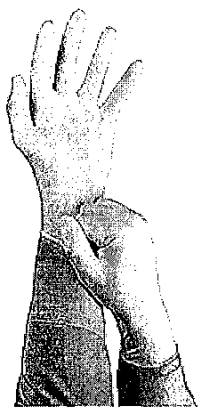

Price
$15.93

TECHNICAL SPECS

Palm Thickness **5.00 mil** Color Family **Neutrals** Material **Natural Rubber Latex**
Powdered/Powder Free **Powdered** Latex Content **Contains Latex** Glove Finish Type **Smooth**
Length **9"** Cuff **Rolled/Beaded** Glove Finish Location **No Finish** Aloe Inner Surface **No**
Ambidextrous/Hand-Specific **Ambidextrous** Metal Detectable **No**

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CW³M Company
Environmental Consulting Services

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Phone: (217) 522-8001
Fax: (217) 522-8009

1010155024 – Lawrence County
Dersch Croslow's Shell
Incident # 20050374
Leaking UST Technical File

March 23, 2016

Mr. Brad Dilbaitis, Project Manager
LUST Section, Bureau of Land
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

RE: LPC # 1010155024—Lawrence County
Dersch Energies, Inc. - Croslow's Shell / Lawrenceville
1421 Lexington Avenue
Incident Number: 2005-0374
LUST Technical Reports—Corrective Action Plan and Budget

Dear Mr. Dilbaitis:

On behalf of Mr. Tom Dersch, President of Dersch Energies, Inc., which owns the USTs at the above referenced site, we are submitting the attached Corrective Action Plan (CAP) and Budget.

Based on the Agency letter dated January 21, 2016, we have proposed to collect one soil sample to be analyzed for physical parameters at the above referenced site. The results will be used to more accurately determine the site-specific cleanup objectives at the site.

If you have any questions or require additional information, please contact Mr. Rob Stanley at (618) 997-2238 or me at (217) 522-8001.

Sincerely,

Carol L. Rowe, P.G.
Senior Environmental Geologist

Enclosure

xc: Mr. Tom Dersch, *Dersch Energies, Inc.*
Mr. William T. Sinnott, *CW³M Company, Inc.*

CORRECTIVE ACTION PLAN AND BUDGET

DERSCH ENERGIES, INC. CROSLOW'S SHELL

Lawrenceville, Illinois
LPC #1010155024 — Lawrence County
Incident Number 2005-0374

Submitted to:

Illinois Environmental Protection Agency
Leaking Underground Storage Tank Section, Bureau of Land
1021 North Grand Avenue East
Springfield, Illinois

Prepared By:

CW³M COMPANY, INC.

701 W. South Grand Ave.
Springfield, Illinois
(217) 522-8001

400 West Jackson, Suite C
Marion, Illinois
(618) 997-2238

MARCH 2016

TABLE OF CONTENTS

APPENDICES

TABLES

ACRONYMS AND ABBREVIATIONS

AET	Applied Environmental Technologies, Inc.
bls	Below land surface
BETX	Benzene, ethylbenzene, toluene, total xylenes
CUOs	Clean-up Objectives
CAP	Corrective Action Plan
HAA	Highway Authority Agreement
Ill. Adm. Code	Illinois Administrative Code
IDOT	Illinois Department of Transportation
IEMA	Illinois Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
ISGS	Illinois State Geological Survey
ISWS	Illinois State Water Survey
LUST	Leaking Underground Storage Tank
MTBE	Methyl Tertiary Butyl Ether
OSFM	Illinois Office of the State Fire Marshal
PNAs	Polynuclear aromatics
PVC	Polyvinyl chloride
ROW	Right-of-Way
SICR	Site Investigation Completion Report
SIP	Site Investigation Plan
SWAP	Source Water Assessment Program
TACO	Tiered Approach to Corrective Action Objectives
USTs	Underground Storage Tanks
WCRs	Well completion reports

1. SITE HISTORY/EXECUTIVE SUMMARY

1.1 GENERAL

This proposed Corrective Action Plan (CAP) and Budget has been prepared in accordance with the requirements of the 35 Illinois Administrative Code (Ill. Adm. Code) § 734. The Illinois Environmental Protection Agency (IEPA) CAP Form is included in this document as Appendix A.

Mr. Tom Dersch, of Dersch Energies, Inc., which owned of the former underground storage tanks (USTs) at the Croslow's Shell site, reported a release to the Illinois Emergency Management Agency (IEMA) following an environmental assessment. Incident Number 2005-0374 was assigned on March 17, 2005. Applied Environmental Technologies, Inc. (AET) of Carmi, Illinois was the original consultant for this project. CW³M Company, Inc. has since acquired several projects from AET; thus, on behalf of Dersch Energies, Inc., CW³M will proceed with the reporting in accordance with requirements of 35 Ill. Adm. Code § 734. This CAP and Budget is being prepared in response to Incident Number 2005-0374.

A 20-Day Certification was submitted to the IEPA on March 31, 2005 by AET (AET, 2005a). A 45-Day Report was submitted to the IEPA on April 28, 2005 (AET, 2005b). A Stage 1 Site Investigation Plan (SIP) was submitted on February 27, 2007 (AET, 2007a) and was approved with modifications to the budget on April 17, 2007 (IEPA, 2007a). The Stage 2/3 SIP was also submitted on February 27, 2007 (AET, 2007b) and was approved on April 17, 2007 by the IEPA (IEPA, 2007b). However, a budget for the Stage 2/3 site investigation was never submitted for review. When CW³M begin working on the project, a Stage 2/3 Budget was submitted to the IEPA on June 11, 2013 (CW³M, 2013) and was approved on July 30, 2013 (IEPA, 2013). A Site Investigation Completion Report (SICR) was submitted to the IEPA on May 22, 2015 (CW³M, 2015A), and was approved by the IEPA on June 5, 2015 (IEPA, 2015). A CAP and Budget was submitted to the Agency on November 10, 2015 (CW³M, 2015b) but was rejected by the Agency on January 21, 2016 (IEPA, 2016) pending site-specific physical parameters to more accurately determine the cleanup objectives (CUOs) for the site.

This report is certified by an Illinois Licensed Professional Engineer. The geological investigation and site investigation was performed under the direction of an Illinois Licensed Professional Geologist and completed in accordance with the Professional Geologist Licensing Act and its Rules for Administration.

1.2 SITE LOCATION

The site, known as Croslow's Shell is located at 1421 Lexington Avenue, Lawrenceville, Lawrence County, Illinois. The site is located in the SE ¼ of the NE ¼ of the NE ¼ of Section 1, Township 3 North of the Centralia Baseline and Range 12 West of the Second Principal Meridian.

1.3 UNDERGROUND STORAGE TANK INFORMATION

Dersch Energies, Inc. representatives and AET personnel were at the site on May 5, 2005 to remove the USTs at the Croslow's Shell site. A permit for the removal of the USTs and product piping was approved by the Illinois Office of the State Fire Marshal (OSFM) on April 4, 2005 (OSFM, 2005). Under the supervision of an OSFM Tank Specialist, the tanks were removed. A narrative of the tank removal and other early action activities was provided in the 45-Day Report Addendum (CW³M, 2005c).

Table 1-1. Underground Storage Tank Summary

Tank Number	Tank Volume (gallons)	Tank Contents	Incident Number	Release Information	Current Status
1	6,000	Gasoline	05-0374	Piping Leak	Removed 5/5/2005
2	6,000	Gasoline	05-0374	Piping Leak	Removed 5/5/2005
3	6,000	Gasoline	05-0374	Piping Leak	Removed 5/5/2005
4	1,000	Diesel	05-0374	Piping Leak	Removed 5/5/2005
5	560	Used Oil	98-1496	Piping Leak	Removed 6/22/98

1.4 EARLY ACTION SUMMARY

Four underground storage tanks were removed on May 5, 2005. Approximately 443 tons of hydrocarbon impacted backfill were excavated and properly disposed in conjunction with the removal of the USTs. Dersch Energies, Inc. requested that AET proceed with reporting requirements in accordance with 35 Ill Adm. Code § 732. AET personnel, following IEPA guidelines, appropriately collected soil samples from the excavation walls,

floors, and below pump dispensers in order to fully determine the extent of impacted soils from the release of product associated with this incident. All samples were collected and analyzed for benzene, ethyl-benzene, toluene, and total xylenes (BETX), methyl tert-butyl ether (MTBE), and poly-nuclear aromatics (PNAs). A summary of analytical results can be found in Appendix C. The excavation was backfilled with clean soil and no free product was encountered during early action. Hydrocarbon impacted soils were properly disposed of in the Lawrence County Regional Landfill and a groundwater hydrocarbon impact investigation was deemed necessary as hydrocarbon impact was believed to have been in contact with the groundwater.

1.5 SITE INVESTIGATION SUMMARY

On October 17, 2006 Stage 1 Site Investigation activities were initiated by AET personnel. Ten borings were completed in an attempt to define the hydrocarbon impact plume on site and five of the boring locations were completed as monitoring wells in an attempt to define the groundwater hydrocarbon impact plume. Soil samples were continuously collected from every five foot interval from the borings and analyzed for BETX and MTBE constituents as PNA hydrocarbon impact was defined at the conclusion of early action activities. However, groundwater was impacted by the release of petroleum products so groundwater samples were collected and analyzed for BETX, MTBE, and PNA constituents during stage 1 investigation activities. Analytical results confirmed hydrocarbon impact for both soil and groundwater above the most stringent Tier 1 CUOs. Soil boring logs and well completion reports (WCRs) were included in previous reports. A summary of the analytical results is included in Appendix C.

AET personnel returned to the site on October 24, 2006 to conduct a slug test to determine the site-specific hydraulic conductivity for the soil on site. The hydraulic conductivity determined by AET analysis of the Bower-Rice Method yielded results of 7.6718 x 10^-5 cm/sec (AET, 2007b).

Following AET's Stage 2/3 drill plan, CW³M personnel were on site March 27, 2014 to initiate off-site drilling activities. A total of five soil borings were advanced in an attempt to define the soil hydrocarbon impact plume off-site. Soil samples were collected and analyzed for BETX and MTBE. Four of the soil borings were advanced as monitoring wells in an attempt to define the groundwater hydrocarbon impact plume. The analytical results indicate that the soil plume has been defined both on- and off-site. A summary of the analytical results is included in Appendix C. In an effort to clarify any potential misunderstanding, it is important to note that the approved Stage 2/3 plan was slightly altered due to conditions in the field observed by CW³M personnel. Although the approved Stage 2/3 plan and the subsequent Stage 2/3 budget were approved, monitoring well installation to a depth of 20 feet and soil sample collection to the 15-foot interval,

CW³M ceased well installation at a depth of 15 feet. The groundwater table was encountered at a depth between 9-11 feet below land surface (bls) and installation of monitoring wells to a depth of 20 feet bls seemed excessive while also placing the 10-foot screened portion of the well below a depth that would intercept the top portion of the groundwater table. However, a sample was collected from the middle portion of the 10-15 foot soil depth in an effort to fully define the soil hydrocarbon impact plume in the vertical direction and remain consistent based on a correspondence with the IEPA project manager. Although it is understood that a sample collected below the groundwater table is atypical unless approved by the Agency as in this plan, both the Stage 2/3 Plan and Budget were approved to sample at this depth so CW³M personnel collected a sample at the 12.5-foot bls depth to remain consistent with prior investigations conducted by AET. Also, AET recorded groundwater at a depth of 9 feet bls in previous drilling events, collected soil samples at a depth of 12.5 feet bls to define the vertical extent of the hydrocarbon impact plume which is below the groundwater table, and set a well at a depth of 20 feet bls. Again, while atypical, AET and Agency had their reasons for vertical extent definition, the work already conducted and proposed was approved in like manners; thus, CW³M attempted to follow the approved plan and sampling intervals to the best of our ability while installing the wells at appropriate depth groundwater was encountered in the field.

1.6 CORRECTIVE ACTION SUMMARY

A CAP and Budget proposing additional on-site soil sampling and an excavation of on-site soils that exceeded the Tiered Approach for Corrective Action Objectives (TACO) Tier 2 CUOs was proposed on November 10, 2015 (CW³M, 2015b). The CAP and Budget was based on the default parameters of the TACO calculation and not using site-specific parameters. As a result, the CAP and Budget were rejected by the Agency in order to obtain a soil sample to be analyzed for the site-specific physical parameters. The remainder of this plan proposes the activities required to obtain this information.

2. REMEDIATION OBJECTIVES

2.1 DETERMINATION OF CLEAN-UP OBJECTIVES

In accordance with 35 Ill. Adm. Code 734.410, remediation objectives will be determined in accordance with 35 Ill. Adm. Code 742. The site specific physical parameters are proposed to be determined at this time.

Hydraulic Conductivity (K,)
Soil bulk density (ρ_b),
Soil particle density (ρ_s),
Moisture content (w),
Organic carbon content (f_{oc})

Although a slug test was conducted by the previous consultant and a hydraulic conductivity was determined, current groundwater data will be collected during the activities required to collect the TACO sample. This information will allow a current and accurate groundwater flow direction, as well as, velocity and hydraulic gradient calculations. Groundwater depth measurements will be obtained and a slug test will be conducted using the following methods.

The test will be performed by lowering a "slug" constructed of polyvinyl chloride (PVC) into a monitoring well. When the slug is lowered into the well, the groundwater is displaced by the volume of the slug. As the water within the well equilibrates, water depth changes are recorded in relation to the time interval that has passed since the test was initiated.

The hydraulic conductivity calculations are based on the total well depth, screen length and radius, initial water depth and the water depth change over time. The depth-to-water changes over time will be plotted on a semi-logarithmic graph and the curve will be evaluated. The slope of the straight-line portion of the curve, along with the other slug test data, is used to calculate the hydraulic conductivity.

Velocity will then be calculated using the hydraulic conductivity results determined at the site, as well as the hydraulic gradient. The hydraulic gradient will be found by calculating the change in gradient between the most up-gradient well and the most down-gradient well, then dividing this answer by the distance in feet between the two wells. Formula R24, ($U_{gw} = K \bullet i$) of 35 Ill. Adm. Code § 742 Appendix C, Table C.

The other site-specific physical parameters will be determined by conducting a boring near the vicinity of MW-9. Those parameters will be determined via laboratory testing.

3. CORRECTIVE ACTION PLAN

This CAP and Budget has been prepared by CW³M Company, Inc., pursuant to the IEPA letter dated January 21, 2016. The Agency requested site-specific physical characteristics of the soil be determined by collecting a soil sample from the property and having it analyzed for the required TACO parameters.

3.1. DESCRIPTION OF ACTIVITIES PROPOSED

One soil boring will be advanced north of monitoring well, MW-9. MW-9 represents the outer limit of both the plume of soil and groundwater that exceed the TACO Tier 1 regulatory limits for the indicator compounds at the site. This boring will be advanced to approximately 10 feet bls. Groundwater has typically been encountered between 9 to 11 feet bls at this site. Per the requirements, the sample will be taken in the strata directly above the groundwater table. In addition, groundwater depth measurements will be collected from all of the on- and off-site monitoring wells. This will provide a current groundwater flow direction, as well as, data to be used in the velocity and hydraulic gradient calculations. A slug test will also be conducted so that current data is available for the TACO calculations.

3.2. DRILLING METHOD

Five-foot continuous samplers have been and will continue to be used to advance and characterize each boring. This method was selected to minimize the likelihood of gaps in the sample column. A direct-push platform for soil samples will be used to collect the soil core. Soil boring logs have been for past borings and will be prepared for this soil boring.

3.3 SOIL SAMPLING PROTOCOL

All soil samples will be collected utilizing proper sampling protocol. Samplers wear new, disposable, latex gloves for each sampling event. Per the requirements, the TACO sample will be collected directly above the groundwater table. Proper sampling, decontamination, and chain-of-custody procedures are employed. The sample containers are filled, labeled, kept cool (to 6° C or below) until shipment to the laboratory for physical analysis. Sample descriptions are recorded on the boring log prepared for each boring.

All soil samples will be analyzed by an accredited laboratory using test methods identified under 35 Ill. Adm. Code 734.410. Each sample result reported will be accompanied by a Laboratory Certification for Physical Analysis as required by the Leaking Underground Storage Tank (LUST) Section.

3.4 CURRENT AND PROJECTED USES OF THE SITE

The site is surrounded by commercial and residential properties. The property was a Shell service station but once the tanks were removed, it has remained an automotive repair facility. While there is no way of knowing the exact usage of the property in the future, it is anticipated that the property will remain light commercial.

3.5 INSTITUTIONAL CONTROLS PROPOSED

Once the soil sample is collected and analyzed for the physical parameters discussed above, we will determine the extent and propose to remove the soil on the subject property that exceed the TACO Tier 2 CUOs.

A groundwater ordinance will likely be proposed with the City of Lawrenceville to address any groundwater that exceeds the regulatory limits for the indicator compounds. This ordinance will effectively prohibit the installation and use of potable water supply wells within a specified area of Lawrenceville, Illinois. This area will include subject property and any neighboring properties that have potentially been adversely affected by the release.

Highway Authority Agreements (HAAs) will likely be needed with the City of Lawrenceville and Illinois Department of Transportation (IDOT) for Lexington Avenue and 15th Street, respectively.

3.6 WATER SUPPLY WELL SURVEY

A survey of water supply wells for the purpose of identifying and locating all community water supply wells within 2,500 feet of the UST systems and all potable water supply wells within 200 feet of the UST systems has been completed. The Illinois State Water Survey (ISWS), the Illinois State Geological Survey (ISGS) and the IEPA Division of Public Water Supplies were contacted via Source Water Assessment Program (SWAP) online.

The ISGS, ISWS, and IEPA Division of Public Water Supplies were accessed online on April 25, 2014 (EPA.STATE.IL.US, 2014). The response indicated that seven wells were located within 2,500 feet of the site and no wells are within the designated set back zone.

Also, the response stated that there are no community water supply wells located within 2,500 feet of the site. A groundwater ordinance exists within the city of Lawrenceville but the Croslow's Shell site does not fall within the boundaries of the ordinance. The table below provides information on all wells within 2,500 feet of the Croslow's Shell site.

Table 3-1. Water Supply Well Information

Well ID	Type	Depth of Well *(feet)*	Distance From USTs *(feet)*	Setback Zone *(feet)*
28262	ISGS	30	1,848	200
30108	ISGS	140	1,795	200
06905	ISGS	180	2,218	200
07275	ISGS	49	2,270	200
30995	ISGS	49	2,270	200
30996	ISGS	44	2,270	200
31542	ISGS	220	2,429	200

3.7 CLOSURE

Once the physical parameters have been determined for the subject site, an amended CAP and Budget will be prepared and submitted to the Agency for review. The plan will address on-site soils that exceed the TACO Tier 2 CUOs. In addition, the plan will likely include a HAA for the soils above TACO Tier 1 in the right-of-way (ROW) of Lexington Avenue and 15th Street, as well as, at a minimum, a localized groundwater ordinance in an area that the groundwater has been adversely affected by the release of petroleum. The closure report will be accompanied by a certification from an Illinois Registered Professional Engineer.

4. REFERENCES

AET, 2005a. Applied Environmental Technologies, Inc., *20-Day Certification,* Dersch Energies, Inc. - Croslow's Shell, Lawrenceville, Illinois, March 31, 2005.

AET, 2005b. Applied Environmental Technologies, Inc., *45-Day Report,* Dersch Energies, Inc. - Croslow's Shell, Lawrenceville, Illinois, April 28, 2005.

AET, 2005c. Applied Environmental Technologies, Inc., *45-Day Report Addendum,* Dersch Energies, Inc. - Croslow's Shell, Lawrenceville, Illinois, June 8, 2005.

AET, 2007a. Applied Environmental Technologies, Inc., *Stage 1 Site Investigation Plan and Budget,* Dersch Energies, Inc. - Croslow's Shell, Lawrenceville, Illinois, February 27, 2007.

AET, 2007b. Applied Environmental Technologies, Inc., *Stage 2/3 Site Investigation Plan,* Dersch Energies, Inc. - Croslow's Shell, Lawrenceville, Illinois, February 27, 2007.

CW³M, 2013. CW³M Company, Inc., *Stage 2/3 Site Investigation Budget,* Dersch Energies, Inc. - Croslow's Shell, Lawrenceville, Illinois, June 11, 2013.

CW³M, 2015a. CW³M Company, Inc., *Site Investigation Completion Report,* Dersch Energies, Inc. - Croslow's Shell, Lawrenceville, Illinois, May 22, 2015.

CW³M, 2015b. CW³M Company, Inc., *Corrective Action Plan and Budget,* Dersch Energies, Inc. - Croslow's Shell, Lawrenceville, Illinois, November 10, 2015.

EPA.STATE.IL.US, 2014. Source Water Assessment Program, *Water Well Survey Map* *www.maps.epa.state.il.us*, accessed April 25, 2014.

IEPA, 2007a. Illinois Environmental Protection Agency, *Stage 1 Site Investigation Plan and Budget Correspondence,* Dersch Energies, Inc. - Croslow's Shell, Lawrenceville, Illinois, April 17, 2007.

IEPA, 2007b. Illinois Environmental Protection Agency, *Stage 2/3 Site Investigation Plan Correspondence,* Dersch Energies, Inc. - Croslow's Shell, Lawrenceville, Illinois, April 17, 2007.

IEPA, 2013. Illinois Environmental Protection Agency, *Stage 2/3 Site Investigation Budget Correspondence,* Dersch Energies, Inc. - Croslow's Shell, Lawrenceville, Illinois, July 30, 2013.

IEPA, 2015. Illinois Environmental Protection Agency, *Site Investigation Completion Report Correspondence,* Dersch Energies, Inc. - Croslow's Shell, Lawrenceville, Illinois, June 5, 2015.

IEPA, 2016. Illinois Environmental Protection Agency, *Corrective Action Plan and Budget Correspondence,* Dersch Energies, Inc. - Croslow's Shell, Lawrenceville, Illinois, January 21, 2016.

OSFM, 2005. Dersch Energies, Inc., Permit for Removal, Dersch Energies, Inc. - Croslow's Shell, Lawrenceville, Illinois, April 4, 2005.

APPENDIX A

CORRECTIVE ACTION PLAN FORM

DERSCH ENERGIES, INC.
CROSLOW'S SHELL
LAWRENCEVILLE, ILLINOIS

Illinois Environmental Protection Agency

Bureau of Land • 1021 N. Grand Avenue E. • P.O. Box 19276 • Springfield • Illinois • 62794-9276

The Agency is authorized to require this information under Section 4 and Title XVI of the Environmental Protection Act (415 ILCS 5/4, 5/57 – 57.17). Failure to disclose this information may result in a civil penalty of not to exceed $50,000.00 for the violation and an additional civil penalty of not to exceed $10,000.00 for each day during which the violation continues (415 ILCS 5/42). Any person who knowingly makes a false material statement or representation, orally or in writing, in any label, manifest, record, report, permit, or license, or other document filed, maintained or used for the purpose of compliance with Title XVI commits a Class 4 felony. Any second or subsequent offense after conviction hereunder is a Class 3 felony (415 ILCS 5/44 and 57.17). This form has been approved by the Forms Management Center.

Leaking Underground Storage Tank Program
Corrective Action Plan

A. Site Identification

IEMA Incident # (6- or 8-digit): 20050374 IEPA LPC# (10-digit): 1010155024

Site Name: Dersch Energies, Inc. (Croslow's Shell)

Site Address (Not a P.O. Box): 1421 Lexington Avenue

City: Lawrenceville County: Lawrence ZIP Code: 62439

B. Site Information

1. Will the owner or operator seek reimbursement from the Underground Storage Tank Fund? ☑ Yes ☐ No
2. If yes, is the budget attached? ☑ Yes ☐ No
3. Is this an amended plan? ☐ Yes ☑ No
4. Identify the material(s) released: Gasoline, Diesel
5. This Corrective Action Plan is submitted pursuant to:
   - a. 35 Ill. Adm. Code 731.166 ☐
     The material released was:
     - -petroleum ☐
     - -hazardous substance (see Environmental Protection Act Section 3.215) ☐
   - b. 35 Ill. Adm. Code 732.404 ☐
   - c. 35 Ill. Adm. Code 734.335 ☑

RECEIVED
MAR 25 2016
IEPA/BOL

C. Proposed Methods of Remediation

1. Soil On-site TACO sample per IEPA request
2. Groundwater Evaluate once soil sampling is completed

D. Soil and Groundwater Investigation Results

(for incidents subject to 35 Ill. Adm. Code 731 only or 732 that were classified using Method One or Two, if not previously provided)

Provide the following:

1. Description of investigation activities performed to define the extents of soil and/or groundwater contamination;
2. Analytical results, chain-of-custody forms, and laboratory certifications;
3. Tables comparing analytical results to applicable remediation objectives;

4. Boring logs;
5. Monitoring well logs; and
6. Site maps meeting the requirements of 35 Ill. Adm. Code 732.110(a) or 734.440 and showing:
   a. Soil sample locations;
   b. Monitoring well locations; and
   c. Plumes of soil and groundwater contamination.

E. Technical Information - Corrective Action Plan

Provide the following:

1. Executive summary identifying the objectives of the corrective action plan and the technical approach to be utilized to meet such objectives;
   a. The major components (e.g., treatment, containment, removal) of the corrective action plan;
   b. The scope of the problems to be addressed by the proposed corrective action; and
   c. A schedule for implementation and completion of the plan;
2. Identification of the remediation objectives proposed for the site;
3. A description of the remedial technologies selected:
   a. The feasibility of implementing the remedial technologies;
   b. Whether the remedial technologies will perform satisfactorily and reliably until the remediation objectives are achieved; and
   c. A schedule of when the technologies are expected to achieve the applicable remediation objectives;
4. A confirmation sampling plan that describes how the effectiveness of the corrective action activities will be monitored during their implementation and after their completion;
5. A description of the current and projected future uses of the site;
6. A description of engineered barriers or institutional controls that will be relied upon to achieve remediation objectives:
   a. an assessment of their long-term reliability;
   b. operating and maintenance plans; and
   c. maps showing area covered by barriers and institutional controls;
7. The water supply well survey:
   a. Map(s) showing locations of community water supply wells and other potable wells and the setback zone for each well;
   b. Map(s) showing regulated recharge areas and wellhead protection areas;
   c. Map(s) showing the current extent of groundwater contamination exceeding the most stringent Tier 1 remediation objectives;
   d. Map(s) showing the modeled extent of groundwater contamination exceeding the most stringent Tier 1 remediation objectives;
   e. Tables listing the setback zone for each community water supply well and other potable water supply wells;
   f. A narrative identifying each entity contacted to identify potable water supply wells, the name and title of each person contacted, and any field observations associated with any wells identified; and
   g. A certification from a Licensed Professional Engineer or Licensed Professional Geologist that the survey was conducted in accordance with the requirements and that documentation submitted includes information obtained as a result of the survey (certification of this plan satisfies this requirement);

8. Appendices:
   a. References and data sources report that are organized; and
   b. Field logs, well logs, and reports of laboratory analyses;
9. Site map(s) meeting the requirements of 35 Ill. Adm. Code 732.110(a) or 734.440;
10. Engineering design specifications, diagrams, schematics, calculations, manufacturer's specifications, etc.;
11. A description of bench/pilot studies;
12. Cost comparison between proposed method of remediation and other methods of remediation;
13. For the proposed Tier 2 or 3 remediation objectives, provide the following:
    a. The equations used;
    b. A discussion of how input variables were determined;
    c. Map(s) depicting distances used in equations; and
    d. Calculations; and
14. Provide documentation to demonstrate the following for alternative technologies:
    a. The proposed alternative technology has a substantial likelihood of successfully achieving compliance with all applicable regulations and remediation objectives;
    b. The proposed alternative technology will not adversely affect human health and safety or the environment;
    c. The owner or operator will obtain all Illinois EPA permits necessary to legally authorize use of the alternative technology;
    d. The owner or operator will implement a program to monitor whether the requirements of subsection (14)(a) have been met;
    e. Within one year from the date of Illinois EPA approval, the owner or operator will provide to the Illinois EPA monitoring program results establishing whether the proposed alternative technology will successfully achieve compliance with the requirements of subsection (14)(a); and
    f. Demonstration that the cost of alternative technology will not exceed the cost of conventional technology and is not substantially higher than at least two other alternative technologies, if available and technically feasible.

F. Exposure Pathway Exclusion

Provide the following:

1. A description of the tests to be performed in determining whether the following requirements will be met:
   a. Attenuation capacity of the soil will not be exceeded for any of the organic contaminants;
   b. Soil saturation limit will not be exceeded for any of the organic contaminants;
   c. Contaminated soils do not exhibit any of the reactivity characteristics of hazardous waste per 35 Ill. Adm. Code 721.123;
   d. Contaminated soils do not exhibit a pH $\leq$ 2.0 or $\geq$ 12.5; and
   e. Contaminated soils which contain arsenic, barium, cadmium, chromium, lead, mercury, or selenium (or their associated salts) do not exhibit any of the toxicity characteristics of hazardous waste per 35 Ill. Adm. Code 721.124.
2. A discussion of how any exposure pathways are to be excluded.

G. Signatures

All plans, budgets, and reports must be signed by the owner or operator and list the owner's or operator's full name, address, and telephone number.

UST Owner or Operator

Name Dersch Energies, Inc.
Contact Tom Dersch, President
Address 620 Oak Street
City Mt. Carmel
State Illinois
Zip Code 62863
Phone
Signature
Date 2-18-2016

Consultant

Company CWM Company, Inc.
Contact Carol L. Rowe, P.G.
Address 701 W. South Grand Ave
City Springfield
State IL
Zip Code 62704
Phone 217-522-8001
Signature
Date 3/23/2016

I certify under penalty of law that all activities that are the subject of this plan were conducted under my supervision or were conducted under the supervision of another Licensed Professional Engineer or Licensed Professional Geologist and reviewed by me; that this plan and all attachments were prepared under my supervision; that, to the best of my knowledge and belief, the work described in this plan has been completed in accordance with the Environmental Protection Act [415 ILCS 5], 35 Ill. Adm. Code 731, 732 or 734, and generally accepted standards and practices of my profession; and that the information presented is accurate and complete. I am aware there are significant penalties for submitting false statements or representations to the Illinois EPA, including but not limited to fines, imprisonment, or both as provided in Sections 44 and 57.17 of the Environmental Protection Act [415 ILCS 5/44 and 57.17].

Licensed Professional Engineer or Geologist

Name Vince E. Smith, P.E.
Company CWM Company, Inc.
Address 701 W. South Grand Ave
City Springfield
State IL
Zip Code 62704
Phone 217-522-8001
Ill. Registration No. 062-046118
License Expiration Date 11/30/17
Signature
Date 3/23/16

L.P.E. or L.P.G. Seal

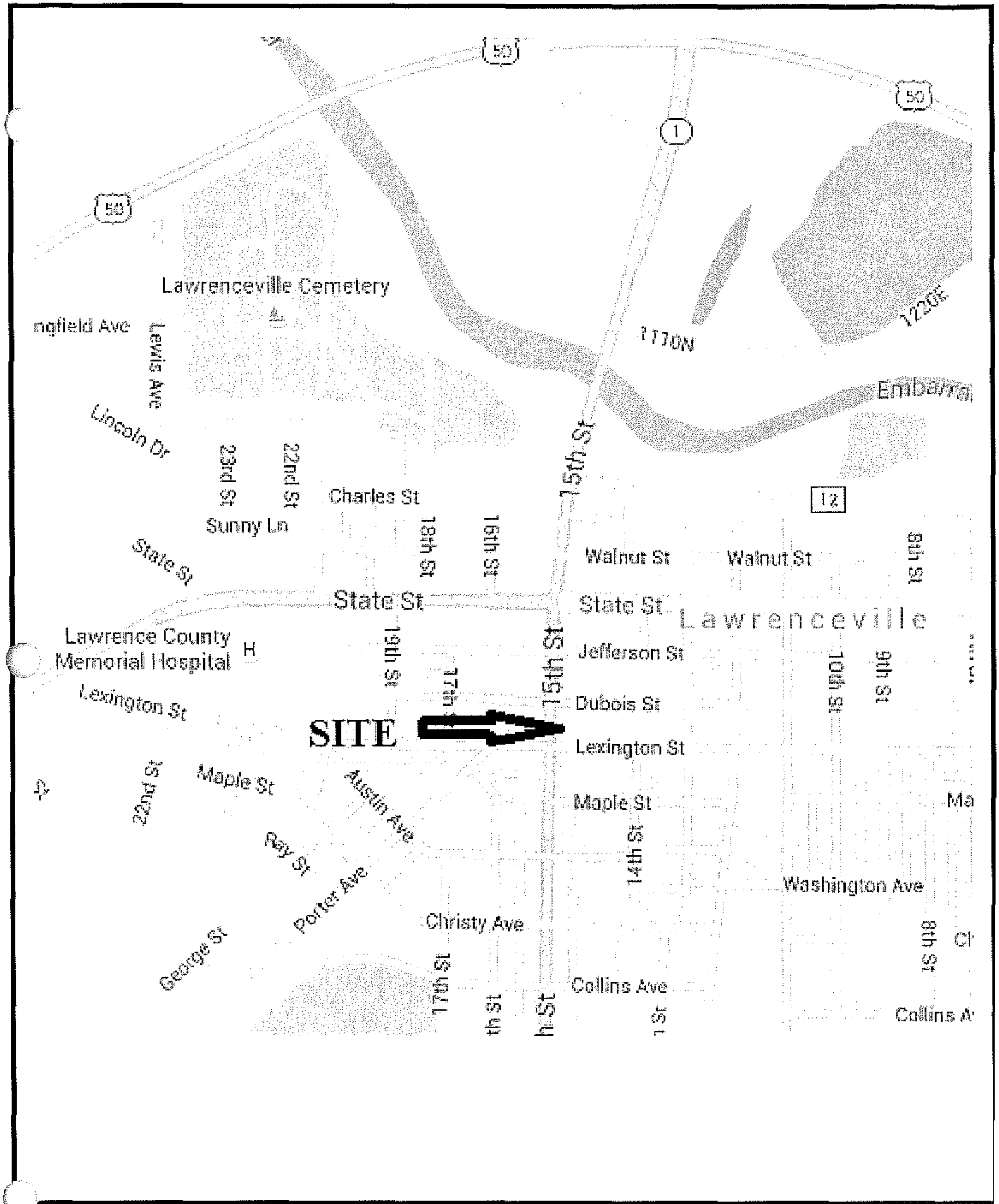
APPENDIX B

SITE MAPS AND ILLUSTRATIONS

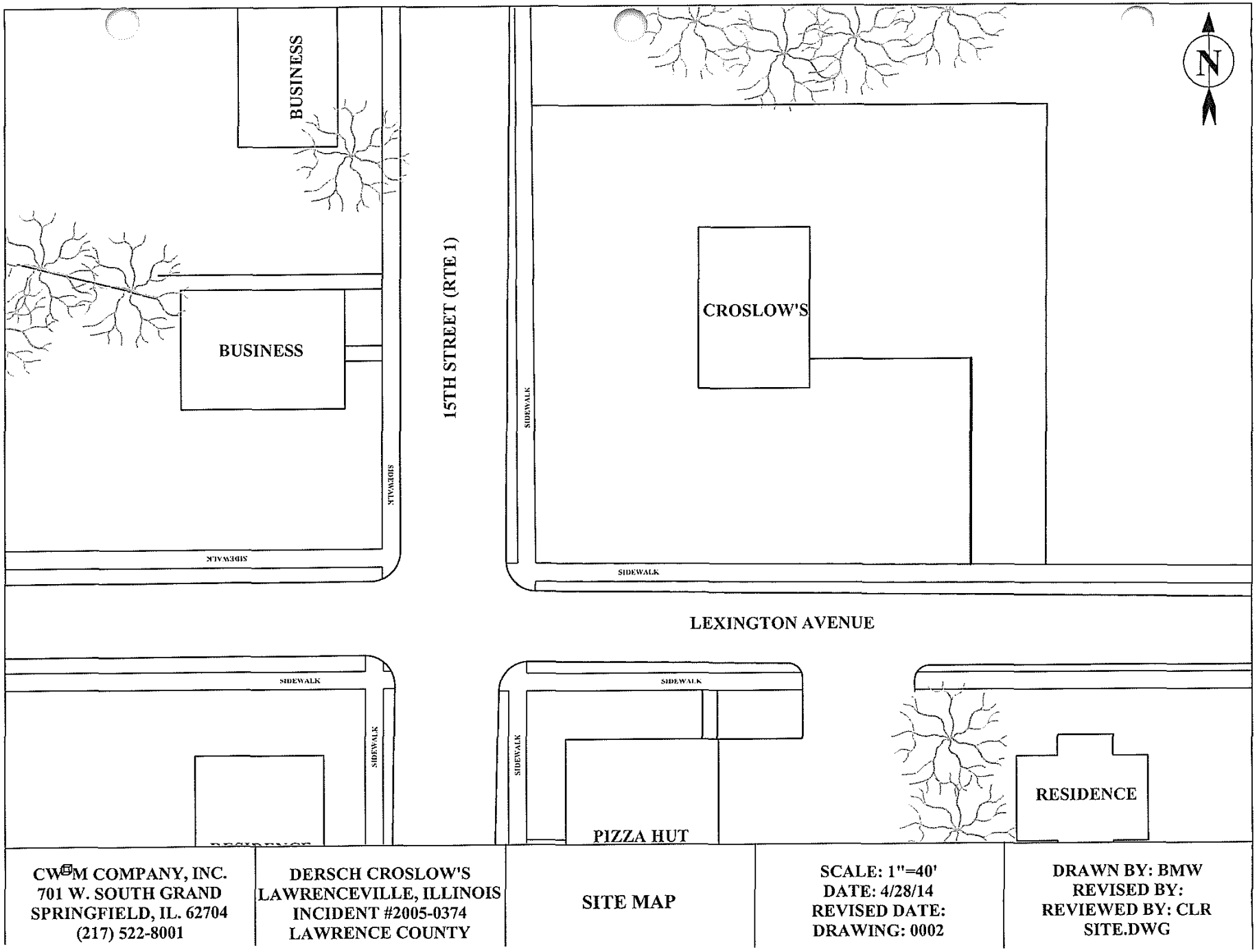
DERSCH ENERGIES, INC.
CROSLOW'S SHELL
LAWRENCEVILLE, ILLINOIS

INDEX OF DRAWINGS

Drawing Number	Description	File Name
0001	Site Location Map	SiteMap.doc
0002	Site Map	site.dwg
0003	Monitoring Well Location Map	mwloc.dwg
0004	Soil Boring Location Map	sbloc.dwg
0004a	Proposed Soil Boring Location Map	psbloc.dwg
0005	Monitoring Well Elevation Map	mwelev.dwg
0006	Groundwater Elevation Map April 2014	gwelev.dwg
0007	Soil Analytical Values Map (0-5 Feet)	sval0-5.dwg
0007a	Soil Analytical Values Map (5-10 Feet)	sval5-10.dwg
0007b	Soil Analytical Values Map (10-15 Feet)	sval10-15.dwg
0007c	Soil Analytical Values Map (15-20 Feet)	sval15-20.dwg
0008	Groundwater Analytical Results Map	gwval.dwg



CW³M Company, Inc. 701 W. South Grand Ave. Springfield, IL 62704 (217) 522-8001	**Site Location Map** 1421 Lexington Avenue Lawrenceville, Illinois	Drawn By: RJS Reviewed By: CLR Drawing 0001 Sitemap.doc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BUSINESS
15TH STREET (RTE 1)
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LEXINGTON AVENUE
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SIDEWALK
SIDEWALK
SIDEWALK
PIZZA HUT
RESIDENCE
N
CW[M] COMPANY, INC.
701 W. SOUTH GRAND
SPRINGFIELD, IL. 62704
(217) 522-8001
DERSCH CROSLOW'S
LAWRENCEVILLE, ILLINOIS
INCIDENT #2005-0374
LAWRENCE COUNTY
SITE MAP
SCALE: 1"=40'
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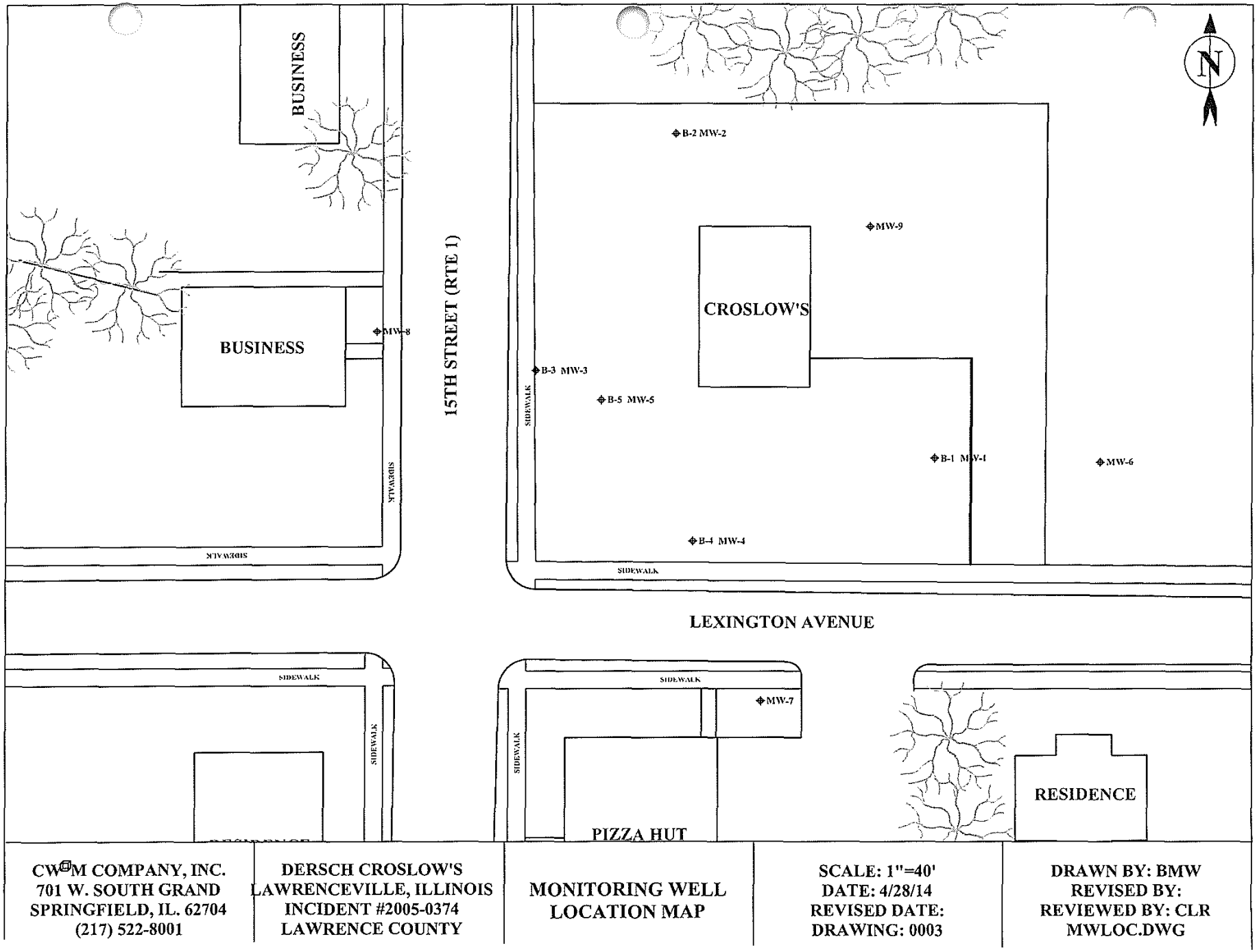
DRAWN BY: BMW
REVISED BY:
REVIEWED BY: CLR
SITE.DWG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LEXINGTON AVENUE
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SIDEWALK
SIDEWALK
MW-7
PIZZA HUT
RESIDENCE
CW M COMPANY, INC.
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SPRINGFIELD, IL. 62704
(217) 522-8001
DERSCH CROSLOW'S
LAWRENCEVILLE, ILLINOIS
INCIDENT #2005-0374
LAWRENCE COUNTY
MONITORING WELL
LOCATION MAP
SCALE: 1"=40'
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REVISED BY:
REVIEWED BY: CLR
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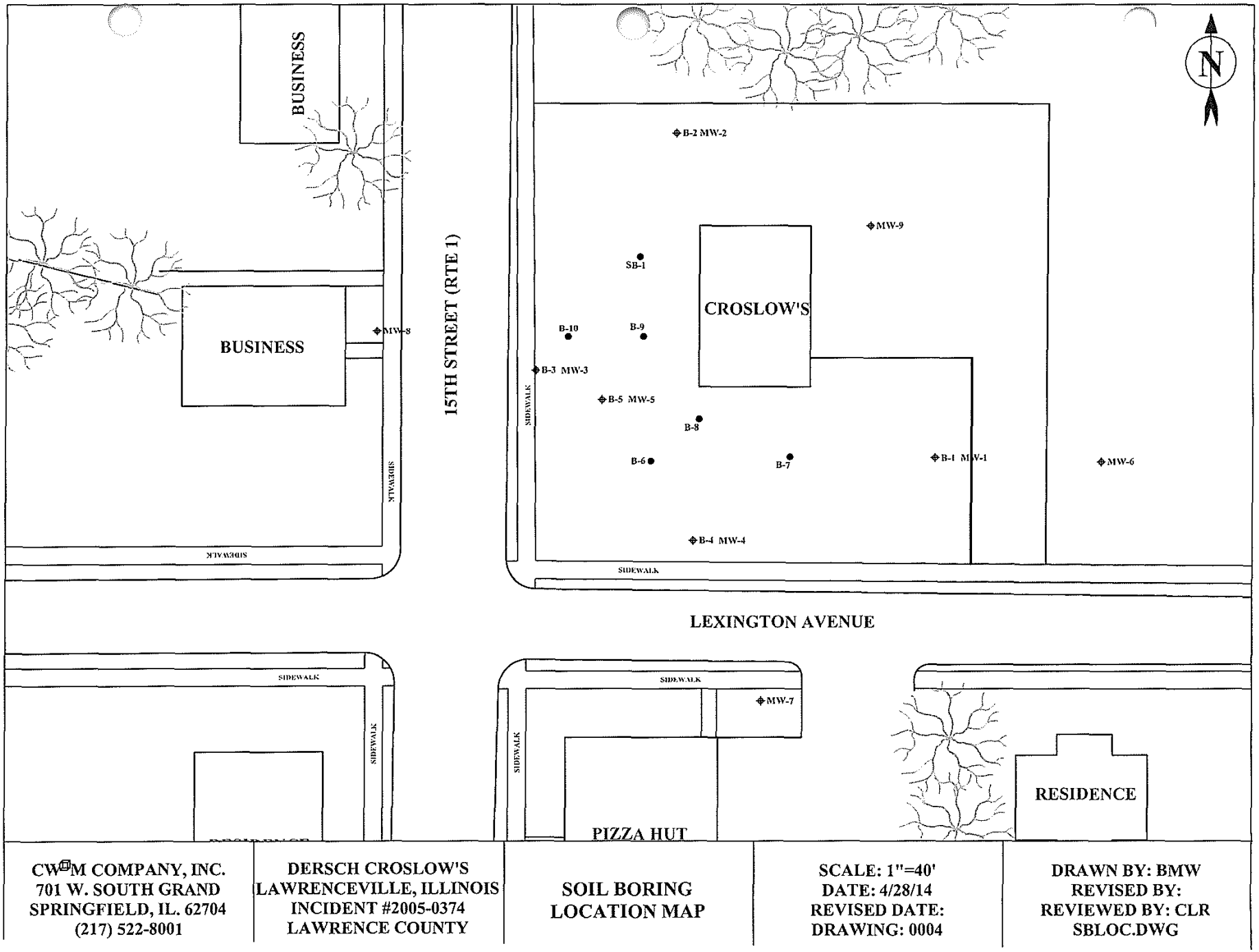
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SB-1
CROSLOW'S
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B-4 MW-4
SIDEWALK
LEXINGTON AVENUE
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SIDEWALK
MW-7
SIDEWALK
PIZZA HUT
RESIDENCE
N
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SPRINGFIELD, IL. 62704
(217) 522-8001
DERSCH CROSLOW'S
LAWRENCEVILLE, ILLINOIS
INCIDENT #2005-0374
LAWRENCE COUNTY
SOIL BORING
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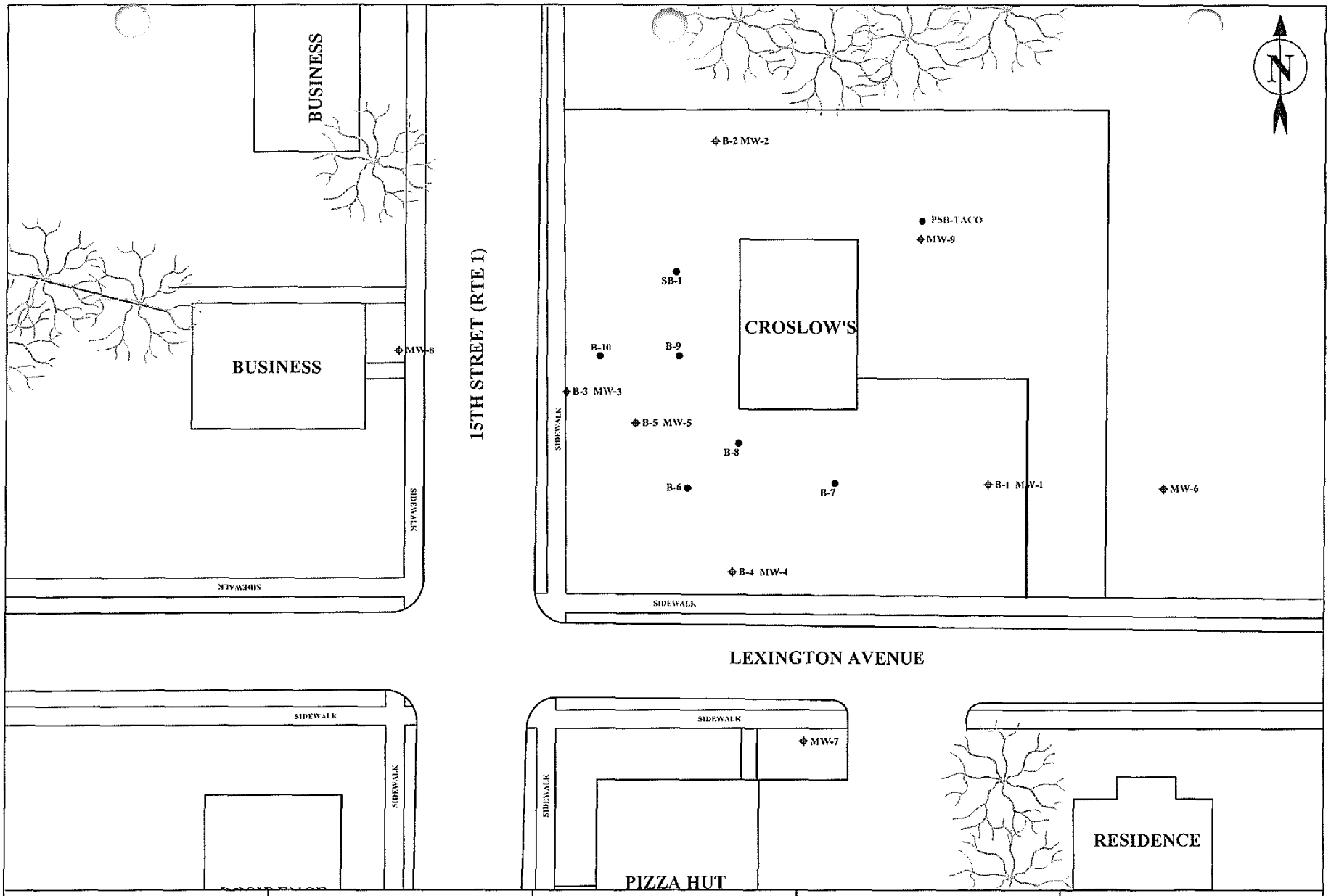
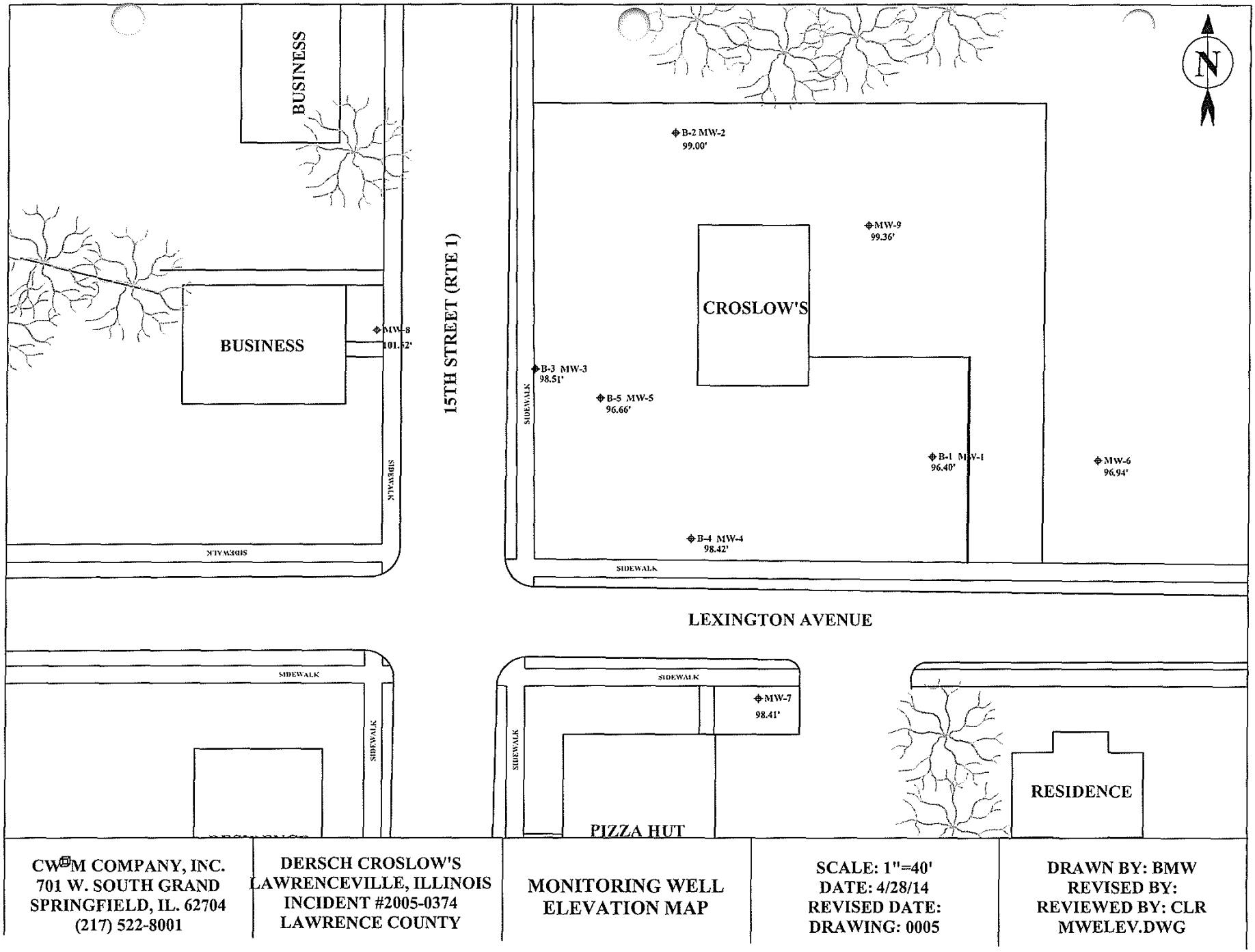
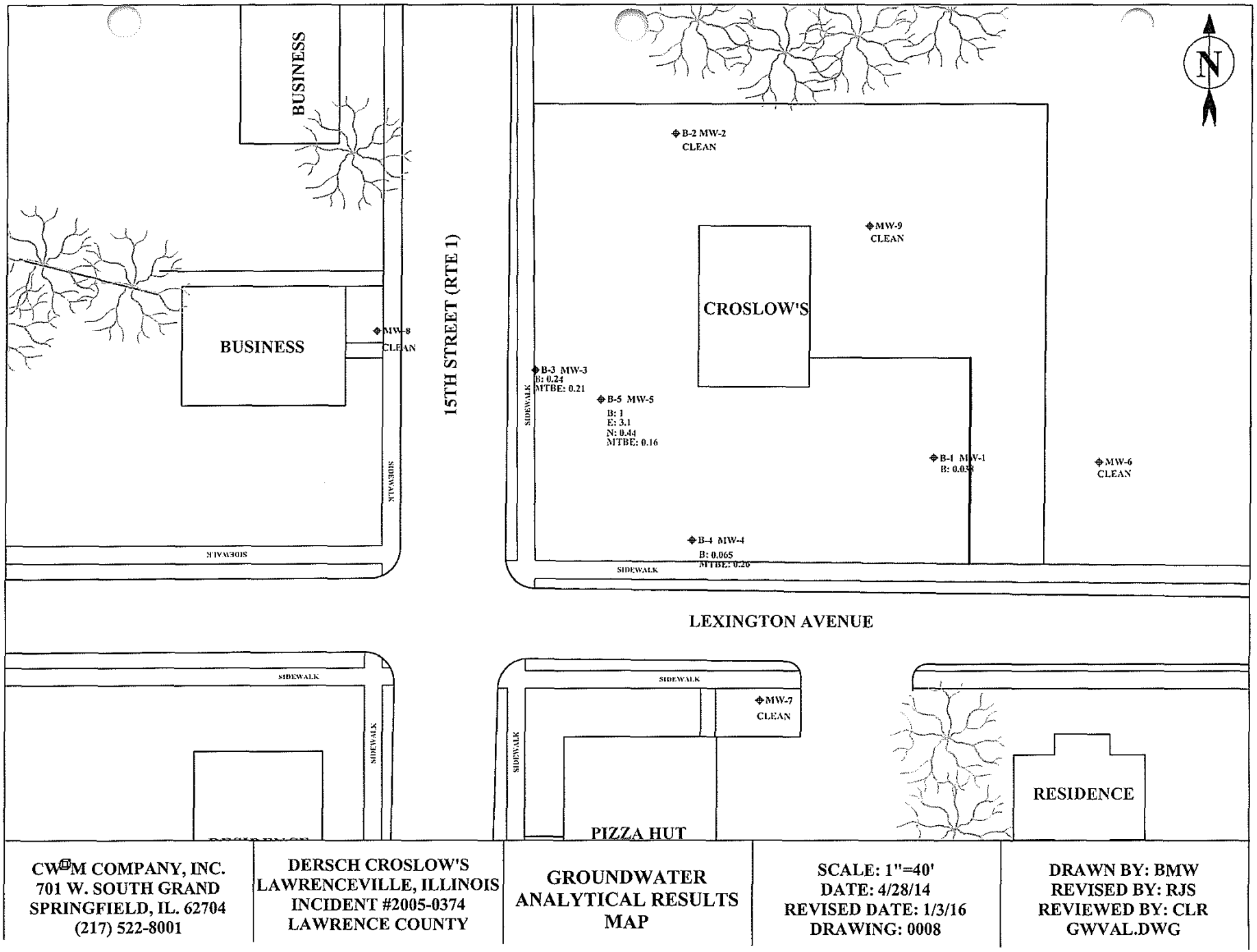
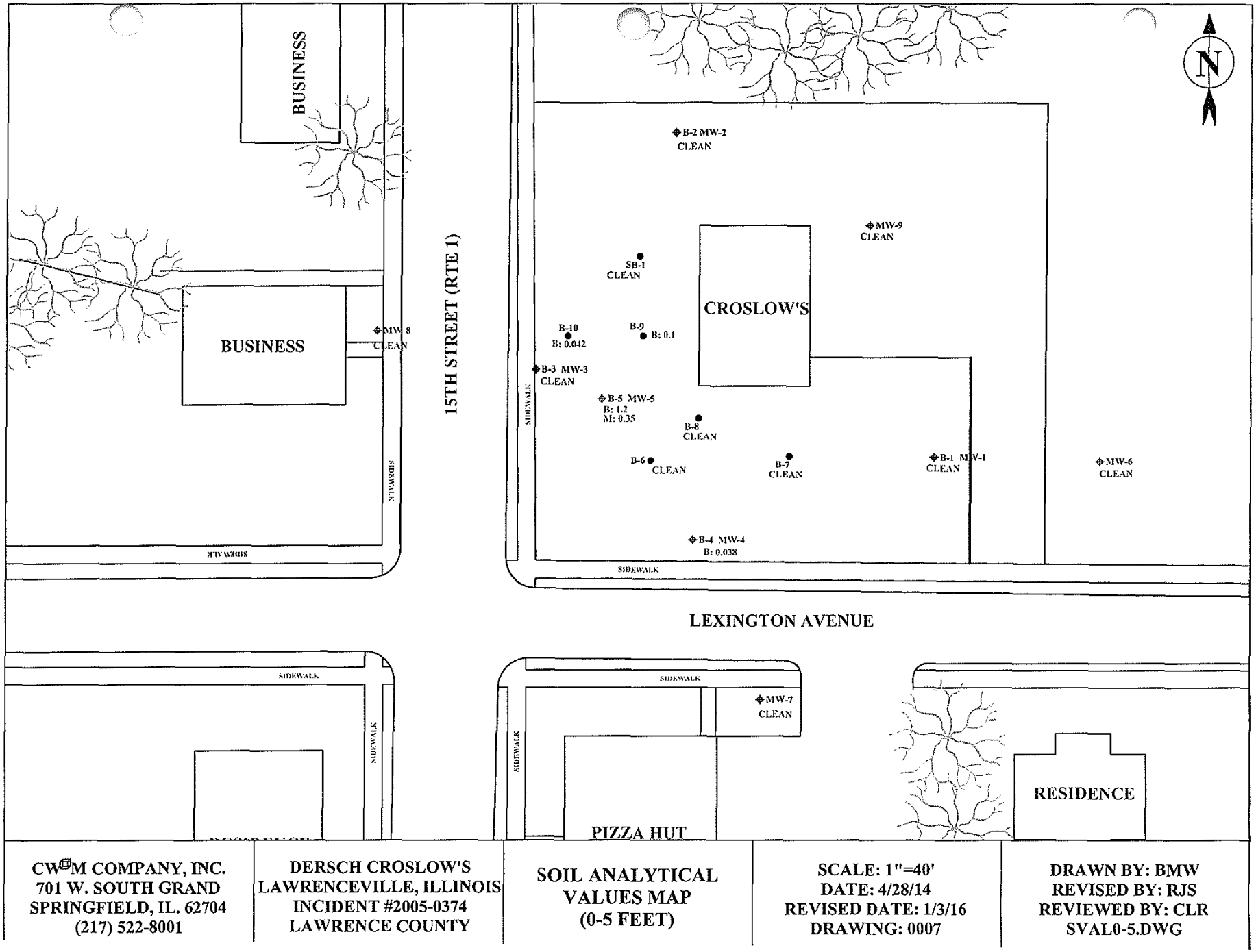


CW[M] COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	PROPOSED SOIL BORING LOCATION MAP	SCALE: 1"=40' DATE: 4/28/14 REVISED DATE: 1/3/16 DRAWING: 0004A	DRAWN BY: BMW REVISED BY: RJS REVIEWED BY: CLR PSBLOC.DWG

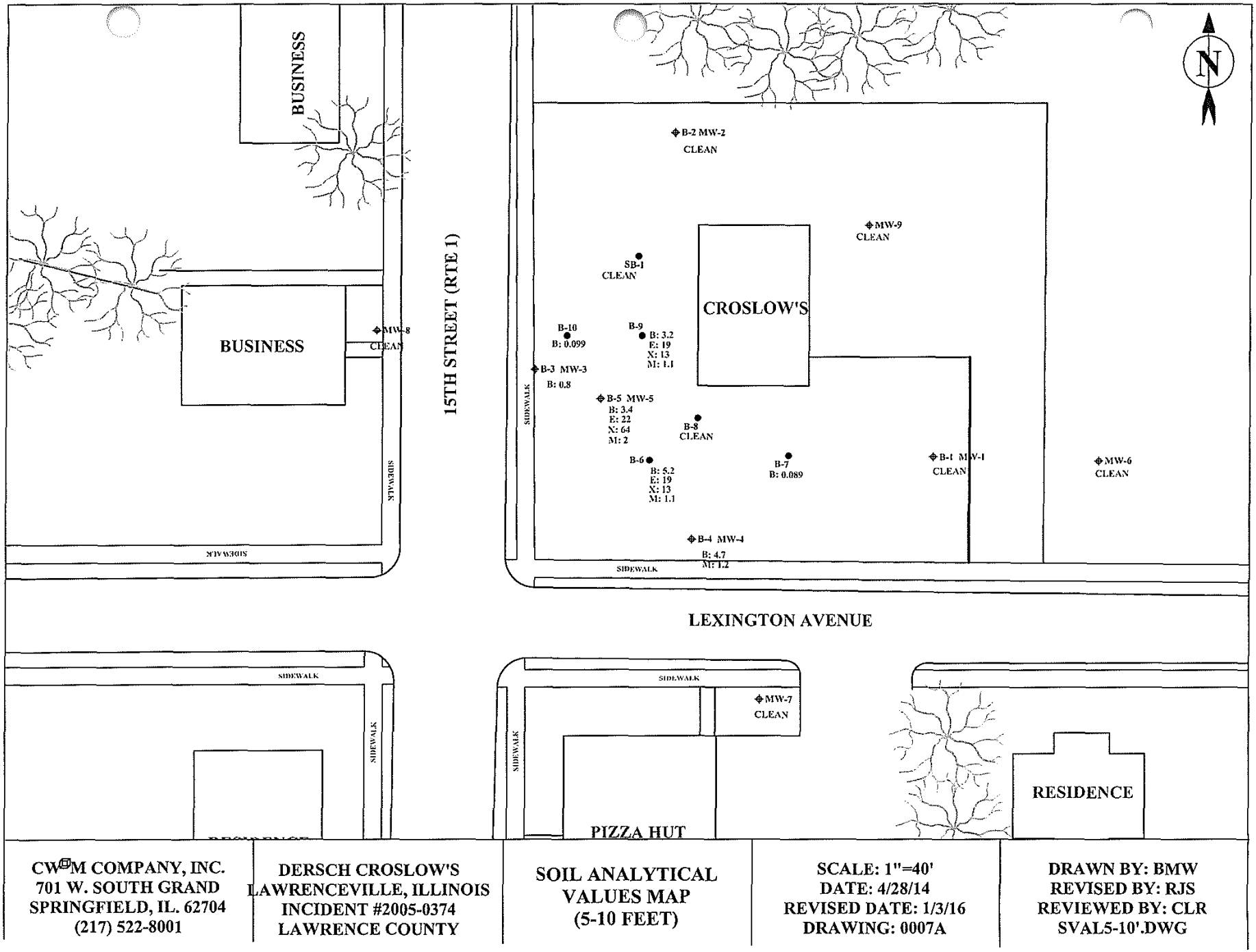


CWM COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	MONITORING WELL ELEVATION MAP	SCALE: 1"=40' DATE: 4/28/14 REVISED DATE: DRAWING: 0005	DRAWN BY: BMW REVISED BY: REVIEWED BY: CLR MWELEV.DWG

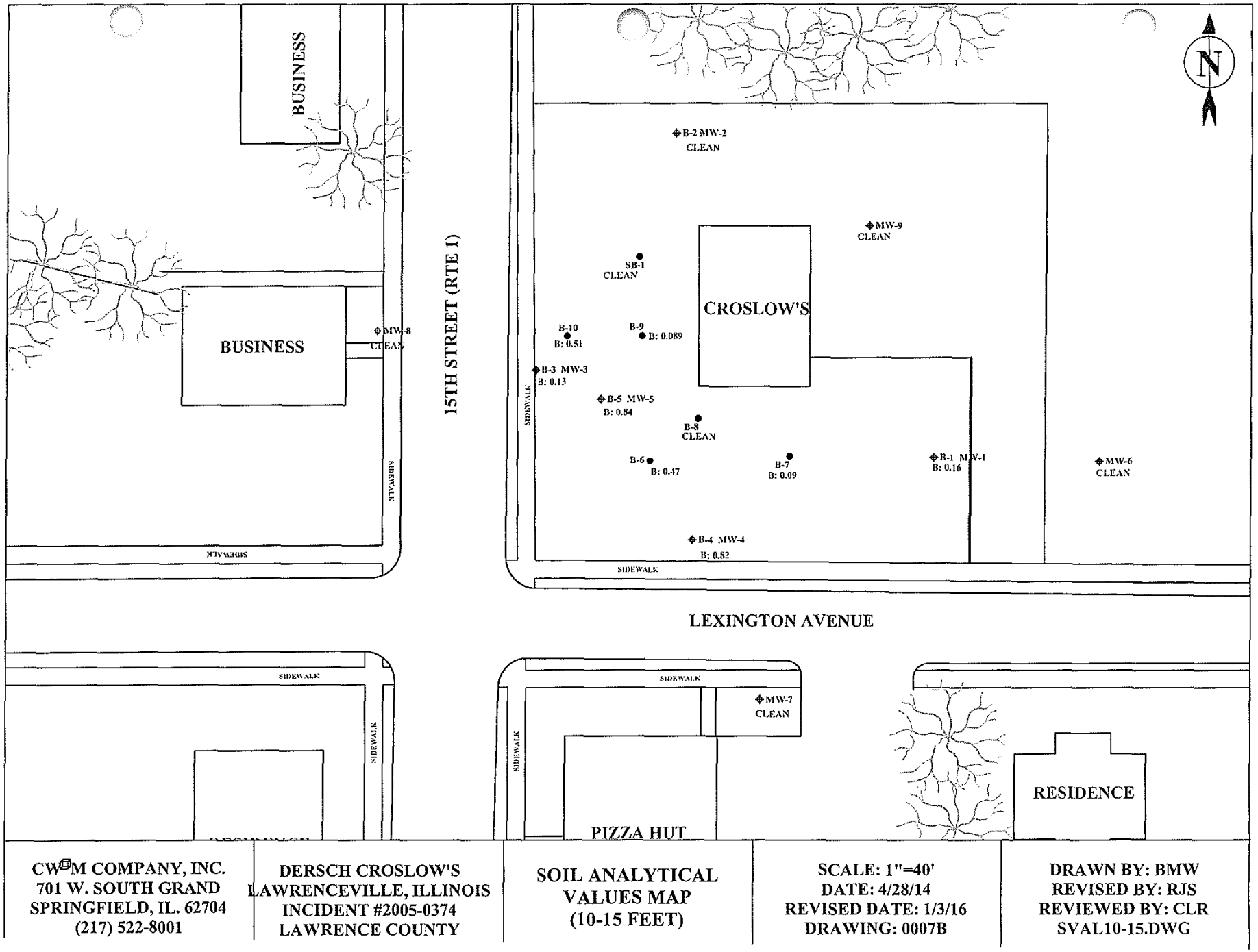

BUSINESS
BUSINESS
MW-8
CLEAN
15TH STREET (RTE 1)
SIDEWALK
SIDEWALK
B-2 MW-2
CLEAN
MW-9
CLEAN
CROSLOW'S
B-3 MW-3
B: 0.24
MTBE: 0.21
B-5 MW-5
B: 1
E: 3.1
N: 0.44
MTBE: 0.16
SIDEWALK
B-1 MW-1
B: 0.03
MW-6
CLEAN
B-4 MW-4
B: 0.065
MTBE: 0.26
SIDEWALK
LEXINGTON AVENUE
SIDEWALK
SIDEWALK
SIDEWALK
MW-7
CLEAN
SIDEWALK
PIZZA HUT
RESIDENCE
CW M COMPANY, INC.
701 W. SOUTH GRAND
SPRINGFIELD, IL. 62704
(217) 522-8001
DERSCH CROSLOW'S
LAWRENCEVILLE, ILLINOIS
INCIDENT #2005-0374
LAWRENCE COUNTY
GROUNDWATER
ANALYTICAL RESULTS
MAP
SCALE: 1"=40'
DATE: 4/28/14
REVISED DATE: 1/3/16
DRAWING: 0008
DRAWN BY: BMW
REVISED BY: RJS
REVIEWED BY: CLR
GWVAL.DWG



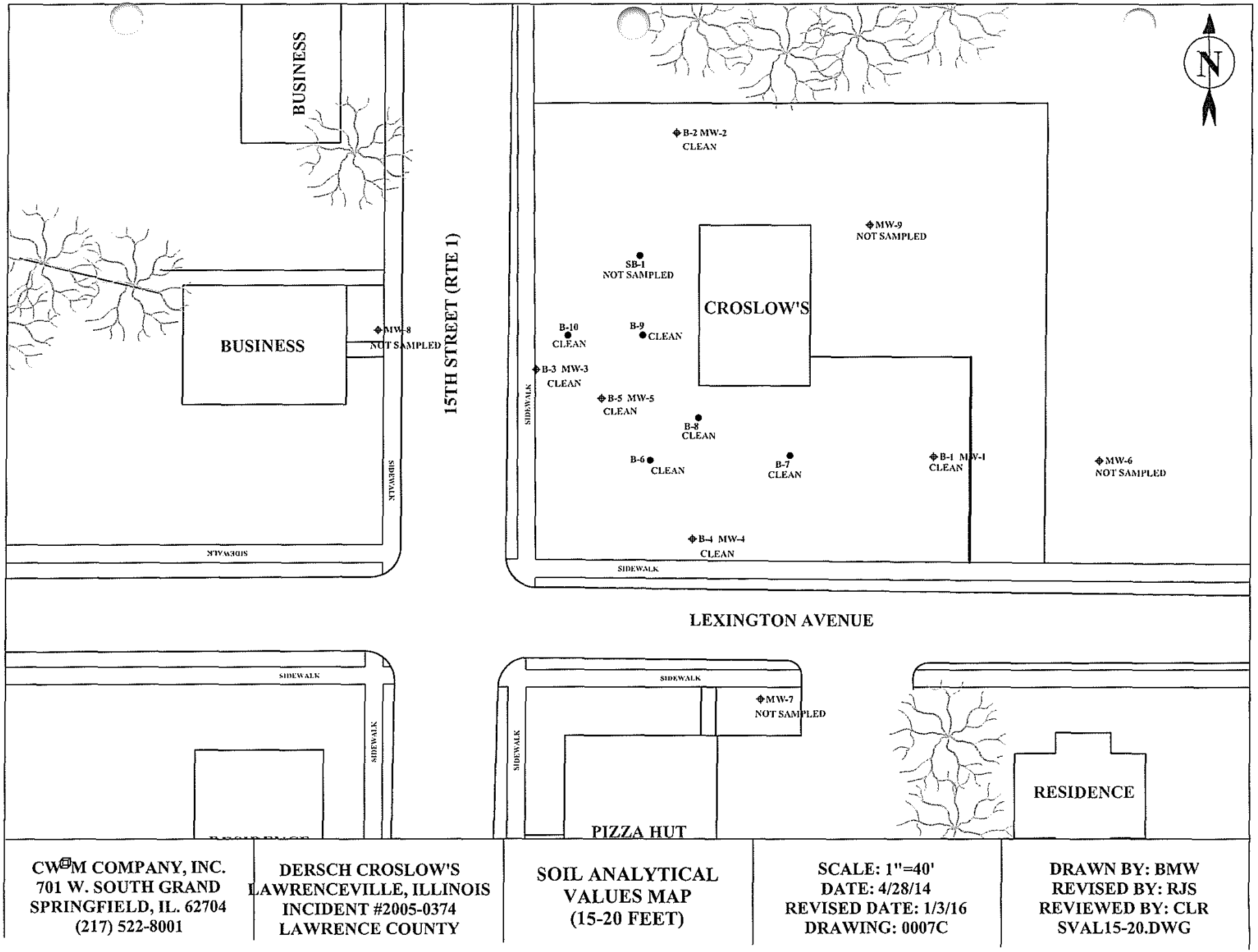
CWM COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	SOIL ANALYTICAL VALUES MAP (0-5 FEET)	SCALE: 1"=40' DATE: 4/28/14 REVISED DATE: 1/3/16 DRAWING: 0007	DRAWN BY: BMW REVISED BY: RJS REVIEWED BY: CLR SVAL0-5.DWG

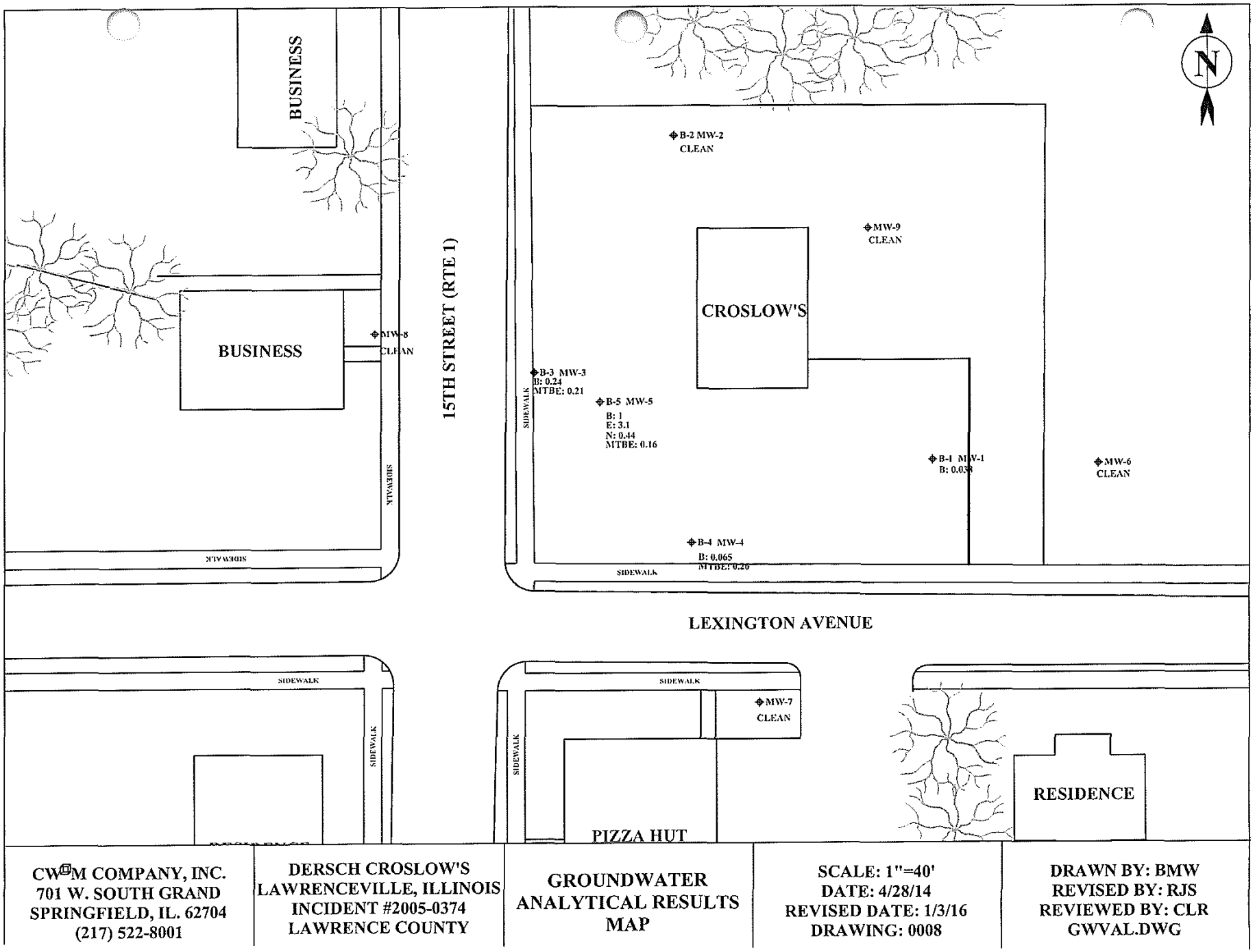


CW[M] COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	SOIL ANALYTICAL VALUES MAP (5-10 FEET)	SCALE: 1"=40' DATE: 4/28/14 REVISED DATE: 1/3/16 DRAWING: 0007A	DRAWN BY: BMW REVISED BY: RJS REVIEWED BY: CLR SVAL5-10'.DWG



CWM COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	SOIL ANALYTICAL VALUES MAP (10-15 FEET)	SCALE: 1"=40' DATE: 4/28/14 REVISED DATE: 1/3/16 DRAWING: 0007B	DRAWN BY: BMW REVISED BY: RJS REVIEWED BY: CLR SVAL10-15.DWG


BUSINESS
BUSINESS
MW-8
NOT SAMPLED
15TH STREET (RTE 1)
SIDEWALK
SIDEWALK
B-2 MW-2
CLEAN
MW-9
NOT SAMPLED
SB-1
NOT SAMPLED
CROSLOW'S
B-10
CLEAN
B-9
CLEAN
B-3 MW-3
CLEAN
B-5 MW-5
CLEAN
B-8
CLEAN
B-6
CLEAN
B-7
CLEAN
B-1 MW-1
CLEAN
MW-6
NOT SAMPLED
B-4 MW-4
CLEAN
SIDEWALK
SIDEWALK
LEXINGTON AVENUE
N
SIDEWALK
SIDEWALK
SIDEWALK
MW-7
NOT SAMPLED
PIZZA HUT
RESIDENCE
CW M COMPANY, INC.
701 W. SOUTH GRAND
SPRINGFIELD, IL. 62704
(217) 522-8001
DERSCH CROSLOW'S
LAWRENCEVILLE, ILLINOIS
INCIDENT #2005-0374
LAWRENCE COUNTY
SOIL ANALYTICAL
VALUES MAP
(15-20 FEET)
SCALE: 1"=40'
DATE: 4/28/14
REVISED DATE: 1/3/16
DRAWING: 0007C
DRAWN BY: BMW
REVISED BY: RJS
REVIEWED BY: CLR
SVAL15-20.DWG



CWM COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	GROUNDWATER ANALYTICAL RESULTS MAP	SCALE: 1"=40' DATE: 4/28/14 REVISED DATE: 1/3/16 DRAWING: 0008	DRAWN BY: BMW REVISED BY: RJS REVIEWED BY: CLR GWVAL.DWG

APPENDIX C

ANALYTICAL RESULTS TABLES

DERSCH ENERGIES, INC.
CROSLOW'S SHELL
LAWRENCEVILLE, ILLINOIS

Analytical Summary
Croslow's Shell
Dersch Energies, Inc.
Lawrenceville, IL

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-1 2.5 Feet	B-1 10 Feet	B-1 13 Feet	B-1 18 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	<0.00063	0.0066	**0.16**	<0.00058	
Toluene	**16000**	**650**	**12**	<0.0063	0.0082	0.13	<0.0058	
Ethylbenzene	**7800**	**400**	**13**	<0.00063	0.0029	0.014	<0.00058	
Xylenes (total)	**160000**	**320**	**150**	<0.0019	0.0067	0.088	<0.0017	
MTBE	**20000**	**8.8**	**0.32**	<0.0012	0.0038	0.097	<0.0012	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-2 2.5 Feet	B-2 7.5 Feet	B-2 12.5 Feet	B-2 17.5 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	0.0017	0.0066	<0.00061	<0.006	
Toluene	**16000**	**650**	**12**	<0.0061	0.011	<0.0061	<0.006	
Ethylbenzene	**7800**	**400**	**13**	<0.00061	0.004	<0.00061	<0.0006	
Xylenes (total)	**160000**	**320**	**150**	<0.0018	0.0081	<0.0018	<0.0018	
MTBE	**20000**	**8.8**	**0.32**	0.0017	0.0031	0.003	0.0028	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-3 2.5 Feet	B-3 7.5 Feet	B-3 12.5 Feet	B-3 17.5 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	0.008	**0.8**	**0.13**	0.0038	
Toluene	**16000**	**650**	**12**	0.0096	0.9	0.026	<0.0062	
Ethylbenzene	**7800**	**400**	**13**	0.00068	0.35	0.012	<0.00062	
Xylenes (total)	**160000**	**320**	**150**	0.014	0.83	0.021	<0.0019	
MTBE	**20000**	**8.8**	**0.32**	0.0043	0.26	0.066	0.022	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Analytical Summary
Croslow's Shell
Dersch Energies, Inc.
Lawrenceville, IL

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-4 2.5 Feet	B-4 7.5 Feet	B-4 13 Feet	B-4 18 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	0.022	**4.7**	**0.082**	<0.00058	
Toluene	**16000**	**650**	**12**	0.014	3.4	0.038	<0.0058	
Ethylbenzene	**7800**	**400**	**13**	0.0043	3.1	0.037	0.00064	
Xylenes (total)	**160000**	**320**	**150**	0.017	3.8	0.054	<0.0018	
MTBE	**20000**	**8.8**	**0.32**	0.012	**1.2**	0.073	0.094	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-5 5 Feet	B-5 7.5 Feet	B-5 12.5 Feet	B-5 18 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	**1.2**	**3.4**	**0.84**	0.00062	
Toluene	**16000**	**650**	**12**	2.4	3.6	<0.24	<0.0062	
Ethylbenzene	**7800**	**400**	**13**	5.3	**22**	1.6	0.00071	
Xylenes (total)	**160000**	**320**	**150**	2.9	64	0.28	0.0027	
MTBE	**20000**	**8.8**	**0.32**	**0.35**	**2**	0.13	0.015	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-6 5 Feet	B-6 7.5 Feet	B-6 15 Feet	B-6 18 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	**0.038**	**5.2**	**0.047**	0.017	
Toluene	**16000**	**650**	**12**	0.034	5	<0.0062	0.0098	
Ethylbenzene	**7800**	**400**	**13**	0.016	**21**	0.0082	0.0025	
Xylenes (total)	**160000**	**320**	**150**	0.051	10	0.0058	0.007	
MTBE	**20000**	**8.8**	**0.32**	0.018	**1.9**	0.048	0.026	
TOC								

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Analytical Summary
Croslow's Shell
Dersch Energies, Inc.
Lawrenceville, IL

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-7 2.5 Feet	B-7 7.5 Feet	B-7 12.5 Feet	B-7 18 Feet
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06
BTEX							
Benzene	**12**	**0.8**	**0.03**	0.0025	**0.089**	**0.09**	0.0092
Toluene	**16000**	**650**	**12**	<0.0062	0.055	0.014	0.0061
Ethylbenzene	**7800**	**400**	**13**	0.0014	0.014	0.004	0.00076
Xylenes (total)	**160000**	**320**	**150**	<0.0019	0.063	0.0095	0.0026
MTBE	**20000**	**8.8**	**0.32**	<0.0012	0.039	0.056	0.0027

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-8 2.5 Feet	B-8 7.5 Feet	B-8 12.5 Feet	B-8 17.5 Feet
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06
BTEX							
Benzene	**12**	**0.8**	**0.03**	0.0026	0.015	<0.0006	<0.00064
Toluene	**16000**	**650**	**12**	<0.0064	0.018	<0.006	<0.0064
Ethylbenzene	**7800**	**400**	**13**	0.0013	0.0051	<0.0006	<0.00064
Xylenes (total)	**160000**	**320**	**150**	0.0034	0.014	<0.0018	<0.0019
MTBE	**20000**	**8.8**	**0.32**	0.0039	0.0086	0.013	0.015

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-9 5 Feet	B-9 7.5 Feet	B-9 15 Feet	B-9 18 Feet
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06
BTEX							
Benzene	**12**	**0.8**	**0.03**	**0.1**	**3.2**	**0.089**	0.0016
Toluene	**16000**	**650**	**12**	0.038	3	0.05	<0.0058
Ethylbenzene	**7800**	**400**	**13**	0.0094	**19**	0.053	0.0035
Xylenes (total)	**160000**	**320**	**150**	0.063	13	0.1	0.003
MTBE	**20000**	**8.8**	**0.32**	0.047	**1.1**	0.042	0.0045

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Analytical Summary
Croslow's Shell
Dersch Energies, Inc.
Lawrenceville, IL

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-10 5 Feet	B-10 10 Feet	B-10 15 Feet	B-10 18 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	**0.042**	**0.099**	**0.51**	0.011	
Toluene	**16000**	**650**	**12**	0.018	0.072	0.32	<0.0058	
Ethylbenzene	**7800**	**400**	**13**	0.0037	0.036	2.2	0.0053	
Xylenes (total)	**160000**	**320**	**150**	0.018	0.15	0.15	0.0052	
MTBE	**20000**	**8.8**	**0.32**	0.015	0.045	0.28	0.011	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Croslow's Shell
UST Removal Samples
Collected May 5, 2005

Analyte	Ingestion Obj.	Inhalation Obj.	Migration to GW Obj.	No. 1 W Wall S 8ft	No. 2 W Wall N 8ft	No. 3 N Wall W 7ft	No. 4 N Wall E 7ft	No. 5 E Wall N 8ft	No. 6 E Wall S 8ft	No. 7 S Wall E 6ft	No. 8 S Wall W 8ft	No. 9 SW Floor 12ft	No. 10 NW Floor 11ft
Date Sampled				5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005
BTEX													
Benzene	**12**	**0.8**	**0.03**	0.012	0.0087	0.0056	0.0028	0.013	**0.15**	**0.1**	**0.031**	**0.08**	0.48
Toluene	**16,000**	**650**	**12**	0.0078	0.011	0.019	0.007	<0.0063	0.62	<0.51	<0.24	<0.0062	<1.2
Ethylbenzene	**7,800**	**400**	**13**	0.002	0.0031	0.0078	0.0028	0.0022	0.7	<0.051	<0.024	0.0044	3.2
Total Xylene	**160,000**	**320**	**190**	0.019	0.012	0.04	0.0055	0.0098	3	0.44	0.09	0.012	7.9
MTBE	**20,000**	**8.8**	**0.32**	0.039	0.035	0.017	0.0013	0.005	<0.10	<0.10	0.079	0.075	<0.24
PNA's													
Anthracene	**23,000**		**12,000**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Acenaphthene	**4,700**		**570**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Acenaphthylene	**2,300**		**24**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (a) anthracene	**0.9**		**2**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (a) pyrene	**0.09**		**8**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (b) fluoranthene	**0.9**		**5**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (g,h,i) perylene	**2,300**		**9**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (k) fluoranthene	**9**		**49**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Chrysene	**88**		**160**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Dibenzo (a,h) anthracene	**0.09**		**2**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Fluoranthene	**3,100**		**4,300**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Fluorene	**3,100**		**560**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Indeno (1,2,3,-cd) pyrene	**0.9**		**14**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Napthalene	**1,600**	**170**	**12**	<0.041	<0.041	<0.041	<0.041	<0.041	0.35	0.044	<0.041	<0.041	1.1
Phenanthrene	**2,300**		**280**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Pyrene	**2,300**		**4,200**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040

Tier I Soil Remediation Objectives for Residential Property
All results given in mg/kg. Bold entries exceed cleanup objectives.

Croslow's Shell
UST Removal Samples
Collected May 5, 2005

Analyte	Ingestion Obj.	Inhalation Obj.	Migration to GW Obj.	No. 11 SE Floor 11.5ft	No. 12 NE Floor 11.5ft	No. 13 Diesel Fil 11ft	No. 14 Dispenser 1 2ft	No. 15 Dispenser 2 2ft	No. 16 Dispenser 3 2ft	No.17 Dispenser 4 2ft			
Date Sampled				5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005			
BTEX													
Benzene	**12**	**0.8**	**0.03**	**0.12**	0.16	**1.5**	**0.065**	0.024	**0.073**	**0.062**			
Toluene	**16,000**	**650**	**12**	<0.24	<0.26	<2.4	<0.56	<0.0063	<0.29	0.021			
Ethylbenzene	**7,800**	**400**	**13**	0.058	0.062	<0.24	<0.056	0.0024	<0.029	0.0014			
Total Xylene	**160,000**	**320**	**150**	0.15	0.16	<0.72	<0.17	<0.0019	<0.088	0.0065			
MTBE	**20,000**	**8.8**	**0.32**	0.068	<0.052	**<0.48**	<0.11	0.014	<0.058	0.015			
PNA's													
Anthracene	**23,000**		**12,000**	<0.042	<0.042	<0.041		<0.042					
Acenaphthene	**4,700**		**570**	<0.042	<0.042	<0.041		<0.042					
Acenaphthylene	**2,300**		**30**	<0.042	<0.042	<0.041		<0.042					
Benzo (a) anthracene	**0.9**		**2**	<0.042	<0.042	<0.041		<0.042					
Benzo (a) pyrene	**0.09**		**0.8**	<0.042	<0.042	<0.041		<0.042					
Benzo (b) fluoranthene	**0.9**		**5**	<0.042	<0.042	<0.041		<0.042					
Benzo (g,h,i) perylene	**2,300**		**2,300**	<0.042	<0.042	<0.041		<0.042					
Benzo (k) fluoranthene	**9**		**49**	<0.042	<0.042	<0.041		<0.042					
Chrysene	**88**		**160**	<0.042	<0.042	<0.041		<0.042					
Dibenzo (a,h) anthracene	**0.09**		**0.8**	<0.042	<0.042	<0.041		<0.042					
Fluoranthene	**3,100**		**4,300**	<0.042	<0.042	<0.041		<0.042					
Fluorene	**3,100**		**560**	<0.042	<0.042	<0.041		<0.042					
Indeno (1,2,3,-cd) pyrene	**0.9**		**8**	<0.042	<0.042	<0.041		<0.042					
Napthalene	**1,600**	**170**	**12**	<0.042	0.076	<0.041		<0.042					
Phenanthrene	**2,300**			<0.042	<0.042	<0.041		<0.042					
Pyrene	**2,300**		**4,200**	<0.042	<0.042	<0.041		<0.042					

Tier I Soil Remediation Objectives for Residential Property
All results given in mg/kg. Bold entries exceed cleanup objectives.

Analytical Summary Table
Dersch Energies, Inc.
Croslow Shell
Lawrenceville, IL

Analyte	Class 1 GW Objectives	MW-1	MW-2	MW-3	MW-4	MW-5
Date Sampled		10/24/2006	10/24/2006	10/24/2006	10/24/2006	10/24/2006
BTEX						
Benzene	**0.005**	**0.038**	<0.0005	**0.24**	**0.065**	1
Toluene	**1.0**	<0.025	<0.005	<0.05	<0.12	<0.5
Ethylbenzene	**0.7**	0.004	<0.0005	0.062	0.11	**3.1**
Total Xylene	**10.0**	<0.0075	<0.0015	<0.015	<0.038	3.5
MTBE	**0.07**	0.023	0.013	**0.21**	**0.26**	**0.16**
PNA's						
Anthracene	**2.1**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Acenaphthene	**0.42**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Acenaphthylene		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (a) anthracene	**0.00013**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (a) pyrene	**0.0002**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (b) fluoranthene	**0.00018**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (g,h,i) perylene		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (k) fluoranthene	**0.00017**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chrysene	**0.0015**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dibenzo (a,h) anthracene	**0.0003**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoranthene	**0.28**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluorene	**0.28**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Indeno (1,2,3,-cd) pyrene	**0.00043**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
1-Methylnaphthalene		0.017	<0.0001	0.076	0.076	0.23
2-Methylnaphthalene		0.014	<0.0001	0.12	0.072	0.29
Naphthalene	**0.14**	0.0055	<0.0001	0.046	0.078	**0.44**
Phenanthrene		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Pyrene	**0.21**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Petroleum Cleanup Objectives for Groundwater (TACO Tier 1 Class 1).
All results given in mg/l. Bold entries exceed cleanup objectives.

Dersch Energies, Inc.
Lawrenceville, Illinois
Corrective Action Data

Groundwater CA 1st Set

	Location	MW-1	MW-2	MW-3	MW-5
	Date	9/14/2005	9/14/2005	9/14/2005	9/14/2005
Parameter	Class I CUO				
Benzene	**0.005**	0.001	<0.002	**7.1**	0.001
Ethylbenzene	**0.7**	0.001	<0.002	**4.8**	0.001
Toluene	**1.0**	<0.002	<0.002	**2.2**	<0.002
Total Xylenes	**10.0**	<0.005	<0.005	**18.**	0.003
MTBE	**0.07**	<0.005	0.005	<0.005	0.005

Dersch Energies, Inc.
Lawrenceville, Illinois
Corrective Action Data

Groundwater CA 2nd Set

	Location	MW-1	MW-2	MW-3	MW-5
	Date	1/16/2006	1/16/2006	1/16/2006	1/16/2006
Parameter	Class I CUO				
Benzene	**0.005**	<0.002	<0.002	**4.9**	<0.002
Ethylbenzene	**0.7**	<0.002	<0.002	**3.8**	<0.002
Toluene	**1.0**	<0.002	<0.002	**2.1**	<0.002
Total Xylenes	**10.0**	<0.005	<0.005	**14.**	<0.005
MTBE	**0.07**	<0.005	0.007	<0.005	<0.005

Dersch Energies, Inc.
Lawrenceville, Illinois
Corrective Action Data

CWM SOIL 3-27-14

	Location	MW6	MW6	MW6	MW7	MW7	MW7	MW8	MW8
	Depth (ft)	2.5	7.5	12.5	2.5	7.5	12.5	2.5	7.5
	Date	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014
Parameter	Class I CUO								
Benzene	0.03	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	13.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Toluene	12.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Total Xylenes	5.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MTBE	0.32	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

	Location	MW8	MW9	MW9	MW9	SB1	SB1	SB1
	Depth (ft)	12.5	2.5	7.5	12.5	2.5	7.5	12.5
	Date	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014
Parameter	Class I CUO							
Benzene	0.03	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	13.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Toluene	12.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Total Xylenes	5.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MTBE	0.32	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Dersch Energies, Inc.
Lawrenceville, Illinois
Corrective Action Data

CWM GW 4-4-14

	Location	MW6	MW7	MW8	MW9
	Date	4/4/2014	4/4/2014	4/4/2014	4/4/2014
Parameter	Class I CUO				
Benzene	**0.005**	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	**0.7**	<0.002	<0.002	<0.002	0.002
Toluene	**1.0**	0.003	0.011	0.003	0.018
Total Xylenes	**10.0**	0.007	0.022	0.01	0.032
MTBE	**0.07**	<0.005	<0.005	<0.005	<0.005

APPENDIX D

OSFM ELIGIBILITY DETERMINATION

DERSCH ENERGIES, INC.
CROSLOW'S SHELL
LAWRENCEVILLE, ILLINOIS

Office of the Illinois
State Fire Marshal

General Office
217-785-0969
FAX
217-782-1062
Divisions
ARSON INVESTIGATION
217-782-9115
BOILER and PRESSURE VESSEL SAFETY
217-782-2595
FIRE PREVENTION
217-785-4714
MANAGEMENT SERVICES
217-782-9289
INFIRS
217-785-5825
HUMAN RESOURCES
217-785-1025
PERSONNEL STANDARDS and EDUCATION
217-782-4542
PETROLEUM and CHEMICAL SAFETY
217-785-5873
PUBLIC INFORMATION
217-785-1021
WEB SITE
www.state.il.us/sfm

CERTIFIED MAIL - RECEIPT REQUESTED #7003 3110 0004 1273 6538

May 5, 2005

Dersch Energies, Inc.
620 Oak Street
P.O. Box 217
Mount Carmel, IL 62863

In Re: Facility No. 7-009254
IEMA Incident No. 05-0374
Croslow's Shell
1421 Lexington
Lawrenceville, Lawrence Co., IL

Dear Applicant:

The Reimbursement Eligibility and Deductible Application received on March 31, 2005 for the above referenced occurrence has been reviewed. The following determinations have been made based upon this review.

It has been determined that you are eligible to seek payment of costs in excess of $10,000. The costs must be in response to the occurrence referenced above and associated with the following tanks:

Eligible Tanks

Tank 1 6,000 gallon Gasoline
Tank 2 6,000 gallon Gasoline
Tank 3 6,000 gallon Gasoline
Tank 4 1,000 gallon Diesel

You must contact the Illinois Environmental Protection Agency to receive a packet of Agency billing forms for submitting your request for payment.

An owner or operator is eligible to access the Underground Storage Tank Fund if the eligibility requirements are satisfied:

1. Neither the owner nor the operator is the United States Government,

2. The tank does not contain fuel which is exempt from the Motor Fuel Tax Law,

3. The costs were incurred as a result of a confirmed release of any of the following substances:

"Fuel", as defined in Section 1.19 of the Motor Fuel Tax Law

Aviation fuel

Heating oil

Kerosene

Used oil, which has been refined from crude oil used in a motor vehicle, as defined in Section 1.3 of the Motor Fuel Tax Law.

4. The owner or operator registered the tank and paid all fees in accordance with the statutory and regulatory requirements of the Gasoline Storage Act.

5. The owner or operator notified the Illinois Emergency Management Agency of a confirmed release, the costs were incurred after the notification and the costs were a result of a release of a substance listed in this Section. Costs of corrective action or indemnification incurred before providing that notification shall not be eligible for payment.

6. The costs have not already been paid to the owner or operator under a private insurance policy, other written agreement, or court order.

7. The costs were associated with "corrective action".

This constitutes the final decision as it relates to your eligibility and deductibility. We reserve the right to change the deductible determination should additional information that would change the determination become available. An underground storage tank owner or operator may appeal the decision to the Illinois Pollution Control Board (Board), pursuant to Section 57.9 (c) (2). An owner or operator who seeks to appeal the decision shall file a petition for a hearing before the Board within 35 days of the date of mailing of the final decision, (35 Illinois Administrative Code 105.102(a) (2)).

For information regarding the filing of an appeal, please contact:

Dorothy Gunn, Clerk
Illinois Pollution Control Board
State of Illinois Center
100 West Randolph, Suite 11-500
Chicago, Illinois 60601
(312) 814-3620

The following tanks are also listed for this site:

Tank 5 560 gallon Used Oil

Your application indicates that there has not been a release from these tanks under this incident number. You may be eligible to seek payment of corrective action costs associated with these tanks if it is determined that there has been a release from one or more of these tanks. Once it is determined that there has been a release from one or more of these tanks you may submit a separate application for an eligibility determination to seek corrective action costs associated with this/these tanks.

If you have any questions, please contact our Office at (217) 785-1020 or (217) 785-5878.

Sincerely,

Deanne Lock
Administrative Assistant
Division of Petroleum and Chemical Safety

cc: IEPA
Facility File

APPENDIX E

CORRECTIVE ACTION PLAN BUDGET

DERSCH ENERGIES, INC.
CROSLOW'S SHELL
LAWRENCEVILLE, ILLINOIS

Owner/Operator and Licensed Professional Engineer/Geologist Budget Certification Form

I hereby certify that I intend to seek payment from the UST Fund for costs incurred while performing corrective action activities for Leaking UST incident 20050374. I further certify that the costs set forth in this budget are for necessary activities and are reasonable and accurate to the best of my knowledge and belief. I also certify that the costs included in this budget are not for corrective action in excess of the minimum requirements of 415 ILCS 5/57, no costs are included in this budget that are not described in the corrective action plan, and no costs exceed Subpart H: Maximum Payment Amounts, Appendix D Sample Handling and Analysis amounts, and Appendix E Personnel Titles and Rates of 35 Ill. Adm. Code 732 or 734. I further certify that costs ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 732.606 or 734.630 are not included in the budget proposal or amendment. Such ineligible costs include but are not limited to:

Costs associated with ineligible tanks.
Costs associated with site restoration (e.g., pump islands, canopies).
Costs associated with utility replacement (e.g., sewers, electrical, telephone, etc.).
Costs incurred prior to IEMA notification.
Costs associated with planned tank pulls.
Legal fees or costs.
Costs incurred prior to July 28, 1989.
Costs associated with installation of new USTs or the repair of existing USTs.

RECEIVED
MAR 25 2016
IEPA/BOL

Owner/Operator: Dersch Energies, Inc.

Authorized Representative: Tom Dersch Title: President

Signature: Tom Dersch President Date: 2-18-2016

Subscribed and sworn to before me the 18th day of February, 2016.

Dorothy Dersch (Notary Public) Seal:

OFFICIAL SEAL
DOROTHY DERSCH
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES SEPT. 30, 2018

In addition, I certify under penalty of law that all activities that are the subject of this plan, budget, or report were conducted under my supervision or were conducted under the supervision of another Licensed Professional Engineer or Licensed Professional Geologist and reviewed by me; that this plan, budget, or report and all attachments were prepared under my supervision; that, to the best of my knowledge and belief, the work described in the plan, budget, or report has been completed in accordance with the Environmental Protection Act [415 ILCS 5], 35 Ill. Adm. Code 732 or 734, and generally accepted standards and practices of my profession; and that the information presented is accurate and complete. I am aware there are significant penalties for submitting false statements or representations to the Illinois EPA, including but not limited to fines, imprisonment, or both as provided in Sections 44 and 57.17 of the Environmental Protection Act [415 ILCS 5/44 and 57.17].

L.P.E./L.P.G.: Vince E. Smith L.P.E./L.P.G. Seal:

L.P.E./L.P.G. Signature: Vince E. Smith Date: 3/23/16

Subscribed and sworn to before me the 23rd day of March 2016.

(Notary Public) Seal:

OFFICIAL SEAL
CAROL L. ROWE
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 3-18-2017

The Illinois EPA is authorized to require this information under 415 ILCS 5/1. Disclosure of this information is required. Failure to do so may result in the delay or denial of any budget or payment requested hereunder.

General Information for the Budget and Billing Forms

The following address will be used as the mailing address for checks and any final determination letters regarding payment from the Fund.

Pay to the order of: Dersch Energies, Inc. - Croslow's Shell

Send in care of: CWM Company, Inc.

Address: P.O. Box 571

City: Carlinville State: IL Zip: 62626

The payee is the: Owner ☒ Operator ☐ (Check one or both.)

Signature of the owner or operator of the UST(s) (required)

If you have a change of address, click here to print off a W-9 Form.

Number of petroleum USTs in Illinois presently owned or operated by the owner or operator; any subsidiary, parent or joint stock company of the owner or operator; and any company owned by any parent, subsidiary or joint stock company of the owner or operator:

Fewer than 101: ☒ 101 or more: ☐

Number of USTs at the site: 5 (Number of USTs includes USTs presently at the site and USTs that have been removed.)

Number of incidents reported to IEMA for this site: 1

Incident Numbers assigned to the site due to releases from USTs: 20050374 981496

Please list all tanks that have ever been located at the site and tanks that are presently located at the site.

Product Stored in UST	Size (gallons)	Did UST have a release?	Incident No.	Type of Release Tank Leak / Overfill / Piping Leak
Gasoline	6,000	Yes ☒ No ☐	20050374	Piping Leak
Gasoline	6,000	Yes ☒ No ☐	20050374	Piping Leak
Gasoline	6,000	Yes ☒ No ☐	20050374	Piping Leak
Diesel	1,000	Yes ☒ No ☐	20050374	Piping Leak
Used Oil	560	Yes ☒ No ☐	981496	Piping Leak
		Yes ☐ No ☐		
		Yes ☐ No ☐		
		Yes ☐ No ☐		
		Yes ☐ No ☐		

Add More Rows Undo Last Add

Budget Summary

Choose the applicable regulation: (•) 734 ( ) 732

734	Free Product	Stage 1 Site Investigation	Stage 2 Site Investigation	Stage 3 Site Investigation	Corrective Action
					Proposed
Drilling and Monitoring Well Costs Form	$	$	$	$	$ 1,486.97
Analytical Costs Form	$	$	$	$	$ 430.85
Remediation and Disposal Costs Form	$	$	$	$	$
UST Removal and Abandonment Costs Form	$	$	$	$	$
Paving, Demolition, and Well Abandonment Costs Form	$	$	$	$	$
Consulting Personnel Costs Form	$	$	$	$	$ 20,444.43
Consultant's Materials Costs Form	$	$	$	$	$ 825.30
Handling Charges Form	Handling charges will be determined at the time a billing package is submitted to the Illinois EPA. The amount of allowable handling charges will be determined in accordance with the Handling Charges Form.				
Total	$	$	$	$	$ 23,187.55

Drilling and Monitoring Well Costs Form

1. Drilling

Number of Borings to Be Drilled	Type HSA/PUSH/ Injection	Depth (feet) of Each Boring	Total Feet Drilled	Reason for Drilling
1	PUSH	10.00	10.00	TACO Boring

☒ Subpart H minimum payment amount applies.

	Total Feet	Rate per Foot ($)	Total Cost ($)
Total Feet via HSA:		28.50	
Total Feet via PUSH:	10.00	22.30	223.00
Total Feet for Injection via PUSH:		18.59	
		Total Drilling Costs:	1,486.97

2. Monitoring / Recovery Wells

Number of Wells	Type of Well HSA / PUSH / 4" or 6" Recovery / 8" Recovery	Diameter of Well (inches)	Depth of Well (feet)	Total Feet of Wells to Be Installed ($)

Well Installation	Total Feet	Rate per Foot ($)	Total Cost ($)
Total Feet via HSA:		20.45	
Total Feet via PUSH:			
Total Feet of 4" or 6" Recovery:			
Total Feet of 8" or Greater Recovery:			
		Total Well Costs:	

Total Drilling and Monitoring Well Costs:	$1,486.97

Analytical Costs Form

Laboratory Analysis	Number of Samples		Cost ($) per Analysis		Total per Parameter
Chemical Analysis					
BETX Soil with MTBE EPA 8260		X		=	
BETX Water with MTBE EPA 8260		X		=	
COD (Chemical Oxygen Demand)		X		=	
Corrosivity		X		=	
Flash Point or Ignitability Analysis EPA 1010		X		=	
Fraction Organic Carbon Content (f_{oc}) ASTM-D 2974-00	1	X	47.08	=	$47.08
Fat, Oil, & Grease (FOG)		X		=	
LUST Pollutants Soil - analysis must include volatile, base/ neutral, polynuclear aromatics and metals list in Section 732. Appendix B and 734.Appendix B		X		=	
Dissolved Oxygen (DO)		X		=	
Paint Filter (Free Liquids)		X		=	
PCB / Pesticides (combination)		X		=	
PCBs		X		=	
Pesticides		X		=	
pH		X		=	
Phenol		X		=	
Polynuclear Aromatics PNA, or PAH SOIL EPA 8270		X		=	
Polynuclear Aromatics PNA, or PAH WATER EPA 8270		X		=	
Reactivity		X		=	
SVOC - Soil (Semi-Volatile Organic Compounds)		X		=	
SVOC - Water (Semi-Volatile Organic Compounds)		X		=	
TKN (Total Kjeldahl) "nitrogen"		X		=	
TPH (Total Petroleum Hydrocarbons)		X		=	
VOC (Volatile Organic Compounds) - Soil (Non-Aqueous)		X		=	
VOC (Volatile Organic Compounds) - Water		X		=	
		X		=	
		X		=	
		X		=	
		X		=	
		X		=	
Geo-Technical Analysis					
Soil Bulk Density (p_b) ASTM D2937-94	1	X	27.26	=	$27.26
Ex-situ Hydraulic Conductivity / Permeability		X		=	
Moisture Content (w) ASTM D2216-92 / D4643-93	1	X	14.87	=	$14.87
Porosity		X		=	
Rock Hydraulic Conductivity Ex-situ		X		=	
Sieve / Particle Size Analysis ASTM D422-63 / D1140-54	1	X	179.68	=	$179.68
Soil Classification ASTM D2488-90 / D2487-90		X		=	
Soil Particle Density (p_s) ASTM D854-92	1	X	100.00	=	$100.00
		X		=	
		X		=	
		X		=	

Analytical Costs Form

Metals Analysis					
Soil preparation fee for Metals TCLP Soil (one fee per soil sample)		X		=	
Soil preparation fee for Metals Total Soil (one fee per soil sample)		X		=	
Water preparation fee for Metals Water (one fee per water sample)		X		=	
Arsenic TCLP Soil		X		=	
Arsenic Total Soil		X		=	
Arsenic Water		X		=	
Barium TCLP Soil		X		=	
Barium Total Soil		X		=	
Barium Water		X		=	
Cadmium TCLP Soil		X		=	
Cadmium Total Soil		X		=	
Cadmium Water		X		=	
Chromium TCLP Soil		X		=	
Chromium Total Soil		X		=	
Chromium Water		X		=	
Cyanide TCLP Soil		X		=	
Cyanide Total Soil		X		=	
Cyanide Water		X		=	
Iron TCLP Soil		X		=	
Iron Total Soil		X		=	
Iron Water		X		=	
Lead TCLP Soil		X		=	
Lead Total Soil		X		=	
Lead Water		X		=	
Mercury TCLP Soil		X		=	
Mercury Total Soil		X		=	
Mercury Water		X		=	
Selenium TCLP Soil		X		=	
Selenium Total Soil		X		=	
Selenium Water		X		=	
Silver TCLP Soil		X		=	
Silver Total Soil		X		=	
Silver Water		X		=	
Metals TCLP Soil (a combination of all metals) RCRA		X		=	
Metals Total Soil (a combination of all metals) RCRA		X		=	
Metals Water (a combination of all metals) RCRA		X		=	
		X		=	
		X		=	
		X		=	
		X		=	
Other					
EnCore® Sampler, purge-and-trap sampler, or equivalent sampling device		X		=	
Sample Shipping per sampling event[1]	1	X	61.96	=	$61.96

[1]A sampling event, at a minimum, is all samples (soil and groundwater) collected in a calendar day.

Total Analytical Costs: $ 430.85

Consulting Personnel Costs Form

Employee Name	Personnel Title	Hours	Rate* ($)	Total Cost
Remediation Category	**Task**			
	Senior Project Manager	6.00	121.49	$728.94
CCAP	Corrective Action Plan Development and Technical Compliance			
	Senior Prof. Engineer	4.00	157.94	$631.76
CCAP	Corrective Action Plan Review and Certification			
	Professional Geologist	30.00	111.76	$3,352.80
CCAP	Corrective Action Plan Design and Preparation			
	Draftperson/CAD IV	6.00	66.81	$400.86
CCAP	Drafting for Corrective Action Plan			
	Senior Admin. Assistant	3.00	54.67	$164.01
CCAP	Corrective Action Plan Compilation, Assembly and Distribution			
	Engineer III	4.00	121.49	$485.96
CCAP	Corrective Action Plan Development			

Employee Name	Personnel Title	Hours	Rate* ($)	Total Cost
Remediation Category	**Task**			
	Senior Project Manager	4.00	121.49	$485.96
CCAP-Budget	Corrective Action Budget Development and Technical Compliance			
	Senior Prof. Engineer	2.00	157.94	$315.88
CCAP-Budget	Corrective Action Budget Review and Certification			
	Professional Geologist	10.00	111.76	$1,117.60
CCAP-Budget	Corrective Action Budget Design, Calculations and Inputs			
	Engineer III	4.00	121.49	$485.96
CCAP-Budget	Corrective Action Budget Development			
	Senior Admin. Assistant	2.00	54.67	$109.34
CCAP-Budget	Corrective Action Budget Compilation			

Employee Name	Personnel Title	Hours	Rate* ($)	Total Cost
Remediation Category	**Task**			
	Senior Project Manager	6.00	121.49	$728.94
CCA-Field	Coordination / Technical Compliance / Oversight			
	Senior Admin. Assistant	4.00	54.67	$218.68
CCA-Field	Project arrangements / JULIE			
	Professional Geologist	12.00	111.76	$1,341.12
CCA-Field	On-site Drilling for TACO sampling / GW Measurements / Slug testing			
	Engineer III	12.00	121.49	$1,457.88
CCA-Field	On-site Drilling, Testing & Measuring Oversight			
	Senior Project Manager	4.00	121.49	$485.96
CCA-Field	Boring Log/Analytical Review/Corrective Action Evaluation			
	Senior Draftperson/CAD	4.00	72.88	$291.52
CCA-Field	Drafting Locations/Drilling Prep.			
	Engineer I	4.00	91.11	$364.44
CCA-Field	Boring Logs/Analytical Tabulation			

Employee Name	Personnel Title	Hours	Rate* ($)	Total Cost
Remediation Category	**Task**			
	Senior Project Manager	6.00	121.49	$728.94
TACO 2 or 3	Contaminant Transport Modeling / Oversight / Technical Compliance			
	Professional Geologist	20.00	111.76	$2,235.20
TACO 2 or 3	Preliminary Contaminant Transport Modeling & TACO Calculations			

Employee Name	Personnel Title	Hours	Rate* ($)	Total Cost
Remediation Category	**Task**			
	Senior Project Manager	14.00	121.49	$1,700.86
CA-Pay	Corrective Action Reimbursement Development / Review / Coordination / Oversight (2 Packages)			
	Senior Prof. Engineer	5.00	157.94	$789.70
CA-Pay	Corrective Action Reimbursement Certification (2 Packages)			
	Senior Acct. Technician	24.00	66.81	$1,603.44
CA-Pay	Corrective Action Reimbursement Preparation, Calculations and Inputs (2 Packages)			
	Senior Admin. Assistant	4.00	54.67	$218.68
CA-Pay	Corrective Action Reimbursement Compilation, Assembly and Distribution (2 Packages)			

*Refer to the applicable Maximum Payment Amounts document.

Total of Consulting Personnel Costs	$20,444.43

Consultant's Materials Costs Form

Materials, Equipment, or Field Purchase	Time or Amount Used	Rate ($)	Unit	Total Cost
Remediation Category	**Description/Justification**			
PID Rental	1.00	148.00	/day	$148.00
CCA-Field	To detect VOC levels in soil samples			
Measuring Wheel	1.00	21.00	/day	$21.00
CCA-Field	Mapping sampling locations			
Disposable Gloves	1.00	16.00	/box	$16.00
CCA-Field	Disposable gloves for soil sampling			
Water Level Indicator	1.00	28.00	/day	$28.00
CCA-Field	Measuring Groundwater Depths			
Slug	1.00	36.00	/day	$36.00
CCA-Field	Slug to Conduct Slug Test			
Mileage	310.00	.65	/day	$201.50
CCA-Field	One round trip from Springfield Office for Drilling			
Copies	100.00	.15	/each	$15.00
CCA-Field	Field/Plan/Maps/Borelogs			
Copies	800.00	.15	/each	$120.00
CCAP	Copies of Corrective Action Plan / Draft / Forms			
Postage	2.00	6.00	/each	$12.00
CCAP	Distribution of Corrective Action Forms / Plan			

Materials, Equipment, or Field Purchase	Time or Amount Used	Rate ($)	Unit	Total Cost
Remediation Category	**Description/Justification**			
Copies	200.00	.15	/each	$30.00
CCAP-Budget	Copies of Corrective Action Budget			
Postage	2.00	6.00	/each	$12.00
CCAP-Budget	Distribution of Corrective Action Budget			
Copies	1,000.00	.15	/each	$150.00
CA-Pay	Copies of Corrective Action Reimbursement			
Postage	6.00	6.00	/each	$36.00
CA-Pay	Distribution of Corrective Action Reimbursement Package/ Drafts / Forms			

Total of Consultant Materials Costs	$825.50

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829

BRUCE RAUNER, GOVERNOR LISA BONNETT, DIRECTOR

217/524-3300

JAN 21 2016

CERTIFIED MAIL

7012 0470 0001 2970 9463

Dersch Energies, Inc.
Mr. Tom Dersch
620 Oak Street
Mt. Carmel, Illinois 62863

Re: LPC #1010155024—Lawrence County
Lawrenceville/ Dersch Croslow's Shell
1421 Lexington Avenue
Leaking UST Incident No. 20050374
Leaking UST Technical File

Dear Mr. Dersch:

The Illinois Environmental Protection Agency (Illinois EPA) has reviewed the Corrective Action Plan (plan) submitted for the above-referenced incident. This plan, dated November 9, 2015, was received by the Illinois EPA on November 10, 2015. Citations in this letter are from the Environmental Protection Act (415 ILCS 5) (Act) and Title 35 of the Illinois Administrative Code (35 Ill. Adm. Code).

The plan and the associated budget are rejected for the reason(s) listed below (Sections 57.7(b) and 57.7(c) of the Act and 35 Ill. Adm. Code 734.505(b), 734.510(a) and 734.510(b)).

The plan is rejected for the following reason(s):

Pursuant to 35 Ill. Adm. Code 734.410 owners or operators must propose remediation objectives for applicable indicator contaminants in accordance with 35 Ill. Adm. Code 742. Owners and operators seeking payment from the Fund that perform on-site corrective action in accordance with Tier 2 remediation objectives of 35 Ill. Adm. Code 742 must determine the following parameters on a site-specific basis:

- Hydraulic conductivity (K)
- Soil bulk density (ρb)
- Soil particle density (ρs)
- Moisture content (w)
- Organic carbon content (foc)

The site-specific TACO Tier 2 calculations were done using default parameters for soil bulk density, soil particle density and organic carbon content. These parameters must be determined on a site-specific basis before payment can be made for on-site corrective action.

The plan budget is rejected for the following reason(s):

In accordance with 35 Ill. Adm. Code 734.510(b), a financial review shall consist of a detailed review of the costs associated with each element necessary to accomplish the goals of the plan as required pursuant to the Act and regulations. Items to be reviewed shall include, but are not be limited to, costs associated with any materials, activities, or services that are included in the budget. The overall goal of the financial review shall be to assure that costs associated with

materials, activities, and services must be reasonable, shall be consistent with the associated technical plan, shall be incurred in the performance of corrective action activities, must not be used for corrective action activities in excess of those necessary to meet the minimum requirements of the Act and regulations, and must not exceed the maximum payments set forth in Subpart H of this Part. Without an approvable plan, the proposed budget cannot be fully reviewed.

Pursuant to Sections 57.7(b) and 57.12(c) and (d) of the Act and 35 Ill. Adm. Code 734.100 and 734.125, a plan and/or budget must be submitted within 90 days of the date of this letter to:

Illinois Environmental Protection Agency
Bureau of Land - #24
Leaking Underground Storage Tank Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, IL 62794-9276

Please submit all correspondence in duplicate and include the Re: block shown at the beginning of this letter.

An underground storage tank system owner or operator may appeal this decision to the Illinois Pollution Control Board. Appeal rights are attached.

If you have any questions or need further assistance, please contact Brad Dilbaitis at (217) 785-8378 or Bradley.Dilbaitis@illinois.gov.

Sincerely,

Stephen A. Colantino

Stephen A. Colantino
Acting Unit Manager
Leaking Underground Storage Tank Section
Division of Remediation Management
Bureau of Land

SAC:BD\CAPdenBUDden.docx

Attachment: Appeal Rights

c: CWM Company, Inc.
BOL File

Appeal Rights

An underground storage tank owner or operator may appeal this final decision to the Illinois Pollution Control Board pursuant to Sections 40 and 57.7(c)(4) of the Act by filing a petition for a hearing within 35 days after the date of issuance of the final decision. However, the 35-day period may be extended for a period of time not to exceed 90 days by written notice from the owner or operator and the Illinois EPA within the initial 35-day appeal period. If the owner or operator wishes to receive a 90-day extension, a written request that includes a statement of the date the final decision was received, along with a copy of this decision, must be sent to the Illinois EPA as soon as possible.

For information regarding the filing of an appeal, please contact:

John Therriault, Assistant Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph, Suite 11-500
Chicago, IL 60601
312/814-3620

For information regarding the filing of an extension, please contact:

Illinois Environmental Protection Agency
Division of Legal Counsel
1021 North Grand Avenue East
Post Office Box 19276
Springfield, IL 62794-9276
217/782-5544

LEAKING UST TECHNICAL REVIEW NOTES

Reviewed by: Brad Dilbaitis
Date Reviewed: 1/19/2016

Re: LPC #1010155024—Lawrence County
Lawrenceville/ Dersch Croslow's Shell
1421 Lexington Avenue
Leaking UST Incident No. 20050374
Leaking UST Technical File

Document(s) Reviewed:
11/9/2015 Corrective Action Plan and Budget—received 11/10/2015

General Site Information:

Site subject to: 734

IEMA date: 3/17/2005	Payment from the Fund: yes
UST system removed: yes—5/5/5	OSFM Fac. ID #: 7009254
Encountered groundwater: yes	SWAP mapping and evaluation completion date: 1/15/2016
Free product: no	Site placement correct in SWAP: yes
Current/past land use: gas station	MTBE > 40 ppb in groundwater: yes MW-3, MW-4 and MW-5
Size & product of USTs: : (3) 6,000-gallon gasoline and (1) 1,000-gallon diesel USTs	
Is site located in EJ area? Yes—low income	Is investigation of indoor inhalation exposure route required? Possibly, MW-5 had both soil and groundwater contamination in 2006

Site Specific TACO parameters (2006):

Hydraulic conductivity (k)	7.67×10^{-5} cm/sec (collected from MW-1)
Soil bulk density (ρ_b)	2.09 g/cm^3 (Collected from B-2 at 6' bls)
Soil particle density (ρ_s)	2.66 g/cm^3 (Collected from B-2 at 6' bls)
Moisture content (w)	0.25 g_{water}/g_{soil} (Collected from B-2 at 6' bls)
Organic carbon content (f_{oc})	0.003 g/g (Collected from B-2 at 7.5' bls)

- Hydraulic gradient calculated to be 0.034 ft/ft—groundwater flow direction generally toward the east
- Soil type silty clay according to boring logs
- Soil and groundwater plumes delineated on-site to the north and off-site to the east, west and south
- On-site soil contamination exceeding Tier 1 SROs in (5) soil samples
  - B-1 (13' bgs)—0.16 mg/kg benzene—exceeds SCGIER SRO
  - B-3 (7.5' bgs)—0.8 mg/kg benzene—exceeds SCGIER SRO
    (12.5' bgs)—0.13 mg/kg benzene—exceeds SCGIER SRO
  - B-4 (7.5' bgs)—4.7 mg/kg benzene—exceeds SCGIER, INH, C/wrkr SROs
    1.2 mg/kg MTBE—exceeds SCGIER SRO
    (13' bgs)—0.082 mg/kg benzene—exceeds SCGIER SRO

- B-5 (5' bgs)—1.2 mg/kg benzene—exceeds SCGIER SRO
  0.35 mg/kg MTBE—exceeds SCGIER SRO
  (7.5' bgs)—3.4 mg/kg benzene—exceeds SCGIER, INH, C/wrkr SROs
  22 mg/kg ethylbenzene—exceeds SCGIER SRO
  64 mg/kg total xylenes—exceeds const. worker inh. SRO
  2 mg/kg MTBE—exceeds SCGIER SRO
- B-6 (7.5' bgs)—5.2 mg/kg benzene—exceeds SCGIER, INH, C/wrkr SROs
  21 mg/kg ethylbenzene—exceeds SCGIER SRO
  10 mg/kg total xylenes—exceeds const. worker inh. SRO
  1.9mg/kg MTBE—exceeds SCGIER SRO

- Tier 1 GROs exceeded in (4) monitoring wells
  - MW-1—0.038 mg/l benzene
  - MW-3—0.24 mg/l benzene 0.21 mg/l MTBE
  - MW-4—0.065 mg/l benzene 0.11 mg/l ethylbenzene 0.26 mg/l MTBE
  - MW-5—1 mg/l benzene 3.1 mg/l ethylbenzene 0.16 mg/l MTBE

Corrective Action Plan Notes:

- The consultant calculated Tier 2 SROs for
  - Benzene SCGIER (S-17) 0.031 mg/kg (verified)
  - Benzene I/C inhalation (S-6) 3.454 mg/kg (verified)
  - Benzene construction worker inhalation (S-7) 4.858 mg/kg (verified)
  - Ethylbenzene SCGIER (S-17) 12.033 mg/kg (verified)
  - Total xylenes construction worker inhalation (S-5) 43.6 mg/kg—the consultant calculated the Tier 2 SROs for naphthalene instead of total xylenes—the Tier 2 SRO is my calculation using all of their inputs
  - MTBE SCGIER (S-17) 0.296 mg/kg (verified)
- The Tier 2 SROs were calculated using default values for soil bulk density, particle density and fraction of organic carbon (sub surface)
- Consultant is proposing a groundwater ordinance, which would address all of the Tier 2 SCGIER exceedances, leaving B-4, B-5 and B-6 with Tier 2 exceedances needing to be addressed
  - B-4 (7.5' bgs) exceeding I/C inhalation and construction worker inhalation SROs
  - B-5 (7.5' bgs) exceeding I/C inhalation and construction worker inhalation SROs
  - B-6 (7.5' bgs) exceeding I/C inhalation SRO
- Proposing to excavate the soil around B-4, B-5 and B-6—however, the consultant is proposing to advance (4) soil borings to further define the limits of the excavation
- groundwater contamination modeled to the south—should have been modeled to the southeast and may affect other off-site properties—need to address with the ordinance
- Proposing Highway Authority Agreements for 15th Street to the west and Lexington Avenue to the south of the site to address the soil contamination in B-3 and B-4

Illinois EPA Decision:

- The Corrective Action Plan will be denied—the site-specific Tier 2 calculations were done using default parameters for soil bulk density, soil particle density and fraction of organic carbon— Owners and operators seeking payment from the Fund that perform on-site corrective action in accordance with Tier 2 remediation objectives of 35 Ill. Adm. Code 742 must determine the following parameters on a site-specific basis:

    - Hydraulic conductivity (K)
    - Soil bulk density (ρ_b)
    - Soil particle density (ρ_s)
    - Moisture content (w)
    - Organic carbon content (f_{oc})
- The Corrective Action Budget will be denied because the plan is denied

BD\CAPnotes.docx

Dilbaitis, Bradley

From: rob@cwmcompany.com
Sent: Monday, January 18, 2016 9:00 AM
To: Dilbaitis, Bradley
Cc: Vince Smith
Subject: RE: Dersch Croslow's CAP

Hi Brad,

Vince and I have had a chance to discuss the Dersch Croslow's CAP. We were trying to salvage the results of another consultant even though the data was possibly going to be insufficient for our needs. We understand that the plan will need to be rejected but truly appreciate your contacting us for possible CAC options. As a result, we will prepare a plan to collect a TACO sample for physical analysis. Once the TACO results are returned to our office, we will recalculate the TACO Tier 2 cleanup objectives and resubmit this plan with any appropriate modifications.

Thank you,

Rob

Rob Stanley, P.G.
Senior Environmental Geologist

CWM Company, Inc.
400 West Jackson Street, Suite C
Marion, Illinois 62959

618-997-2238
rob@cwmcompany.com

> -------- Original Message --------
> Subject: RE: Dersch Croslow's CAP
> From: <rob@cwmcompany.com>
> Date: Fri, January 15, 2016 3:52 pm
> To: Bradley.Dilbaitis@Illinois.gov
>
> Hi Brad,
>
> Vince forwarded this to me and asked me to take a look at it. I have only had a chance to glance at it. I did check the "Response Due" date on the Agency's webpage and it looks like we are not immediately up against the due date. Let me look into it further during the first part of next week and I will get right back to you with a proposed plan of attack.
>
> Talk to you soon and have a good weekend.
>
> Rob
>
> Rob Stanley, P.G.
> Senior Environmental Geologist
>
> CWM Company, Inc.
> 400 West Jackson Street, Suite C

Marion, Illinois 62959

618-997-2238
rob@cwmcompany.com

-------- Original Message --------
Subject: Dersch Croslow's CAP
From: "Dilbaitis, Bradley" <Bradley.Dilbaitis@Illinois.gov>
Date: Fri, January 15, 2016 1:25 pm
To: "Vince Smith (vince@cwmcompany.com)" <vince@cwmcompany.com>

Good afternoon Vince,

I'm reviewing the Corrective Action Plan for incident #20050374. The CAP proposes to excavate soil around B-4, B-5 and B-6 after completing (4) soil borings to better define the limits of the excavation. In reviewing the Tier 2 calculations I noticed that you guys developed Tier 2 SROs for naphthalene instead of total xylenes. We had construction worker inhalation exceedances for total xylenes in B-5 and B-6 at 7.5' bgs but no naphthalene exceedances. But the big issue is 734.410. The calculations were done using defaults for soil bulk density, soil particle density and fraction of organic carbon. We can't base an excavation on Tier 2 remediation objectives calculated using default parameters for bulk density, particle density or foc; these parameters have to be site specific. I agree mathematically with the calculations that you submitted but the parameters are not site-specific so I can't accept the calculations. I checked back in the file to see that these parameters were analyzed from B-2 back in October 2006 but the sample showed some (below Tier 1 SROs) contamination in the boring and the consultant did TOC analysis on the sample. It looks like we're going to need to do another geotechnical boring and analyze for the 734.410 parameters. The boring should probably be placed northeast of MW-9 and the sample should be taken at 7.5' bgs.

Unfortunately, I don't see any way that I'll be able to approve or modify the Corrective Action Plan the way it is. Let me know how you want to proceed with this. Thanks and have a good weekend.

Brad Dilbaitis
Project Manager
Illinois Environmental Protection Agency
Leaking Underground Storage Tanks
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276
phone: (217) 785-8378
fax: (217) 524-4193

CW³M Company
Environmental Consulting Services

701 W. South Grand Avenue
Springfield, IL 62704

Phone: (217) 522-8001
Fax: (217) 522-8009

1010155024 – Lawrence County
Dersch Croslow's Shell
Incident# 20050374
Leaking UST Technical File

November 9, 2015

Mr. Brad Dilbaitis, Project Manager
LUST Section, Bureau of Land
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

RE: LPC # 1010155024—Lawrence County
Dersch Croslow's / Lawrenceville
1421 Lexington Avenue
Incident Number: 2005-0374
LUST Technical Reports—Corrective Action Plan and Budget

Dear Mr. Dilbaitis:

On behalf of Mr. Tom Dersch, Vice President of Dersch Energies, Inc., which owns the USTs at the above referenced site, we are submitting the attached Corrective Action Plan (CAP) and Budget.

CW³M Company works in a similar structure as the Agency. Numerous personnel are involved with various components, i.e. phase review and approval of plans, budgets, reimbursements, and correspondence. In our opinion, this is a highly efficient work plan that limits mistakes, keeps costs down, and ensures quality work. Please note multiple personnel are listed for the completion of certain tasks. Some reviewers have mistakenly interpreted this as an error or duplication; it is not. The method for calculating personnel time in the proposed budget has been approved by the Agency in other incidents, such as, incident numbers 2007-1408, 2008-1202, 2008-1657, 2008-1543, 2009-1270, 2009-0929, 2011-0837, 2011-0822, 2012-1125, and 2013-0876. These hours have been found reasonable and justified as an estimate for the work proposal. These hours should be deemed reasonable as more than one person is required to develop plans and budgets and to check for accuracy of the plan, budget, bore logs, reimbursement claims, and analytical, which is needed to finalize the plan and budget. This is no different than the Agency's review process, which includes project managers, unit managers, fiscal reviewers, etc. Multiple personnel touch each letter or plan with different individual tasks on assignments. Many plans and budgets are even taken to committees.

Past conversations with managers have taken place to clarify and satisfy personnel in the budgets and reimbursements. Some Agency reviewers have been cutting budget and reimbursement line items for technical personnel. Similar to the Agency, technical

personnel are required to prepare and review reimbursement claims. Some plans span over several years, include multiple drilling events, and have multiple personnel involved. With such complexity, technical personnel familiar with the project are required to work with the accounting technicians to develop reimbursement claims. As your technical personnel should be well familiar, there are many technical components to the reimbursement side of the equation. It is not all just accounting. Currently, the Agency has technical staff involved with the review of claims; their billing rates/pay scales do not change. The merit of their technical input is valuable as is the technical input into the development of the claims.

Finally, please note that the number of copies budgeted for reports and claims are not just the number of pages submitted to the Agency. The number of copies also includes drafts, client copies, and our own copies of reports, budgets, and claims. We trust that you'll give serious weight to our requests and consider the necessity of a reimbursement budget that mirrors the way we work in actuality as does the Agency.

If you have any questions or require additional information, please contact Mr. Vince E. Smith or me at (217) 522-8001.

Sincerely,

Carol L. Rowe, P.G.
Senior Environmental Geologist

Enclosure

xc: Mr. Tom Dersch, *Dersch Energies, Inc.*
Mr. William T. Sinnott, *CW³M Company, Inc.*

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CORRECTIVE ACTION PLAN & BUDGET

DERSCH CROSLOW'S

LAWRENCEVILLE, ILLINOIS
LPC #1010155024 — Lawrence County
Incident Number 2005-0374

Submitted to:

Illinois Environmental Protection Agency
Leaking Underground Storage Tank Section, Bureau of Land
1021 North Grand Avenue East
Springfield, Illinois

Prepared By:
CW³M COMPANY, INC.

701 West South Grand Ave.
Springfield, Illinois
(217) 522-8001

400 West Jackson St., Suite C
Marion, Illinois
(618) 997-2238

NOVEMBER 2015

TABLE OF CONTENTS

APPENDICES

TABLES

ACRONYMS AND ABBREVIATIONS

AET	Applied Environmental Technologies, Inc.
BETX	Benzene, Ethylbenzene, Toluene, Total Xylenes
CAP	Corrective Action Plan
CACR	Corrective Action Completion Report
CUO	Clean-up Objective
CW³M	CW³M Company, Inc.
HAA	Highway Authority Agreement
IDOT	Illinois Department of Transportation
IEMA	Illinois Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
Ill. Adm. Code	Illinois Administrative Code
IPCB	Illinois Pollution Control Board
ISGS	Illinois State Geological Survey
ISWS	Illinois State Water Survey
mg/kg	Milligrams/Kilogram
mg/L	Milligrams/Liter
MTBE	Methyl Tert-Butyl Ether
MW	Monitoring Well
NFR	No Further Remediation
OSFM	Illinois Office of the State Fire Marshal
PNAs	Polynuclear Aromatic Hydrocarbons
SB	Soil Boring
SICR	Site Investigation Completion Report
SIP	Site Investigation Plan
SWAP	Source Water Assessment Program
TACO	Tiered Approach to Corrective Action Objectives
UST	Underground Storage Tank
WCR	Well Completion Report

1. SITE HISTORY/EXECUTIVE SUMMARY

1.1 GENERAL

This proposed Corrective Action Plan (CAP) and Budget has been prepared in accordance with the requirements of the 35 Illinois Administrative Code (Ill. Adm. Code) 734. The Illinois Environmental Protection Agency (IEPA) Corrective Action Plan Form is included in this document as Appendix A.

Mr. Tom Dersch, owner of the former underground storage tanks (USTs) at the Dersch Croslow's site, reported a release to the Illinois Emergency Management Agency (IEMA) following an environmental assessment. Incident Number 2005-0374 was assigned on March 17, 2005. Mr. Dersch then requested that CW³M Company, Inc. (CW³M) proceed with the site investigation requirements in accordance with the requirements of 35 Ill Adm. Code § 734. This CAP and Budget is being prepared in response to Incident Number 2005-0374.

A 20-Day Certification was submitted to the Illinois Environmental Protection Agency (IEPA) on March 31, 2005 by Applied Environmental Technologies, Inc. (AET) (AET, 2005a). A 45-Day Report was submitted to the IEPA on April 28, 2005 (AET, 2005b). A Stage 1 Site Investigation Plan (SIP) was submitted on February 27, 2007 (AET, 2007a) and was approved with modifications to the budget on April 17, 2007 (IEPA, 2007a). The Stage 2/3 SIP was also submitted on February 27, 2007 (AET, 2007b) and was approved on April 17, 2007 by the IEPA (IEPA, 2007b). However, a budget for the Stage 2/3 site investigation was never submitted for review. When CW³M begin working on the project, a Stage 2/3 Budget was submitted to the IEPA on June 11, 2013 (CW³M, 2013) and was approved on July 30, 2013 (IEPA, 2013). A Site Investigation Completion Report (SICR) was submitted to the IEPA on May 22, 2015 (CW³M, 2015), and was approved by the IEPA on June 5, 2015 (IEPA, 2015).

This report is certified by an Illinois Licensed Professional Engineer. The geological investigation and site investigation was performed under the direction of an Illinois Licensed Professional Geologist and completed in accordance with the Professional Geologist Licensing Act and its Rules for Administration.

1.2 SITE LOCATION

The site, known as Dersch Croslow's is located at 1421 Lexington Avenue, Lawrenceville, Lawrence County, Illinois. The site is located in the SE ¼ of the NE ¼ of the NE ¼ of Section 1, Township 3 North of the Centralia Baseline and Range 12 West of the Second Principal Meridian.

1.3 UNDERGROUND STORAGE TANK INFORMATION

Dersch Energies, Inc. personnel and AET representatives were at the site on May 5, 2005 to remove the USTs at the Dersch Croslow's site. A permit for the removal of the USTs and product piping was approved by the Illinois Office of the State Fire Marshal (OSFM) on April 4, 2005 (OSFM, 2005). Under the supervision of an OSFM Tank Specialist, the tanks were removed.

Table 1-1. Underground Storage Tank Summary

Tank Number	Tank Volume (gallons)	Tank Contents	Incident Number	Release Information	Current Status
1	6,000	Gasoline	05-0374	Leak	Removed 5/5/2005
2	6,000	Gasoline	05-0374	Leak	Removed 5/5/2005
3	6,000	Gasoline	05-0374	Leak	Removed 5/5/2005
4	1,000	Diesel	05-0374	Leak	Removed 5/5/2005
5	560	Used Oil	98-1496	Leak	Removed 6/22/98

1.4 EARLY ACTION SUMMARY

Four underground storage tanks were removed on May 5, 2005. Approximately 443 tons of hydrocarbon impacted backfill were excavated and properly disposed of in conjunction with the removal of the USTs. Dersch Enterprises, Inc. requested that AET proceed with reporting requirements in accordance with 35 Ill Adm. Code § 732. AET personnel, following IEPA guidelines, appropriately collected soil samples from the excavation walls, floors, and below pump dispensers in order to fully determine the extent of impacted soils from the release of product associated with this incident. All samples were collected and analyzed for benzene, ethyl-benzene, toluene, and total xylenes (BETX), methyl tert-butyl ether (MTBE), and poly-nuclear aromatics (PNAs). A summary of analytical results can be found in Appendix G. The excavation was backfilled with clean soil and no free product was encountered during early action. Hydrocarbon impacted soils were properly disposed of in the Lawrence County Regional Landfill and a groundwater hydrocarbon impact investigation was deemed necessary as hydrocarbon impact was believed to have been in contact with the groundwater table.

1.5 SITE INVESTIGATION SUMMARY

On October 17, 2006 Stage 1 Site Investigation activities were initiated by AET personnel. Ten borings were completed in an attempt to define the hydrocarbon impact plume on site and five of the boring locations were completed as monitoring wells in an attempt to define the groundwater hydrocarbon impact plume. Soil samples were continuously collected from every five foot interval from the borings and analyzed for BETX and MTBE constituents as PNA hydrocarbon impact was defined at the conclusion of early action activities. However, groundwater was impacted by the release of petroleum products so groundwater samples were collected and analyzed for BETX, MTBE, and PNA constituents during stage 1 investigation activities. Analytical results confirmed hydrocarbon impact for both soil and groundwater above the most stringent Tier 1 CUO's. Soil boring logs and well completion reports (WCRs) are included in Appendix F. A summary of the analytical results is included in Appendix G.

AET personnel returned to the site on October 24, 2006 to conduct a slug test to determine the site-specific hydraulic conductivity for the soil on site. The hydraulic conductivity determined by AET analysis of the Bower-Rice Method yielded results of 7.6718 x 10^-5 cm/sec (AET, 2007b).

Following AET's Stage 2/3 Drill Plan, CW³M personnel were on site March 27, 2014 to initiate off-site drilling activities. A total of five soil borings were advanced in an attempt to define the soil hydrocarbon impact plume off-site. Soil samples were collected and analyzed for BETX and MTBE. Four of the soil borings were advanced as monitoring wells in an attempt to define the groundwater hydrocarbon impact plume. The analytical results indicate that the soil plume has been defined on and off site. Soil boring logs and WCRs are included in Appendix F. A summary of the analytical results is included in Appendix G. In an effort to clarify any potential misunderstanding, it is important to note that the approved Stage 2/3 Plan was slightly altered due to conditions in the field observed by CW³M personnel. Although the approved Stage 2/3 Plan (AET, 2007b) and the subsequent Stage 2/3 Budget (CW³M, 2013) were approved, monitoring well installation to a depth of 20 feet and soil sample collection to the 15-foot interval, CW³M ceased well installation at a depth of 15 feet. The groundwater table was encountered at a depth between 9-11' and installation of monitoring wells to a depth of 20' seemed excessive while also placing the 10' screening portion of the well below a depth that would intercept the top portion of the groundwater table. However, a sample was collected from the middle portion of the 10-15' soil depth in an effort to fully define the soil hydrocarbon impact plume in the vertical direction and remain consistent with the correspondence of the IEPA project manager (IEPA, 2007b) (IEPA, 2013). Although it is understood that a sample collected below the groundwater table is atypical unless approved by the Agency as in this plan, both the Stage 2/3 Plan and Budget were approved to sample at this depth so CW³M personnel collected a sample at the 12.5' depth to remain consistent with prior

investigations conducted by AET. Also, AET recorded groundwater at a depth of 9' in previous drilling events, collected soil samples at a depth of 12.5' to define the vertical extent of the hydrocarbon impact plume which is below the groundwater table, and set a well at a depth of 20'. Again, while atypical, AET and Agency had their reasons for vertical extent definition, the work already conducted and proposed was approved in like manners; thus, CW³M attempted to follow the approved plan and sampling intervals to the best of our ability while installing the wells at appropriate depth groundwater was encountered in the field.

1.6 CORRECTIVE ACTION SUMMARY

The results from the site investigation activities indicated that soil contamination above Tier 1 Clean-up Objectives is present on site at sample locations B-1, B-3, B-4, B-5, and B-6. Upon the determination of the Tiered Approach to Corrective Action Objectives (TACO) Tier 2 Clean-up Objectives (CUOs), it was apparent that the levels of soil contamination for samples B-4, B-5, and B-6 exceed Tier 2 Industrial-Commercial CUOs for benzene for the Industrial-Commercial Inhalation pathway, while B-1 and B-3 solely exceed the soil-to-groundwater migration limits, which can be addressed with a groundwater ordinance.

Groundwater analytical results indicate that Tier 1 CUOs have been exceeded on site at MW-1, MW-3, MW-4, and MW-5 for various indicator parameters.

2. REMEDIATION OBJECTIVES

2.1 DETERMINATION OF CLEAN-UP OBJECTIVES

In accordance with 35 Ill. Adm. Code 734, remediation objectives were determined in accordance with 35 Ill. Adm. Code 742. The site specific physical parameters have been determined, and are calculated below.

Hydraulic Conductivity (K), 7.6718 x 10^{-5} cm/sec
Soil bulk density (ρ_b), 2.089 g/cm^3
Soil particle density (ρ_s), 2.66 g/cm^3
Moisture content (w), 0.25
Organic carbon content (f_{oc}), 0.003 g/g

A hydraulic conductivity test was performed on the 6' depth sample at B-2 collected during stage 1 site investigation activities. The results of the slug test were included in Stage 2/3 SIP (AET, 2007b), and the hydraulic conductivity presented above is the field determined value. Velocity was calculated using the hydraulic conductivity results determined at the site, as well as the hydraulic gradient. The hydraulic gradient of 0.034 was found by calculating the change in gradient between the most up-gradient well (MW-8, 98.27 feet) and the most down-gradient well in the direction of flow (MW-1, 91.73 feet), then dividing this answer by the distance in feet between the two wells (192.2 feet). Formula R24, ($U_{gw} = K \bullet i$) of 35 Ill. Adm. Code § 742 Appendix C, Table C. The resulting velocity is 2.611 x 10^{-7} cm/sec.

2.2 SOIL AND GROUNDWATER OBJECTIVES

Soil analytical results were compared to the TACO Residential Tier 1 and TACO Tier 2 Industrial-Commercial CUOs in milligrams per kilogram (parts per million) (mg/kg). The TACO Tier 2 objectives are the most stringent CUOs remaining after the groundwater pathway was removed.

Table 2-1. Soil Remediation Objectives

Parameter	TACO Residential Tier 1 Clean-up Objective (mg/kg)	TACO Tier 2 Industrial-Commercial Clean-up Objectives (mg/kg)
Benzene	**0.03**	**3.45**
Ethylbenzene	**13.0**	**146.11**
Toluene	**12.0**	**280.90**
Total Xylenes	**5.6**	**45.33**
MTBE	**0.32**	**363.95**

CW³M will consider the groundwater at this site to be Class I unless demonstrated otherwise pursuant to 35 Ill. Adm. Code § 620.210. According to the Illinois Pollution Control Board, three Class III Groundwater contributing areas exist; however, they are located in McHenry, Monroe and St. Clair Counties in northern and western Illinois. Groundwater investigation sample results would be compared to the TACO Residential Tier 1 Clean-up Objectives in milligrams per liter (mg/L).

Table 2-2. Groundwater Remediation Objectives

Parameter	TACO Residential Tier 1 Clean-up Objective (mg/L)
Benzene	**0.005**
Ethylbenzene	**0.7**
Toluene	**1.0**
Total Xylenes	**10.0**
MTBE	**0.07**

3. CORRECTIVE ACTION PLAN

Based upon the analytical data from the soil boring and groundwater samples collected on-site, it is apparent that soil contamination is present at B-1, B-3, B-4, B-5, and B-6 and spans across both 15th Street and Lexington Avenue. Groundwater contamination is present at MW-1, MW-3, MW-4, and MW-5 and seemingly spans off site across both 15th Street and Lexington Avenue; it is assumed in this report and subsequent drawings to have traveled off-site. All site investigation details were presented in the SICR (CW³M, 2015).

The following CAP and Budget has been prepared by CW³M Company, Inc., as their recommendation for the most appropriate and economical approach to the remediation of the contamination at the Dersch Croslow's site in Lawrenceville, Illinois. Tier 2 CUOs were developed using various parameters to help determine the most beneficial and feasible outcome. Soil contamination at B-1, B-3, B-4, B-5, and B-6 exceeds Tier 2 Industrial-Commercial CUOs. As shown in Table 2-1, and in accordance with the analytical tables provided in this report, with the acceptance of a localized groundwater ordinance for the incident, the remaining unaddressed soil contamination would exist at B-4, B-5, and B-6, with the acceptance of an Industrial-Commercial Restriction on site.

Because of the location of remaining soil contamination, CW³M proposes to excavate an area encompassing the three contaminated locations of B-4, B-5, and B-6. However, before excavation is to take place, four soil borings, depicted in Drawing 0011, are being proposed to further define the limits of where corrective action will be required. Once the contamination has been defined which is above Tier 2 Industrial-Commercial CUOs, the excavation will be proposed in a CAP Amendment to remove all contamination exceeding said limits. Thereafter, the remaining soil contamination will be addressed using an industrial/commercial use restriction and a groundwater use restriction.

Groundwater modeling in accordance with 35 Ill. Adm. Code § 742 has been conducted, as depicted in Drawing 0009. Contamination models to the south-southeast, as dictated by the previously attained groundwater flow data.

The attached CAP Budget includes the preparation of this report, as well as the preparation of the Corrective Action Completion Report (CACR). The abandonment of the existing monitoring wells, and the recording of the No Further Remediation (NFR) letter are also included in the proposed budget.

3.1 CURRENT AND PROJECTED USES OF THE SITE

The site is surrounded by commercial and residential properties. The site existed as a former Shell Service and Fueling station but since has existed as an active automotive repair facility.

3.2 INSTITUTIONAL CONTROLS PROPOSED

The site has public water available and is not within the setback of a known potable well; A groundwater ordinance will be proposed to the City of Lawrenceville to address groundwater contamination. Highway Authority Agreements (HAAs) will be entered with the City of Lawrenceville and Illinois Department of Transportation (IDOT) for Lexington Avenue and 15th Street, respectively, as shown in Drawing 0014. A TACO Tier 2 Industrial-Commercial land use restriction with groundwater use restriction is also to be implemented on site.

3.3 WATER SUPPLY WELL SURVEY

A survey of water supply wells for the purpose of identifying and locating all community water supply wells within 2,500 feet of the UST systems and all potable water supply wells within 200 feet of the UST systems has been completed. The Illinois State Water Survey (ISWS), the Illinois State Geological Survey (ISGS) and the IEPA Division of Public Water Supplies were contacted via Source Water Assessment Program (SWAP) online.

The ISGS, ISWS, and IEPA Division of Public Water Supplies were accessed online on April 25, 2014 (EPA.STATE.IL.US, 2014). The response indicated that seven wells were located within 2,500 feet of the site and no wells are within the designated set back zone. Also, the response stated that there are no community water supply wells located within 2,500 feet of the site. A groundwater ordinance exists within the city of Lawrenceville but the Dersch Croslow's site does not fall within the boundary of the ordinance. The table on the next page provides information all wells within 2,500' of the Dersch Croslow's site.

Table 3-1. Water Supply Well Information

Well ID	Type	Depth of Well *(feet)*	Distance From USTs *(feet)*	Setback Zone *(feet)*
28262	ISGS	30	1,848	200
30108	ISGS	140	1,795	200
06905	ISGS	180	2,218	200
07275	ISGS	49	2,270	200
30995	ISGS	49	2,270	200
30996	ISGS	44	2,270	200
31542	ISGS	220	2,429	200

3.4 CLOSURE

Once all CAP activities conclude, a CACR will be submitted to the IEPA. The closure report will be accompanied by a certification from an Illinois Registered Professional Engineer.

REFERENCES

AET, 2005a. Applied Environmental Technologies, Inc., *20-Day Certification,* Dersch Croslow's, Lawrenceville, Illinois, March 31, 2005.

AET, 2005b. Applied Environmental Technologies, Inc., *45-Day Report,* Dersch Croslow's, Lawrenceville, Illinois, April 28, 2005.

AET, 2007a. Applied Environmental Technologies, Inc., *Stage 1 Site Investigation Plan and Budget,* Dersch Croslow's, Lawrenceville, Illinois, February 27, 2007.

AET, 2007b. Applied Environmental Technologies, Inc., *Stage 2/3 Site Investigation Plan,* Dersch Croslow's, Lawrenceville, Illinois, February 27, 2007.

CW³M, 2013. CW³M Company, Inc., *Stage 2/3 Site Investigation Budget,* Dersch Croslow's, Lawrenceville, Illinois, June 11, 2013.

CW³M, 2015. CW³M Company, Inc., *Site Investigation Completion Report,* Dersch Croslow's, Lawrenceville, Illinois, May 22, 2015.

IEPA, 2007a. Illinois Environmental Protection Agency, *Stage 1 Site Investigation Plan and Budget Correspondence,* Dersch Croslow's, Lawrenceville, Illinois, April 17, 2007.

IEPA, 2007b. Illinois Environmental Protection Agency, *Stage 2/3 Site Investigation Plan Correspondence,* Dersch Croslow's, Lawrenceville, Illinois, April 17, 2007.

IEPA, 2013. Illinois Environmental Protection Agency, *Stage 2/3 Site Investigation Budget Correspondence,* Dersch Croslow's, Lawrenceville, Illinois, July 30, 2013.

IEPA, 2015. Illinois Environmental Protection Agency, *Site Investigation Completion Report Correspondence,* Dersch Croslow's, Lawrenceville, Illinois, June 5, 2015.

EPA.STATE.IL.US, 2014. Source Water Assessment Program, *Water Well Survey Map* www.maps.epa.state.il.us, accessed April 25, 2014.

OSFM, 2005. Dersch Energies, Inc., Permit for Removal, Dersch Croslow's, Lawrenceville, Illinois, April 4, 2005.

APPENDIX A

CORRECTIVE ACTION PLAN FORM

CORRECTIVE ACTION PLAN
DERSCH CROSLOW'S
LAWRENCEVILLE, ILLINOIS

Illinois Environmental Protection Agency

Bureau of Land • 1021 N. Grand Avenue E. • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Leaking Underground Storage Tank Program
Corrective Action Plan

A. Site Identification

IEMA Incident # (6- or 8-digit): 20050374 IEPA LPC# (10-digit): 1010155024

Site Name: Dersch Croslow's

Site Address (Not a P.O. Box): 1421 Lexington Avenue

City: Lawrenceville County: Lawrence ZIP Code: 62439

B. Site Information

1. Will the owner or operator seek reimbursement from the Underground Storage Tank Fund? ☑ Yes ☐ No
2. If yes, is the budget attached? ☑ Yes ☐ No
3. Is this an amended plan? ☐ Yes ☑ No
4. Identify the material(s) released: Gasoline, Diesel
5. This Corrective Action Plan is submitted pursuant to:
   - a. 35 Ill. Adm. Code 731.166 ☐
     The material released was:
     - -petroleum ☐
     - -hazardous substance (see Environmental Protection Act Section 3.215) ☐
   - b. 35 Ill. Adm. Code 732.404 ☐
   - c. 35 Ill. Adm. Code 734.335 ☑

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C. Proposed Methods of Remediation

1. Soil To Be Determined, HAAs, Industrial-Commercial Restriction
2. Groundwater Groundwater Ordinance

D. Soil and Groundwater Investigation Results

(for incidents subject to 35 Ill. Adm. Code 731 only or 732 that were classified using Method One or Two, if not previously provided)

Provide the following:

1. Description of investigation activities performed to define the extents of soil and/or groundwater contamination;
2. Analytical results, chain-of-custody forms, and laboratory certifications;
3. Tables comparing analytical results to applicable remediation objectives;

4. Boring logs;
5. Monitoring well logs; and
6. Site maps meeting the requirements of 35 Ill. Adm. Code 732.110(a) or 734.440 and showing:
   a. Soil sample locations;
   b. Monitoring well locations; and
   c. Plumes of soil and groundwater contamination.

E. Technical Information - Corrective Action Plan

Provide the following:

1. Executive summary identifying the objectives of the corrective action plan and the technical approach to be utilized to meet such objectives;
   a. The major components (e.g., treatment, containment, removal) of the corrective action plan;
   b. The scope of the problems to be addressed by the proposed corrective action; and
   c. A schedule for implementation and completion of the plan;
2. Identification of the remediation objectives proposed for the site;
3. A description of the remedial technologies selected:
   a. The feasibility of implementing the remedial technologies;
   b. Whether the remedial technologies will perform satisfactorily and reliably until the remediation objectives are achieved; and
   c. A schedule of when the technologies are expected to achieve the applicable remediation objectives;
4. A confirmation sampling plan that describes how the effectiveness of the corrective action activities will be monitored during their implementation and after their completion;
5. A description of the current and projected future uses of the site;
6. A description of engineered barriers or institutional controls that will be relied upon to achieve remediation objectives:
   a. an assessment of their long-term reliability;
   b. operating and maintenance plans; and
   c. maps showing area covered by barriers and institutional controls;
7. The water supply well survey:
   a. Map(s) showing locations of community water supply wells and other potable wells and the setback zone for each well;
   b. Map(s) showing regulated recharge areas and wellhead protection areas;
   c. Map(s) showing the current extent of groundwater contamination exceeding the most stringent Tier 1 remediation objectives;
   d. Map(s) showing the modeled extent of groundwater contamination exceeding the most stringent Tier 1 remediation objectives;
   e. Tables listing the setback zone for each community water supply well and other potable water supply wells;
   f. A narrative identifying each entity contacted to identify potable water supply wells, the name and title of each person contacted, and any field observations associated with any wells identified; and
   g. A certification from a Licensed Professional Engineer or Licensed Professional Geologist that the survey was conducted in accordance with the requirements and that documentation submitted includes information obtained as a result of the survey (certification of this plan satisfies this requirement);

8. Appendices:
   a. References and data sources report that are organized; and
   b. Field logs, well logs, and reports of laboratory analyses;
9. Site map(s) meeting the requirements of 35 Ill. Adm. Code 732.110(a) or 734.440;
10. Engineering design specifications, diagrams, schematics, calculations, manufacturer's specifications, etc.;
11. A description of bench/pilot studies;
12. Cost comparison between proposed method of remediation and other methods of remediation;
13. For the proposed Tier 2 or 3 remediation objectives, provide the following:
    a. The equations used;
    b. A discussion of how input variables were determined;
    c. Map(s) depicting distances used in equations; and
    d. Calculations; and
14. Provide documentation to demonstrate the following for alternative technologies:
    a. The proposed alternative technology has a substantial likelihood of successfully achieving compliance with all applicable regulations and remediation objectives;
    b. The proposed alternative technology will not adversely affect human health and safety or the environment;
    c. The owner or operator will obtain all Illinois EPA permits necessary to legally authorize use of the alternative technology;
    d. The owner or operator will implement a program to monitor whether the requirements of subsection (14)(a) have been met;
    e. Within one year from the date of Illinois EPA approval, the owner or operator will provide to the Illinois EPA monitoring program results establishing whether the proposed alternative technology will successfully achieve compliance with the requirements of subsection (14)(a); and
    f. Demonstration that the cost of alternative technology will not exceed the cost of conventional technology and is not substantially higher than at least two other alternative technologies, if available and technically feasible.

F. Exposure Pathway Exclusion

Provide the following:

1. A description of the tests to be performed in determining whether the following requirements will be met:
   a. Attenuation capacity of the soil will not be exceeded for any of the organic contaminants;
   b. Soil saturation limit will not be exceeded for any of the organic contaminants;
   c. Contaminated soils do not exhibit any of the reactivity characteristics of hazardous waste per 35 Ill. Adm. Code 721.123;
   d. Contaminated soils do not exhibit a pH $\leq$ 2.0 or $\geq$ 12.5; and
   e. Contaminated soils which contain arsenic, barium, cadmium, chromium, lead, mercury, or selenium (or their associated salts) do not exhibit any of the toxicity characteristics of hazardous waste per 35 Ill. Adm. Code 721.124.
2. A discussion of how any exposure pathways are to be excluded.

G. Signatures

All plans, budgets, and reports must be signed by the owner or operator and list the owner's or operator's full name, address, and telephone number.

UST Owner or Operator

Name Dersch Energies, Inc.
Contact Tom Dersch
Address 620 Oak Street
City Mt. Carmel
State Illinois
Zip Code 62863
Phone
Signature
Date 11-4-2015

Consultant

Company CWM Company, Inc.
Contact Carol L. Rowe
Address 701 W. South Grand Ave
City Springfield
State IL
Zip Code 62704
Phone 217-522-8001
Signature
Date 11/9/2015

I certify under penalty of law that all activities that are the subject of this plan were conducted under my supervision or were conducted under the supervision of another Licensed Professional Engineer or Licensed Professional Geologist and reviewed by me; that this plan and all attachments were prepared under my supervision; that, to the best of my knowledge and belief, the work described in this plan has been completed in accordance with the Environmental Protection Act [415 ILCS 5], 35 Ill. Adm. Code 731, 732 or 734, and generally accepted standards and practices of my profession; and that the information presented is accurate and complete. I am aware there are significant penalties for submitting false statements or representations to the Illinois EPA, including but not limited to fines, imprisonment, or both as provided in Sections 44 and 57.17 of the Environmental Protection Act [415 ILCS 5/44 and 57.17].

Licensed Professional Engineer or Geologist

Name Vince E. Smith
Company CWM Company, Inc.
Address 701 W. South Grand Ave
City Springfield
State IL
Zip Code 62704
Phone 217-522-8001
Ill. Registration No. 062-046118
License Expiration Date 11/30/15 (7/15)
Signature
Date 11/9/15

L.P.E. or L.P.G. Seal

VINCE E. SMITH
062-046118
REGISTERED PROFESSIONAL ENGINEER
ILLINOIS

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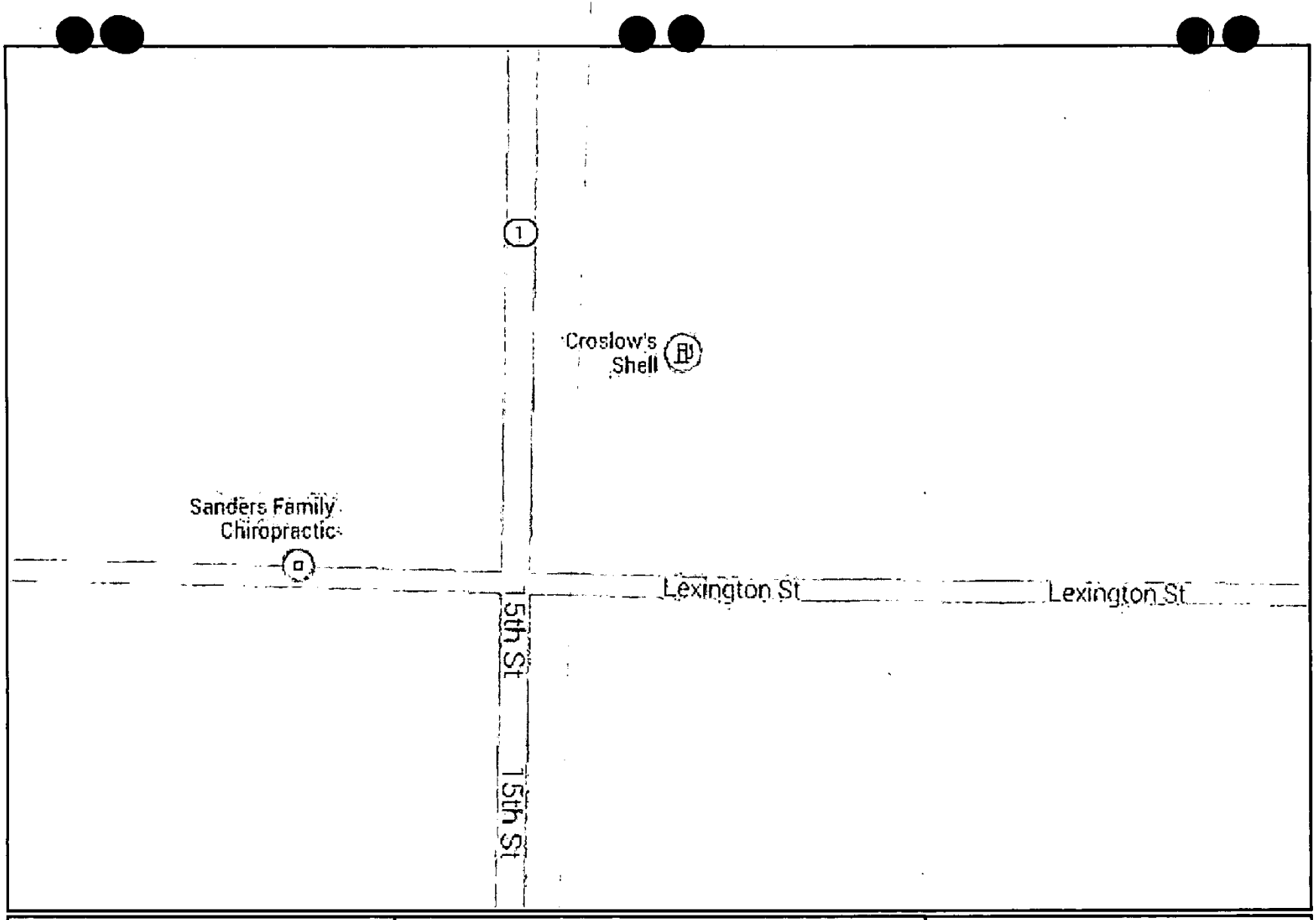
APPENDIX B

SITE MAPS AND ILLUSTRATIONS

CORRECTIVE ACTION PLAN
DERSCH CROSLOW'S
LAWRENCEVILLE, ILLINOIS

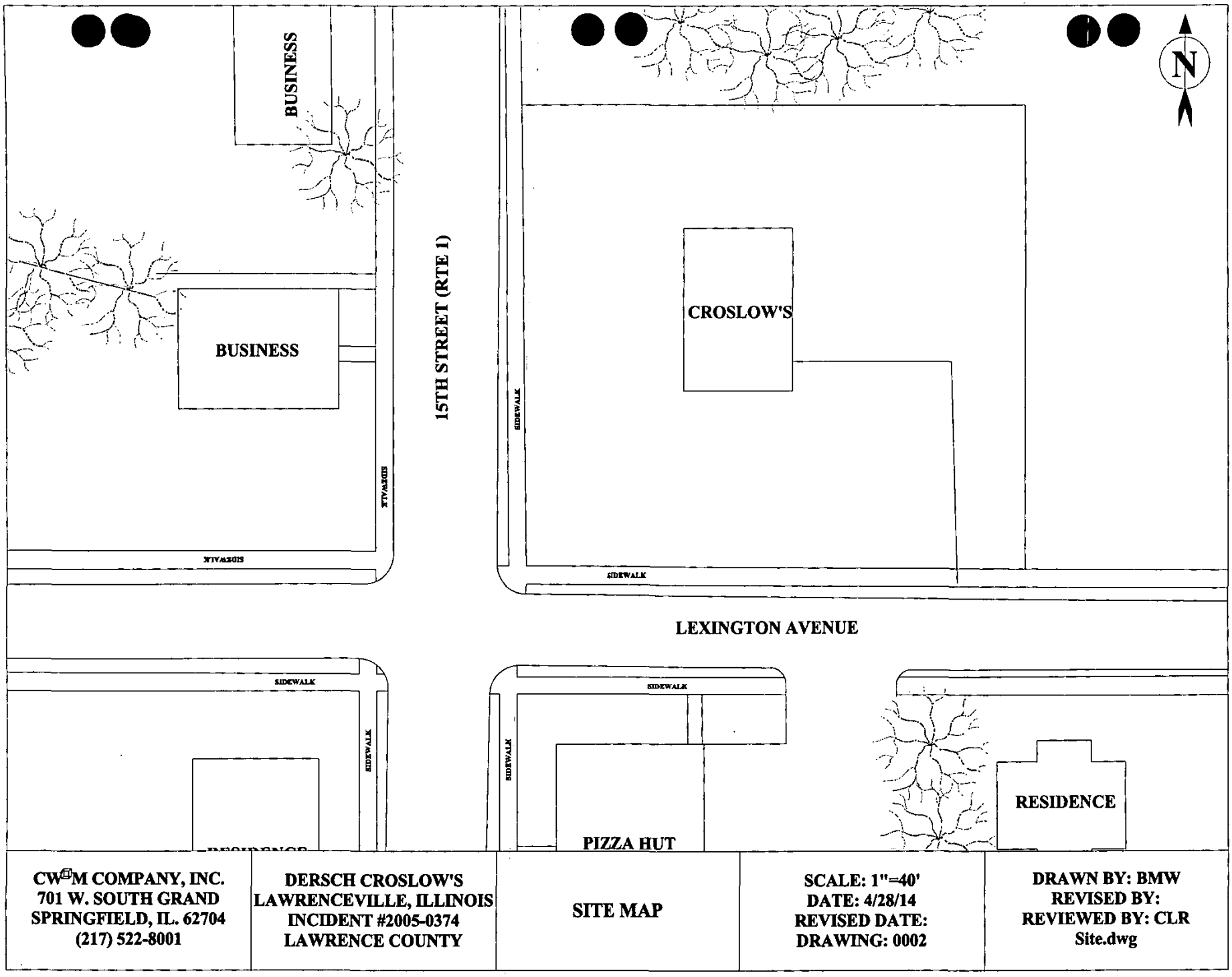
INDEX OF DRAWINGS

Drawing Number	Description
0001A	Site Location Map
0001B	Surrounding Populations Map
0002	Site Map
0003	Monitoring Well Location Map
0004	Soil Boring Location Map
0005	Monitoring Well Elevation Map
0006	Groundwater Elevation Map (April 2014)
0007	Soil Contamination Values Map
0008	Groundwater Contamination Values Map
0009	Groundwater Contamination Modeling Map
0010	TACO Parameters Map
0011	Proposed Soil Boring Location Map
0012	Soil Contamination Plume Map
0013	Groundwater Contamination Plume Map
0014	Proposed Highway Authority Agreement Map

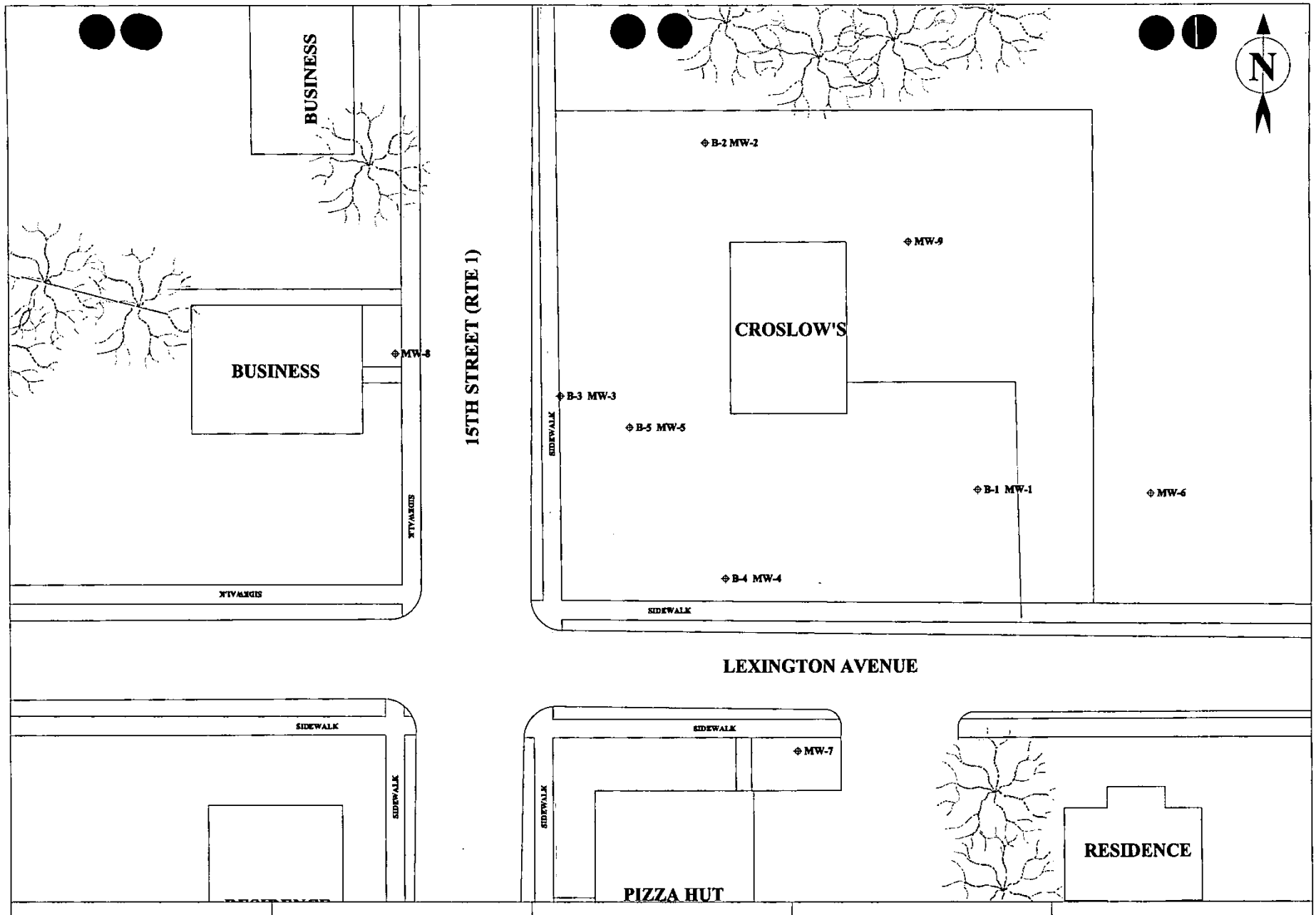


CW³M Company, Inc. 701 South Grand Avenue West Springfield, IL 62704 (217)-522-8001	**Site Location Map** 1421 Lexington Avenue Lawrenceville, Illinois	Drawn By: BMW Reviewed By: CLR Drawing 0001A SiteMap.doc

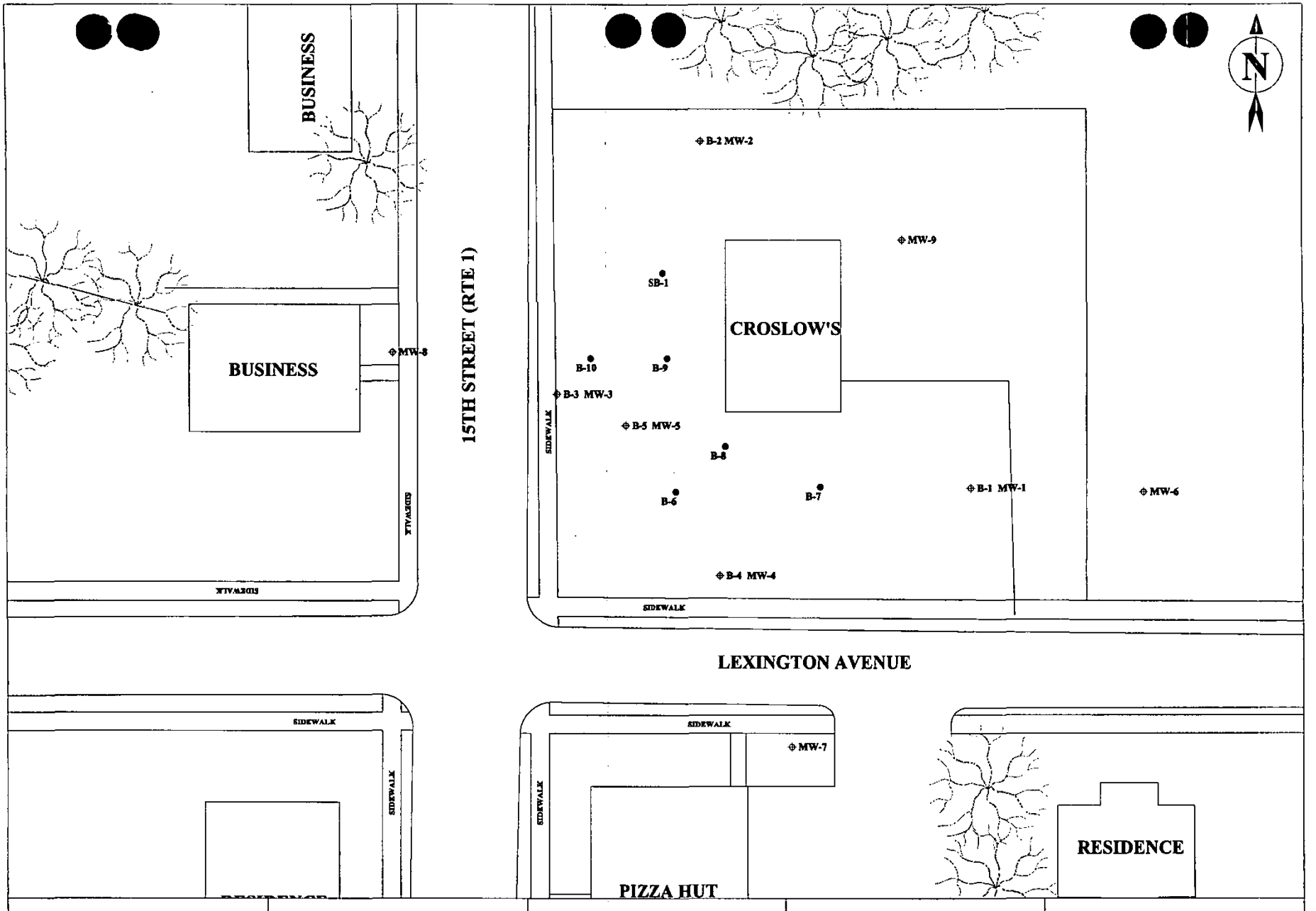
CW³M Company, Inc. 701 South Grand Avenue West Springfield, IL 62704 (217)-522-8001	**Surrounding Populations Map** 1421 Lexington Avenue Lawrenceville, Illinois	Drawn By: BMW Reviewed By: CLR Drawing 0001B SP.doc



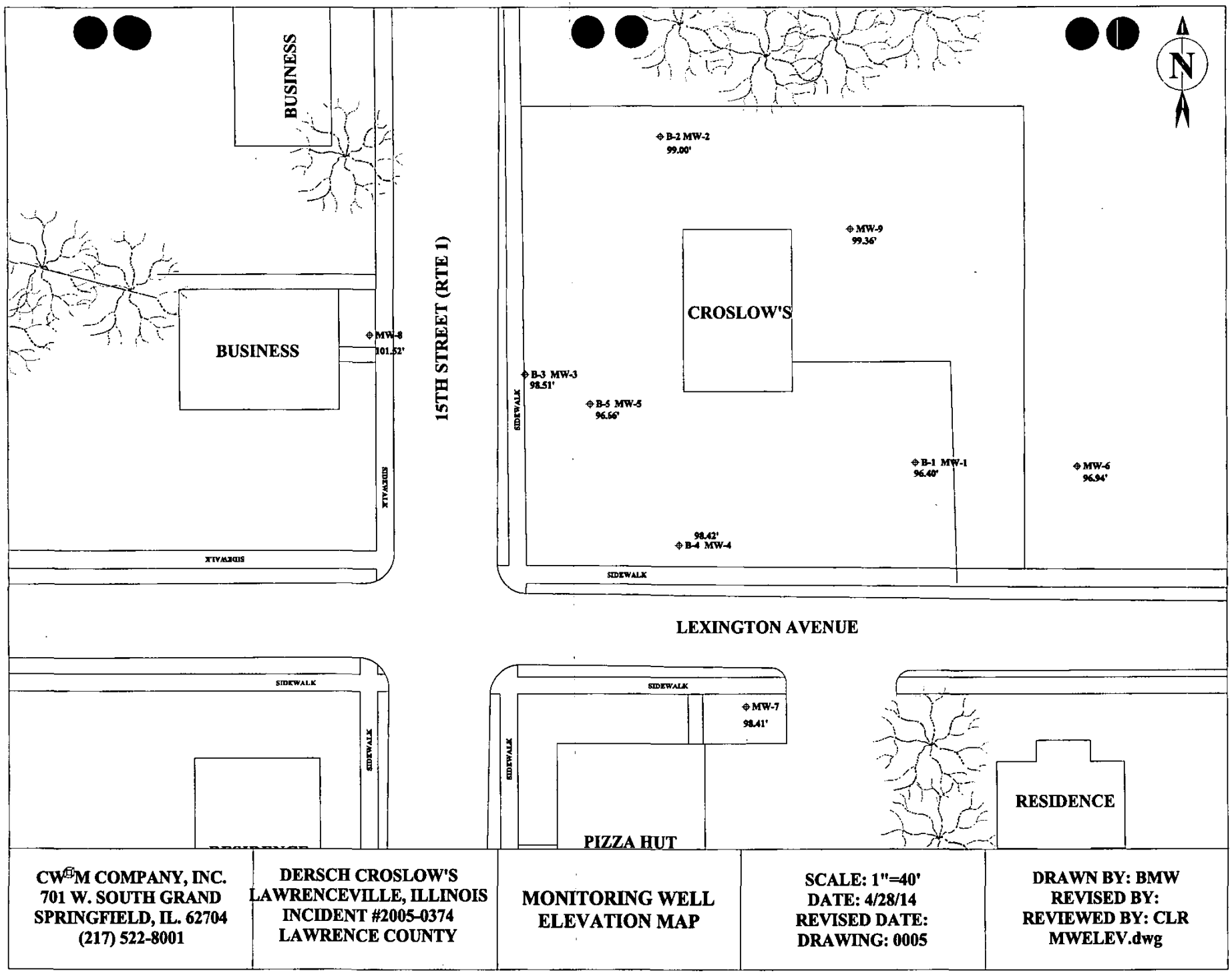
CW[M] COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	SITE MAP	SCALE: 1"=40' DATE: 4/28/14 REVISED DATE: DRAWING: 0002	DRAWN BY: BMW REVISED BY: REVIEWED BY: CLR Site.dwg



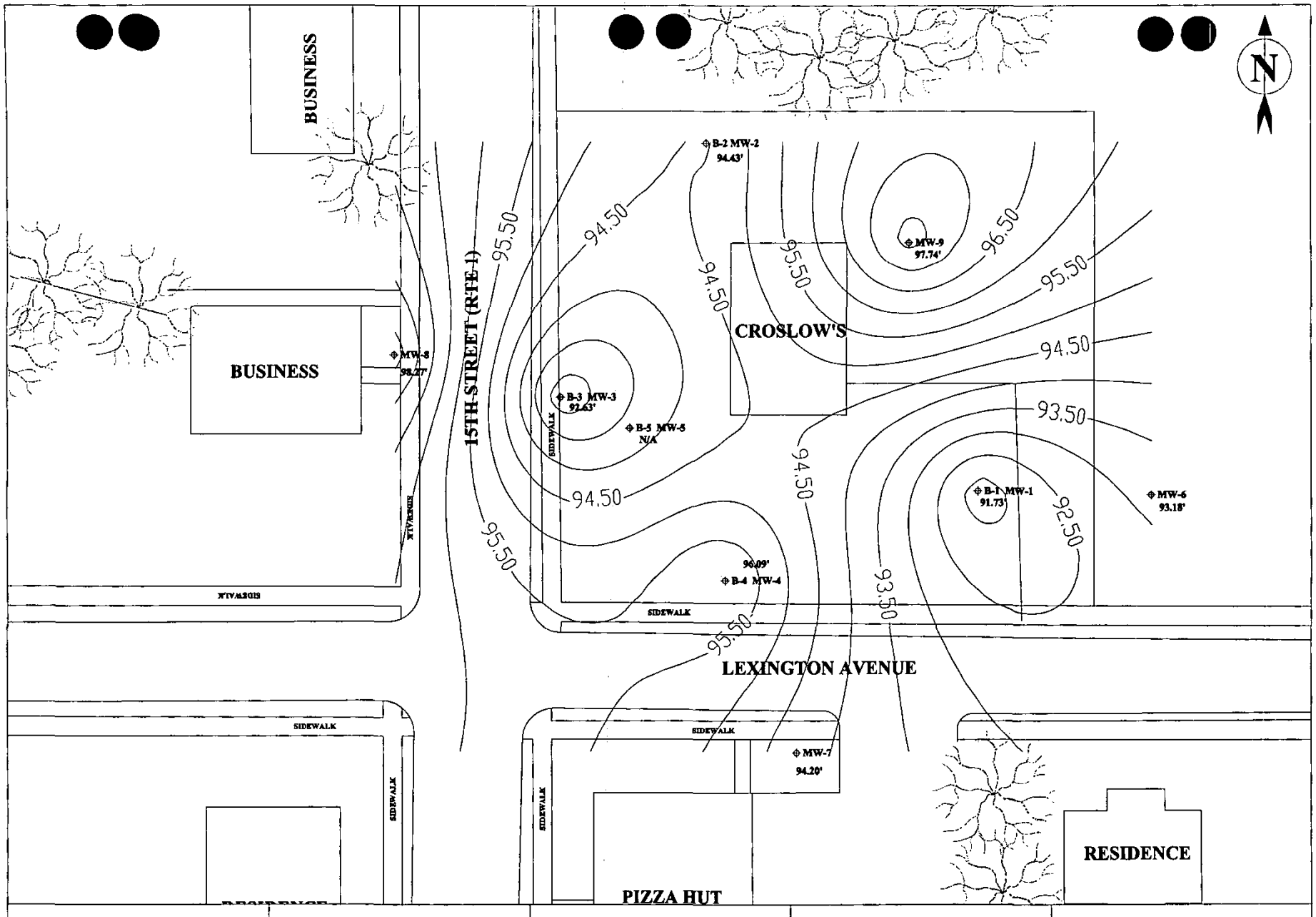
CWM COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	MONITORING WELL LOCATION MAP	SCALE: 1"=40' DATE: 4/28/14 REVISED DATE: DRAWING: 0003	DRAWN BY: BMW REVISED BY: REVIEWED BY: CLR MWLOC.dwg



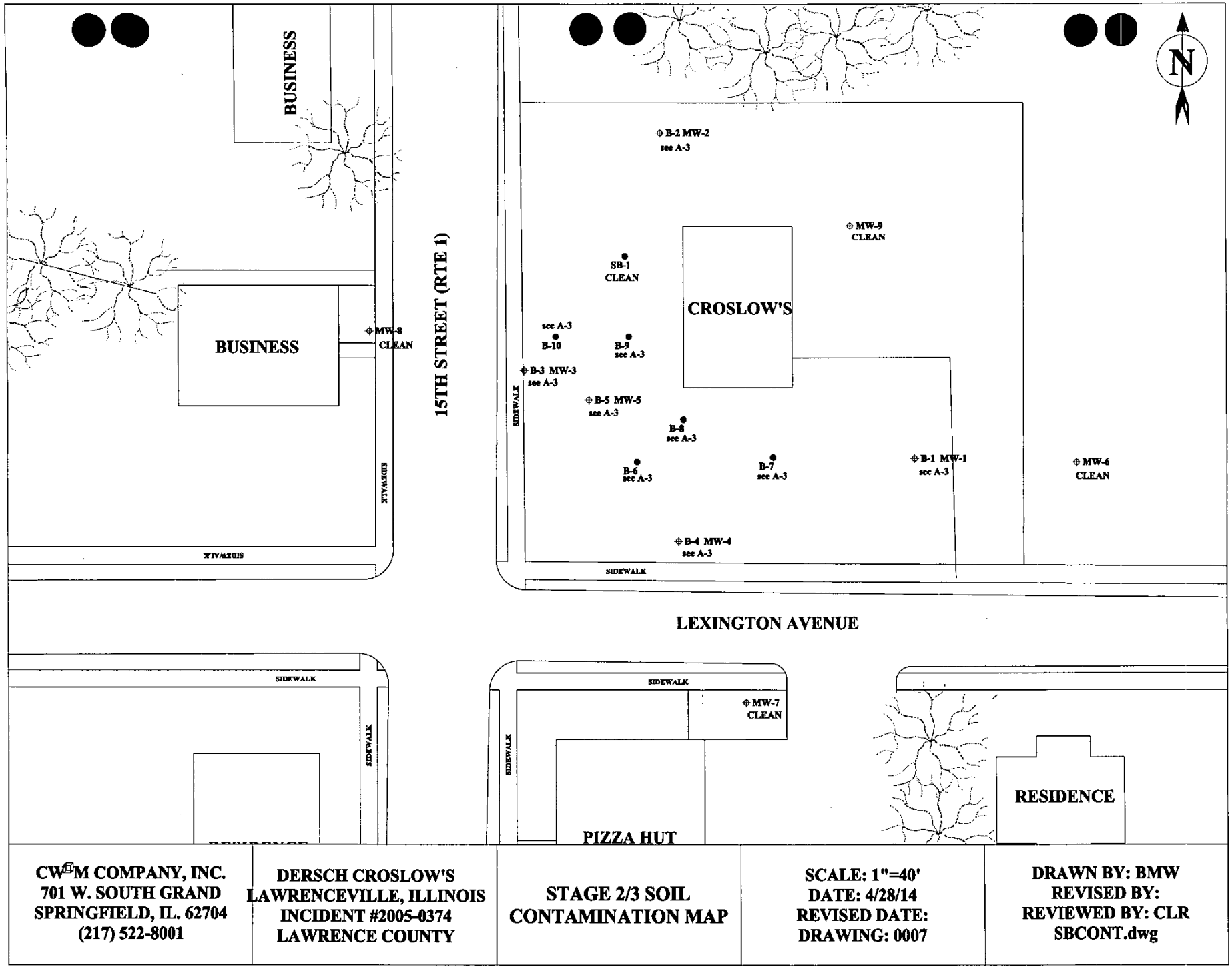
CW²M COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	SOIL BORING LOCATION MAP	SCALE: 1"=40' DATE: 4/28/14 REVISED DATE: DRAWING: 0004	DRAWN BY: BMW REVISED BY: REVIEWED BY: CLR SBLOC.dwg



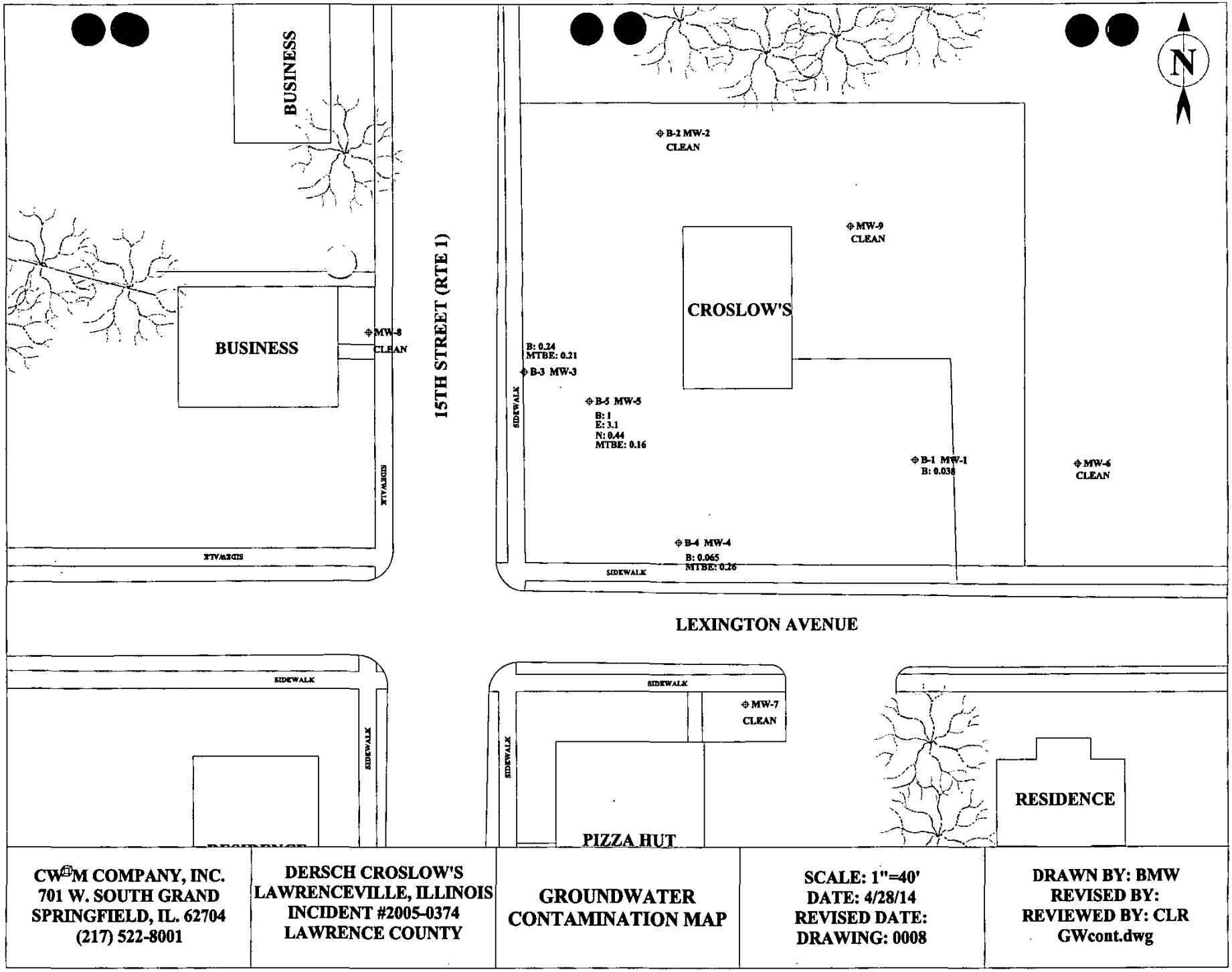
CW[D]M COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	MONITORING WELL ELEVATION MAP	SCALE: 1"=40' DATE: 4/28/14 REVISED DATE: DRAWING: 0005	DRAWN BY: BMW REVISED BY: REVIEWED BY: CLR MWELEV.dwg



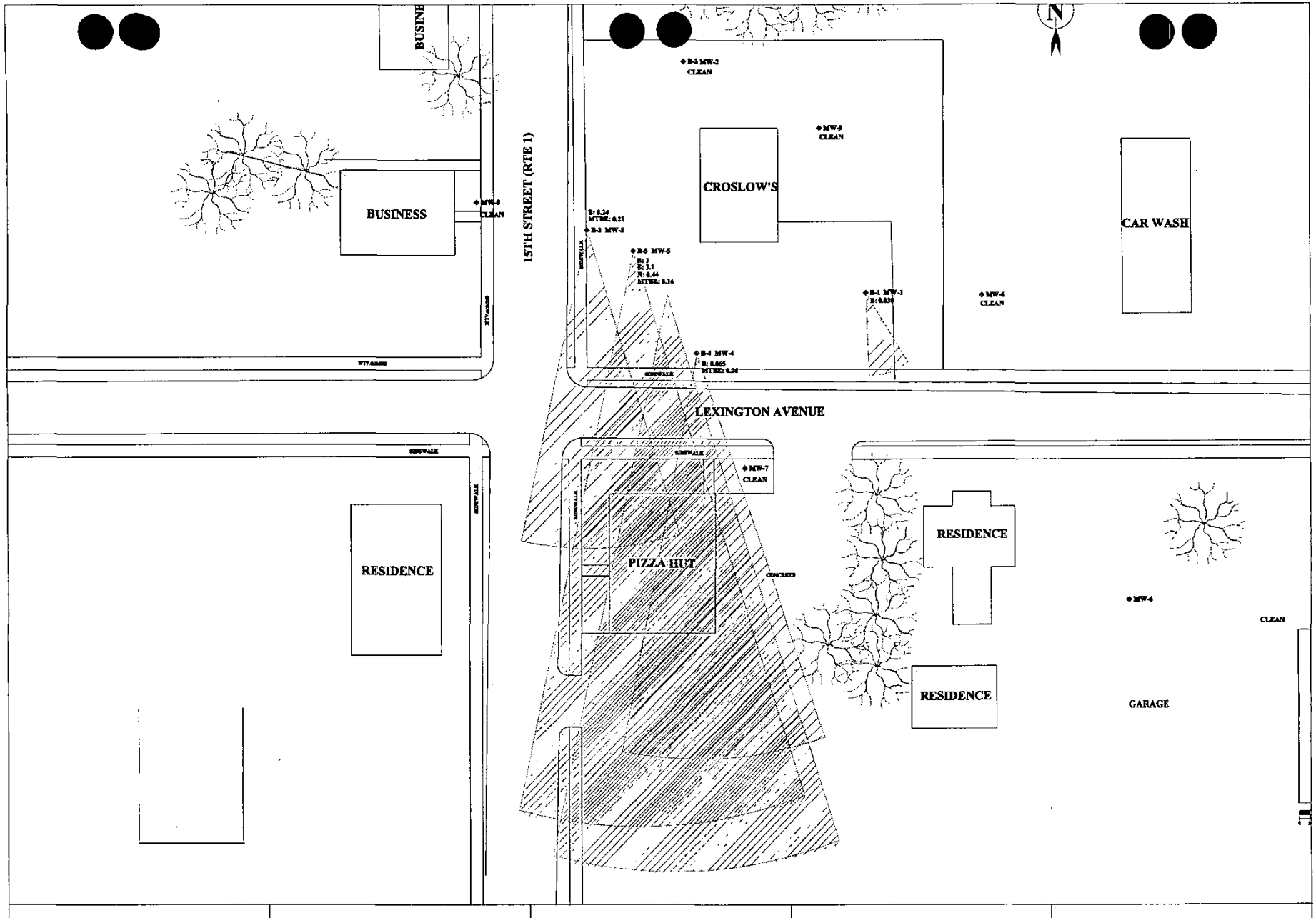
CW[M] COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	GROUNDWATER ELEVATION MAP (APRIL 2014)	SCALE: 1"=40' DATE: 4/28/14 REVISED DATE: DRAWING: 0006	DRAWN BY: BMW REVISED BY: REVIEWED BY: CLR GWELEV.dwg



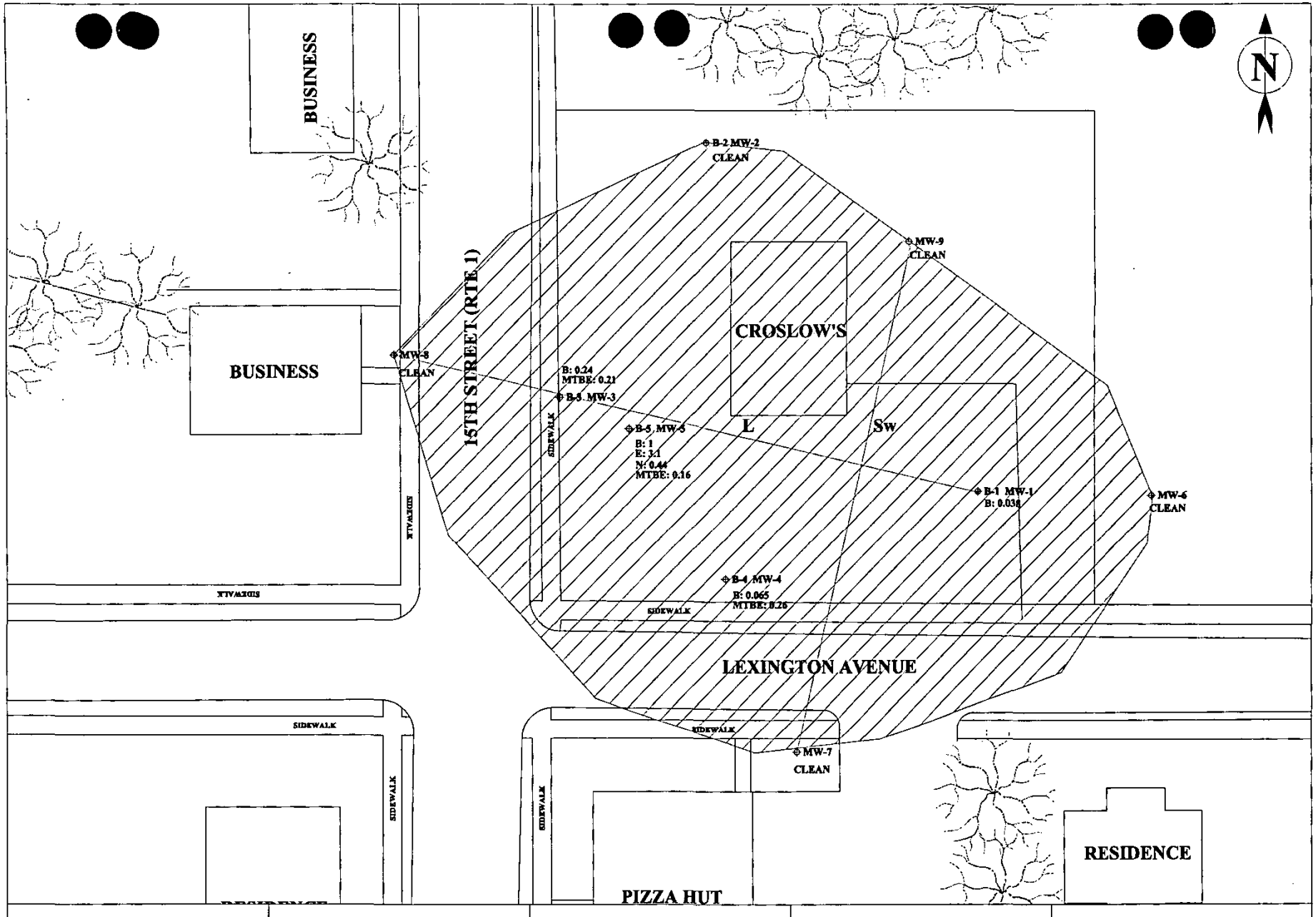
CW[illegible]M COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	STAGE 2/3 SOIL CONTAMINATION MAP	SCALE: 1"=40' DATE: 4/28/14 REVISED DATE: DRAWING: 0007	DRAWN BY: BMW REVISED BY: REVIEWED BY: CLR SBCONT.dwg



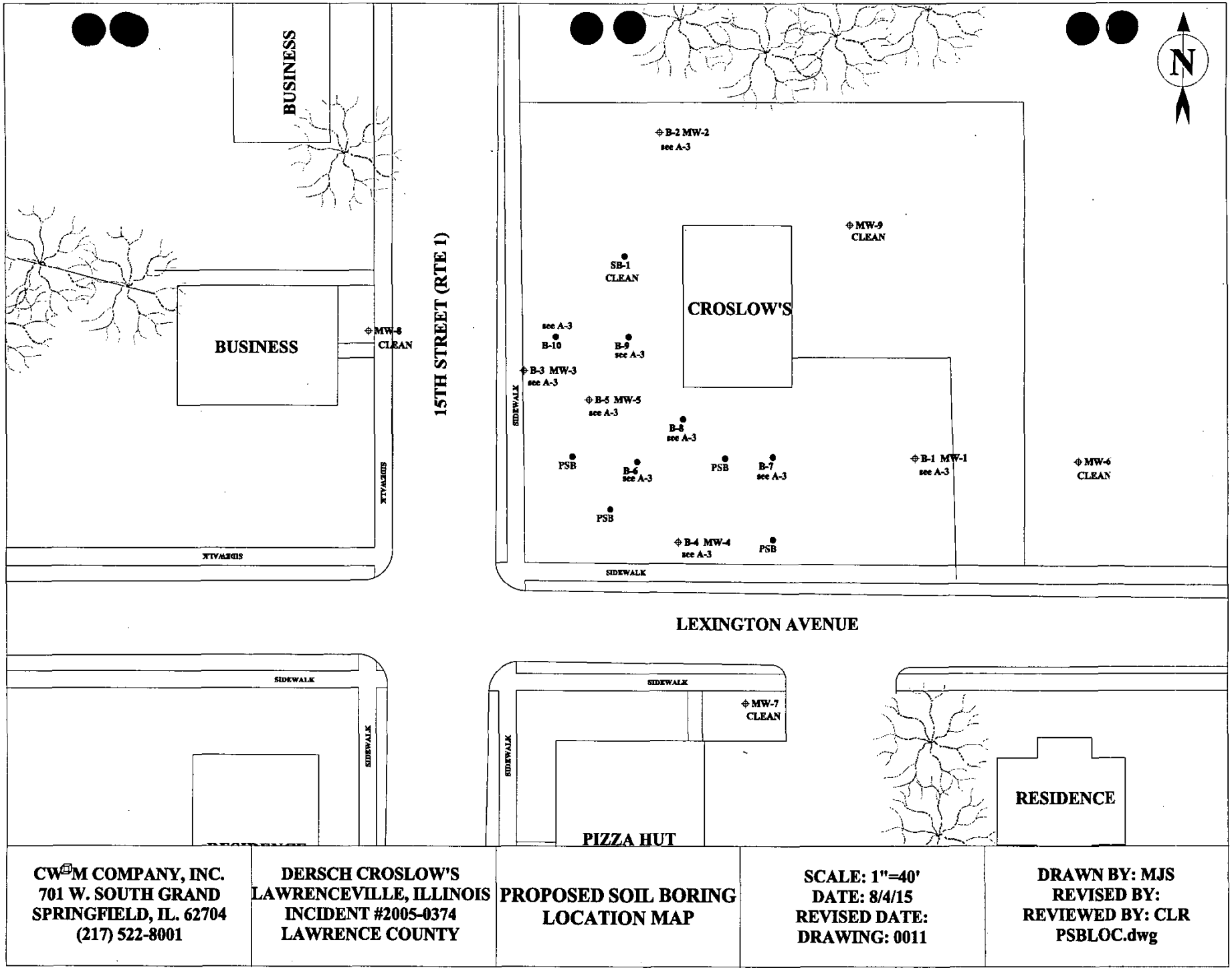
CW[D]M COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	GROUNDWATER CONTAMINATION MAP	SCALE: 1"=40' DATE: 4/28/14 REVISED DATE: DRAWING: 0008	DRAWN BY: BMW REVISED BY: REVIEWED BY: CLR GWcont.dwg



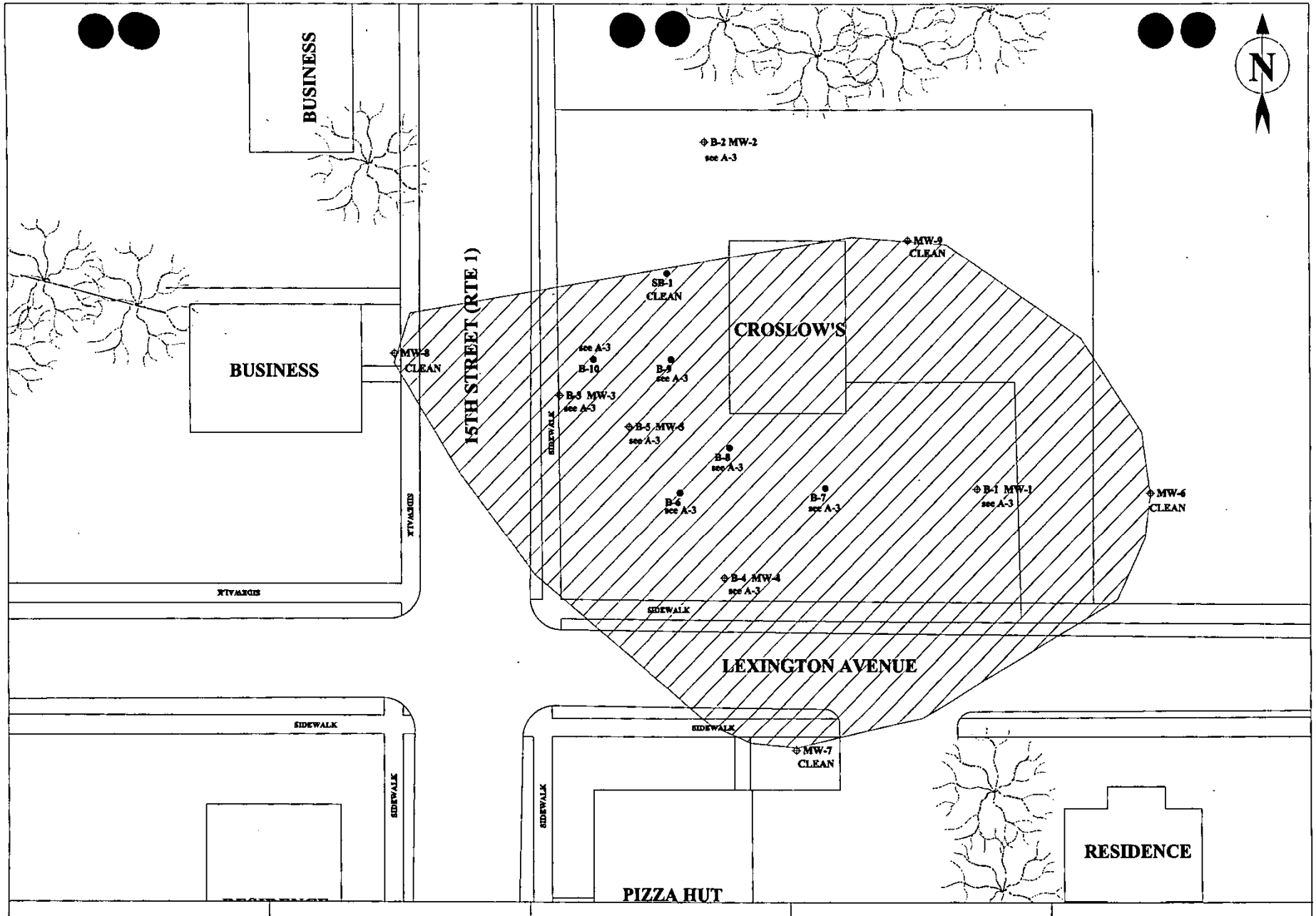
CW[illegible]M COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	GROUNDWATER CONTAMINATION MODELING MAP	SCALE: 1"=60' DATE: 8/4/15 REVISED DATE: DRAWING: 0009	DRAWN BY: MJS REVISED BY: REVIEWED BY: CLR model.dwg



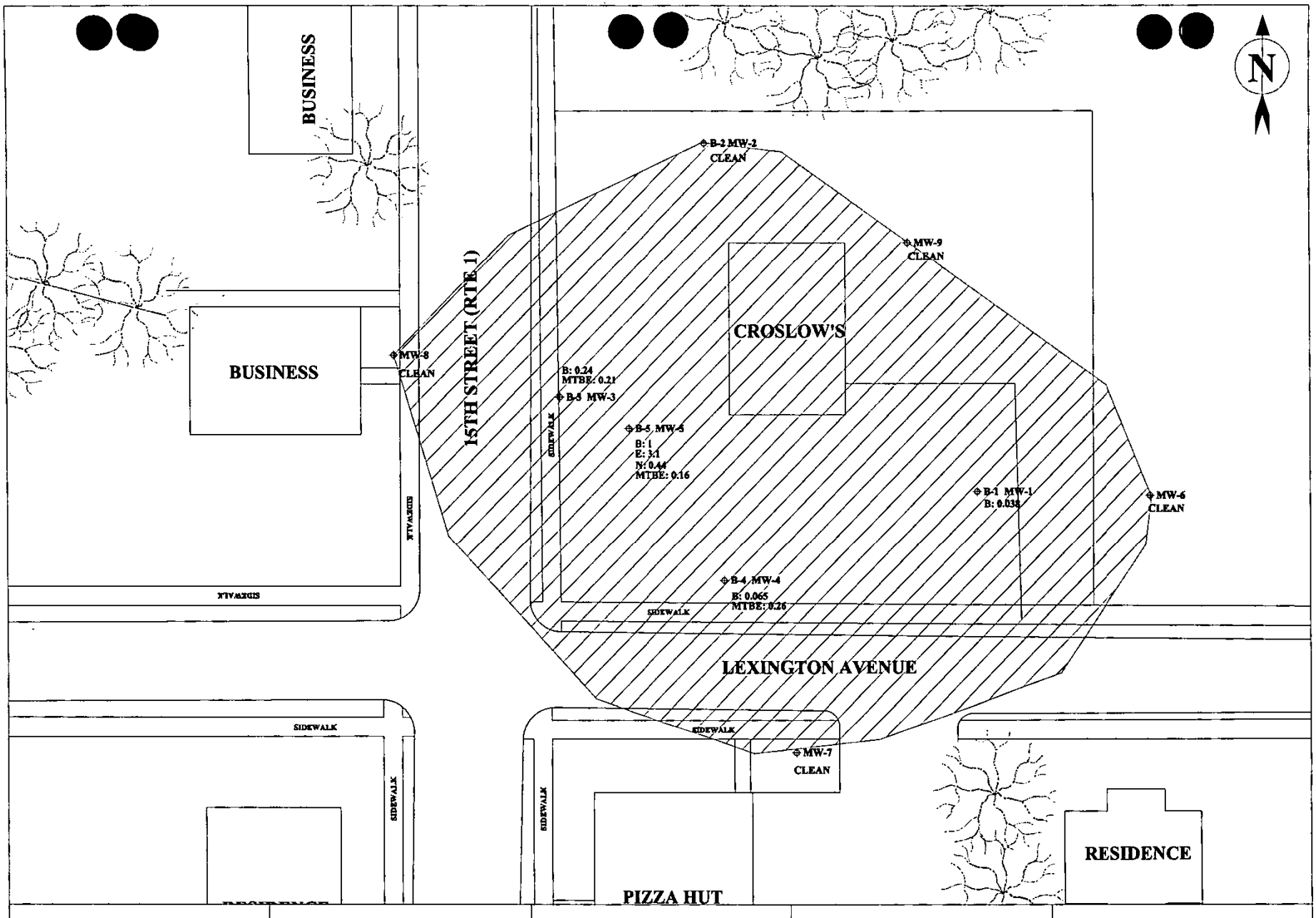
CW[M] COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	TACO PARAMETERS MAP	SCALE: 1"=40' DATE: 8/4/15 REVISED DATE: DRAWING: 0010	DRAWN BY: MJS REVISED BY: REVIEWED BY: CLR TACO.dwg



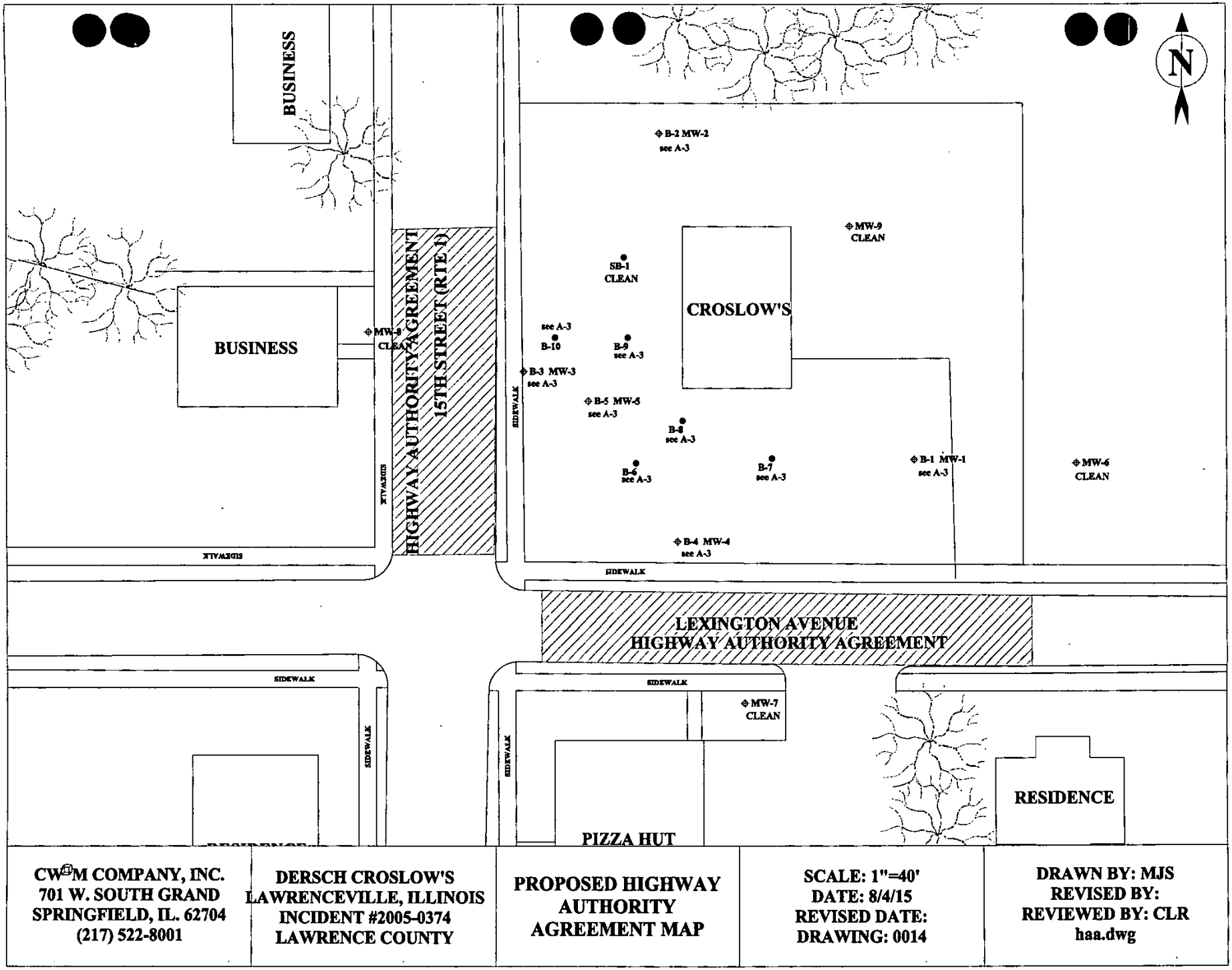
CW[illegible]M COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	PROPOSED SOIL BORING LOCATION MAP	SCALE: 1"=40' DATE: 8/4/15 REVISED DATE: DRAWING: 0011	DRAWN BY: MJS REVISED BY: REVIEWED BY: CLR PSBLOC.dwg



CW[M] COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	SOIL CONTAMINATION PLUME MAP	SCALE: 1"=40' DATE: 8/4/15 REVISED DATE: DRAWING: 0012	DRAWN BY: MJS REVISED BY: REVIEWED BY: CLR SoilPlume.dwg



CW[D]M COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	GROUNDWATER CONTAMINATION PLUME MAP	SCALE: 1"=40' DATE: 8/4/15 REVISED DATE: DRAWING: 0013	DRAWN BY: MJS REVISED BY: REVIEWED BY: CLR GWplume.dwg



CW[M] COMPANY, INC. 701 W. SOUTH GRAND SPRINGFIELD, IL. 62704 (217) 522-8001	DERSCH CROSLOW'S LAWRENCEVILLE, ILLINOIS INCIDENT #2005-0374 LAWRENCE COUNTY	PROPOSED HIGHWAY AUTHORITY AGREEMENT MAP	SCALE: 1"=40' DATE: 8/4/15 REVISED DATE: DRAWING: 0014	DRAWN BY: MJS REVISED BY: REVIEWED BY: CLR haa.dwg

APPENDIX C

OSFM ELIGIBILITY DETERMINATION

CORRECTIVE ACTION PLAN
DERSCH CROSLOW'S
LAWRENCEVILLE, ILLINOIS

Office of the Illinois
State Fire Marshal

General Office
217-785-0969
FAX
217-782-1062
Divisions
ARSON INVESTIGATION
217-782-9116
BOILER and PRESSURE VESSEL SAFETY
217-782-2696
FIRE PREVENTION
217-785-4714
MANAGEMENT SERVICES
217-782-9889
INFIRS
217-785-5825
HUMAN RESOURCES
217-785-1025
PERSONNEL STANDARDS and EDUCATION
217-782-4542
PETROLEUM and CHEMICAL SAFETY
217-785-5878
PUBLIC INFORMATION
217-785-1021
WEB SITE
www.state.il.us/osfm

CERTIFIED MAIL - RECEIPT REQUESTED #7003 3110 0004 1273 6538

May 5, 2005

Dersch Energies, Inc.
620 Oak Street
P.O. Box 217
Mount Carmel, IL 62863

In Re: Facility No. 7-009254
IEMA Incident No. 05-0374
Croslow's Shell
1421 Lexington
Lawrenceville, Lawrence Co., IL

Dear Applicant:

The Reimbursement Eligibility and Deductible Application received on March 31, 2005 for the above referenced occurrence has been reviewed. The following determinations have been made based upon this review.

It has been determined that you are eligible to seek payment of costs in excess of $10,000. The costs must be in response to the occurrence referenced above and associated with the following tanks:

Eligible Tanks

Tank 1 6,000 gallon Gasoline
Tank 2 6,000 gallon Gasoline
Tank 3 6,000 gallon Gasoline
Tank 4 1,000 gallon Diesel

You must contact the Illinois Environmental Protection Agency to receive a packet of Agency billing forms for submitting your request for payment.

An owner or operator is eligible to access the Underground Storage Tank Fund if the eligibility requirements are satisfied:

1. Neither the owner nor the operator is the United States Government,

2. The tank does not contain fuel which is exempt from the Motor Fuel Tax Law,

3. The costs were incurred as a result of a confirmed release of any of the following substances:

"Fuel", as defined in Section 1.19 of the Motor Fuel Tax Law

Aviation fuel

Heating oil

Kerosene

Used oil, which has been refined from crude oil used in a motor vehicle, as defined in Section 1.3 of the Motor Fuel Tax Law.

4. The owner or operator registered the tank and paid all fees in accordance with the statutory and regulatory requirements of the Gasoline Storage Act.

5. The owner or operator notified the Illinois Emergency Management Agency of a confirmed release, the costs were incurred after the notification and the costs were a result of a release of a substance listed in this Section. Costs of corrective action or indemnification incurred before providing that notification shall not be eligible for payment.

6. The costs have not already been paid to the owner or operator under a private insurance policy, other written agreement, or court order.

7. The costs were associated with "corrective action".

This constitutes the final decision as it relates to your eligibility and deductibility. We reserve the right to change the deductible determination should additional information that would change the determination become available. An underground storage tank owner or operator may appeal the decision to the Illinois Pollution Control Board (Board), pursuant to Section 57.9 (c) (2). An owner or operator who seeks to appeal the decision shall file a petition for a hearing before the Board within 35 days of the date of mailing of the final decision, (35 Illinois Administrative Code 105.102(a) (2)).

For information regarding the filing of an appeal, please contact:

Dorothy Gunn, Clerk
Illinois Pollution Control Board
State of Illinois Center
100 West Randolph, Suite 11-500
Chicago, Illinois 60601
(312) 814-3620

The following tanks are also listed for this site:

Tank 5 560 gallon Used Oil

Your application indicates that there has not been a release from these tanks under this incident number. You may be eligible to seek payment of corrective action costs associated with these tanks if it is determined that there has been a release from one or more of these tanks. Once it is determined that there has been a release from one or more of these tanks you may submit a separate application for an eligibility determination to seek corrective action costs associated with this/these tanks.

If you have any questions, please contact our Office at (217) 785-1020 or (217) 785-5878.

Sincerely,

Deanne Lock
Administrative Assistant
Division of Petroleum and Chemical Safety

cc: IEPA
Facility File

APPENDIX D

CORRECTIVE ACTION PLAN BUDGET AND CERTIFICATION

CORRECTIVE ACTION PLAN
DERSCH CROSLOW'S
LAWRENCEVILLE, ILLINOIS

Owner/Operator and Licensed Professional Engineer/Geologist Budget Certification Form

I hereby certify that I intend to seek payment from the UST Fund for costs incurred while performing corrective action activities for Leaking UST incident 20050374. I further certify that the costs set forth in this budget are for necessary activities and are reasonable and accurate to the best of my knowledge and belief. I also certify that the costs included in this budget are not for corrective action in excess of the minimum requirements of 415 ILCS 5/57, no costs are included in this budget that are not described in the corrective action plan, and no costs exceed Subpart H: Maximum Payment Amounts, Appendix D Sample Handling and Analysis amounts, and Appendix E Personnel Titles and Rates of 35 Ill. Adm. Code 732 or 734. I further certify that costs ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 732.606 or 734.630 are not included in the budget proposal or amendment. Such ineligible costs include but are not limited to:

Costs associated with ineligible tanks.
Costs associated with site restoration (e.g., pump islands, canopies).
Costs associated with utility replacement (e.g., sewers, electrical, telephone, etc.).
Costs incurred prior to IEMA notification.
Costs associated with planned tank pulls.
Legal fees or costs.
Costs incurred prior to July 28, 1989.
Costs associated with installation of new USTs or the repair of existing USTs.

Owner/Operator: Dersch Energies, Inc.

Authorized Representative: Tom Dersch Title: Owner President

Signature: Tom Dersch, President Date: 11-4-2015

Subscribed and sworn to before me the 4th day of November, 2015.

Dorothy Dersch (Notary Public)

Seal: OFFICIAL SEAL DOROTHY DERSCH NOTARY PUBLIC - STATE OF ILLINOIS MY COMMISSION EXPIRES SEPT 30, 2018

In addition, I certify under penalty of law that all activities that are the subject of this plan, budget, or report were conducted under my supervision or were conducted under the supervision of another Licensed Professional Engineer or Licensed Professional Geologist and reviewed by me; that this plan, budget, or report and all attachments were prepared under my supervision; that, to the best of my knowledge and belief, the work described in the plan, budget, or report has been completed in accordance with the Environmental Protection Act [415 ILCS 5], 35 Ill. Adm. Code 732 or 734, and generally accepted standards and practices of my profession; and that the information presented is accurate and complete. I am aware there are significant penalties for submitting false statements or representations to the Illinois EPA, including but not limited to fines, imprisonment, or both as provided in Sections 44 and 57.17 of the Environmental Protection Act [415 ILCS 5/44 and 57.17].

L.P.E./L.P.G.: Vince E. Smith, P.E. L.P.E./L.P.G. Seal: VINCE E. SMITH 5710 ILLINOIS

L.P.E./L.P.G. Signature: Vince E. Smith Date: 11/9/2015

Subscribed and sworn to before me the 9th day of November, 2015.

(Notary Public) Seal: OFFICIAL SEAL CAROL L. ROWE NOTARY PUBLIC, STATE OF ILLINOIS MY COMMISSION EXPIRES 3-18-2017

The Illinois EPA is authorized to require this information under 415 ILCS 5/1. Disclosure of this information is required. Failure to do so may result in the delay or denial of any budget or payment requested hereunder.

General Information for the Budget and Billing Forms

LPC #: 1010155024 County: Lawrence

City: Lawrenceville Site Name: Dersch Croslow's

Site Address: 1421 Lexington Avenue

IEMA Incident No.: 2005-0374

IEMA Notification Date.: Mar 17, 2005

Date this form was prepared: Aug 17, 2015

This form is being submitted as a (check one):

- ☒ Budget Proposal
- ☐ Budget Amendment (Budget amendments must include only the costs over the previous budget.)
- ☐ Billing Package

Please provide the name(s) and date(s) of report(s) documenting the costs requested:

Name(s):

Date(s):

This package is being submitted for the site activities indicated below :

35 Ill. Adm. Code 734:

- ☐ Early Action
- ☐ Free Product Removal after Early Action
- ☐ Site Investigation Stage 1: ☐ Stage 2: ☐ Stage 3: ☐
- ☒ Corrective Action

RECEIVED
NOV 10 2015
IEPA/BOL

35 Ill. Adm. Code 732:

- ☐ Early Action
- ☐ Free Product Removal after Early Action
- ☐ Site Classification
- ☐ Low Priority Corrective Action
- ☐ High Priority Corrective Action

35 Ill. Adm. Code 731:

- ☐ Site Investigation
- ☐ Corrective Action

IL 532 -2825
LPC 630 Rev. 1/ 2007

General Information for the Budget and Billing Forms

The following address will be used as the mailing address for checks and any final determination letters regarding payment from the Fund.

Pay to the order of: Dersch Energies, Inc. / Croslow's Shell

Send in care of: CWM Company, Inc.

Address: P.O. Box 571

City: Carlinville State: IL Zip: 62626

The payee is the: Owner ☒ Operator ☐ (Check one or both.)

Signature of the owner or operator of the UST(s) (required)

W-9 must be submitted.
Click here to print off a W-9 Form.

Number of petroleum USTs in Illinois presently owned or operated by the owner or operator; any subsidiary, parent or joint stock company of the owner or operator; and any company owned by any parent, subsidiary or joint stock company of the owner or operator:

Fewer than 101: ☒ 101 or more: ☐

Number of USTs at the site: 4 (Number of USTs includes USTs presently at the site and USTs that have been removed.)

Number of incidents reported to IEMA for this site: 2

Incident Numbers assigned to the site due to releases from USTs: 20050374

Please list all tanks that have ever been located at the site and tanks that are presently located at the site.

Product Stored in UST	Size (gallons)	Did UST have a release?	Incident No.	Type of Release Tank Leak / Overfill / Piping Leak
Gasoline	6,000	Yes ☒ No ☐	20050374	Tank Leak
Gasoline	6,000	Yes ☒ No ☐	20050374	Tank Leak
Gasoline	6,000	Yes ☒ No ☐	20050374	Tank Leak
Diesel Fuel	1,000	Yes ☐ No ☒		
Used Oil	560	Yes ☒ No ☐	2005-0374	Tank Leak
		Yes ☐ No ☐		
		Yes ☐ No ☐		
		Yes ☐ No ☐		
		Yes ☐ No ☐		

Add More Rows | Undo Last Add

Budget Summary

Choose the applicable regulation: (•) 734 ( ) 732

734	Free Product	Stage 1 Site Investigation	Stage 2 Site Investigation	Stage 3 Site Investigation	Corrective Action
					Proposed
Drilling and Monitoring Well Costs Form	$	$	$	$	$ 1,486.97
Analytical Costs Form	$	$	$	$	$ 1,757.16
Remediation and Disposal Costs Form	$	$	$	$	$
UST Removal and Abandonment Costs Form	$	$	$	$	$
Paving, Demolition, and Well Abandonment Costs Form	$	$	$	$	$ 1,672.65
Consulting Personnel Costs Form	$	$	$	$	$ 46,397.44
Consultant's Materials Costs Form	$	$	$	$	$ 1,255.50
Handling Charges Form	Handling charges will be determined at the time a billing package is submitted to the Illinois EPA. The amount of allowable handling charges will be determined in accordance with the Handling Charges Form.				
Total	$	$	$	$	$ 52,569.72

Drilling and Monitoring Well Costs Form

1. Drilling

Number of Borings to Be Drilled	Type HSA/PUSH/ Injection	Depth (feet) of Each Boring	Total Feet Drilled	Reason for Drilling
4	PUSH	10.00	40.00	On-site Soil Plume Delineation

☒ Subpart H minimum payment amount applies.

	Total Feet	Rate per Foot ($)	Total Cost ($)
Total Feet via HSA:		28.50	
Total Feet via PUSH:	40.00	22.30	892.00
Total Feet for Injection via PUSH:		18.59	
		Total Drilling Costs:	1,486.97

2. Monitoring / Recovery Wells

Number of Wells	Type of Well HSA / PUSH / 4" or 6" Recovery / 8" Recovery	Diameter of Well (inches)	Depth of Well (feet)	Total Feet of Wells to Be Installed ($)

Well Installation	Total Feet	Rate per Foot ($)	Total Cost ($)
Total Feet via HSA:			
Total Feet via PUSH:			
Total Feet of 4" or 6" Recovery:			
Total Feet of 8" or Greater Recovery:			
		Total Well Costs:	

Total Drilling and Monitoring Well Costs:	$1,486.97

Analytical Costs Form

Laboratory Analysis	Number of Samples		Cost ($) per Analysis		Total per Parameter
Chemical Analysis					
BETX Soil with MTBE EPA 8260	8	X	105.33	=	$842.64
BETX Water with MTBE EPA 8260		X		=	
COD (Chemical Oxygen Demand)		X		=	
Corrosivity		X		=	
Flash Point or Ignitability Analysis EPA 1010		X		=	
Fraction Organic Carbon Content (f_{oc}) ASTM-D 2974-00		X		=	
Fat, Oil, & Grease (FOG)		X		=	
LUST Pollutants Soil - analysis must include volatile, base/ neutral, polynuclear aromatics and metals list in Section 732. Appendix B and 734.Appendix B		X		=	
Dissolved Oxygen (DO)		X		=	
Paint Filter (Free Liquids)		X		=	
PCB / Pesticides (combination)		X		=	
PCBs		X		=	
Pesticides		X		=	
pH		X		=	
Phenol		X		=	
Polynuclear Aromatics PNA, or PAH SOIL EPA 8270	4	X	188.36	=	$753.44
Polynuclear Aromatics PNA, or PAH WATER EPA 8270		X		=	
Reactivity		X		=	
SVOC - Soil (Semi-Volatile Organic Compounds)		X		=	
SVOC - Water (Semi-Volatile Organic Compounds)		X		=	
TKN (Total Kjeldahl) "nitrogen"		X		=	
TPH (Total Petroleum Hydrocarbons)		X		=	
VOC (Volatile Organic Compounds) - Soil (Non-Aqueous)		X		=	
VOC (Volatile Organic Compounds) - Water		X		=	
		X		=	
		X		=	
		X		=	
		X		=	
		X		=	
Geo-Technical Analysis					
Soil Bulk Density (p_b) ASTM D2937-94		X		=	
Ex-situ Hydraulic Conductivity / Permeability		X		=	
Moisture Content (w) ASTM D2216-92 / D4643-93		X		=	
Porosity		X		=	
Rock Hydraulic Conductivity Ex-situ		X		=	
Sieve / Particle Size Analysis ASTM D422-63 / D1140-54		X		=	
Soil Classification ASTM D2488-90 / D2487-90		X		=	
Soil Particle Density (p_s) ASTM D854-92		X		=	
		X		=	
		X		=	
		X		=	

Analytical Costs Form

Metals Analysis					
Soil preparation fee for Metals TCLP Soil (one fee per soil sample)		X		=	
Soil preparation fee for Metals Total Soil (one fee per soil sample)		X		=	
Water preparation fee for Metals Water (one fee per water sample)		X		=	
Arsenic TCLP Soil		X		=	
Arsenic Total Soil		X		=	
Arsenic Water		X		=	
Barium TCLP Soil		X		=	
Barium Total Soil		X		=	
Barium Water		X		=	
Cadmium TCLP Soil		X		=	
Cadmium Total Soil		X		=	
Cadmium Water		X		=	
Chromium TCLP Soil		X		=	
Chromium Total Soil		X		=	
Chromium Water		X		=	
Cyanide TCLP Soil		X		=	
Cyanide Total Soil		X		=	
Cyanide Water		X		=	
Iron TCLP Soil		X		=	
Iron Total Soil		X		=	
Iron Water		X		=	
Lead TCLP Soil		X		=	
Lead Total Soil		X		=	
Lead Water		X		=	
Mercury TCLP Soil		X		=	
Mercury Total Soil		X		=	
Mercury Water		X		=	
Selenium TCLP Soil		X		=	
Selenium Total Soil		X		=	
Selenium Water		X		=	
Silver TCLP Soil		X		=	
Silver Total Soil		X		=	
Silver Water		X		=	
Metals TCLP Soil (a combination of all metals) RCRA		X		=	
Metals Total Soil (a combination of all metals) RCRA		X		=	
Metals Water (a combination of all metals) RCRA		X		=	
		X		=	
		X		=	
		X		=	
		X		=	
Other					
EnCore® Sampler, purge-and-trap sampler, or equivalent sampling device	8	X	12.39	=	$99.12
Sample Shipping per sampling event[1]	1	X	61.96	=	$61.96

[1]A sampling event, at a minimum, is all samples (soil and groundwater) collected in a calendar day.

Total Analytical Costs: $ 1,757.16

Paving, Demolition, and Well Abandonment Costs Form

A. Concrete and Asphalt Placement/Replacement

Number of Square Feet	Asphalt or Concrete	Thickness (inches)	Cost ($) per Square Foot	Replacement or Placement for an Engineered Barrier	Total Cost

Total Concrete and Asphalt Placement/Replacement Costs:	

B. Building Destruction or Dismantling and Canopy Removal

Item to Be Destroyed, Dismantled, or Removed	Unit Cost ($)	Total Cost ($)

Total Building Destruction or Dismantling and Canopy Removal Costs:	

Paving, Demolition, and Well Abandonment Costs Form

C. Well Abandonment

Monitoring Well ID #	Type of Well (HSA / PUSH / Recovery)	Depth of Well (feet)	Cost ($) per Foot	Total Cost
MW-1	HSA	15.00	12.39	$185.85
MW-2	HSA	15.00	12.39	$185.85
MW-3	HSA	15.00	12.39	$185.85
MW-4	HSA	15.00	12.39	$185.85
MW-5	HSA	15.00	12.39	$185.85
MW-6	HSA	15.00	12.39	$185.85
MW-7	HSA	15.00	12.39	$185.85
MW-8	HSA	15.00	12.39	$185.85
MW-9	HSA	15.00	12.39	$185.85

Total Monitoring Well Abandonment Costs:	**$1,672.65**

Total Paving, Demolition, and Well Abandonment Costs:	**$1,672.65**

Consulting Personnel Costs Form

Employee Name	Personnel Title	Hours	Rate* ($)	Total Cost
Remediation Category	**Task**			
	Senior Project Manager	6.00	123.91	$743.46
CCAP	Report Coordination / Technical Oversight / Compliance			
	Senior Prof. Engineer	3.00	161.09	$483.27
CCAP	Report Review and Certification			
	Engineer III	8.00	123.91	$991.28
CCAP	Corrective Action Design / Report Development / IEPA Correspondence			
	Senior Draftperson/CAD	6.00	74.34	$446.04
CCAP	Drafting and Editing Maps for Report			
	Engineer I	40.00	92.93	$3,717.20
CCAP	CAP Inputs / CAP Preparation			
	Senior Admin. Assistant	3.00	55.76	$167.28
CCAP	Report Compilation, Assembly, and Distribution			
	Professional Engineer	4.00	136.31	$545.24
TACO 2 or 3	TACO GW Modeling / Plume Delineation			
	Engineer I	18.00	92.93	$1,672.74
TACO 2 or 3	TACO Tier 2 Calculations / Development of CUOs			
	Senior Project Manager	6.00	123.91	$743.46
TACO 2 or 3	Groundwater Flow Calculation / Modeling Review / Assessment of Analytical			

Employee Name	Personnel Title	Hours	Rate* ($)	Total Cost
Remediation Category	**Task**			
	Senior Project Manager	8.00	123.91	$991.28
CCAP-Budget	Budget Compliance / Technical Oversight			
	Engineer I	22.00	92.93	$2,044.46
CCAP-Budget	Budget Calculations / Design			
	Senior Prof. Engineer	3.00	161.09	$483.27
CCAP-Budget	Budget Review & Certification			
	Senior Admin. Assistant	2.00	55.76	$111.52
CCAP-Budget	Budget Compilation, Assembly, and Distribution			
	Engineer III	8.00	123.91	$991.28
CCAP-Budget	Budget Inputs / Preparation			

Employee Name	Personnel Title	Hours	Rate* ($)	Total Cost
Remediation Category	**Task**			
	Senior Admin. Assistant	6.00	55.76	$334.56
ELUC	Groundwater Notification / Correspondence			
	Engineer III	24.00	123.91	$2,973.84
ELUC	Groundwater Ordinance Negotiation / Ordinance Notifications / Meeting with City			
	Senior Project Manager	8.00	123.91	$991.28
ELUC	Groundwater Ordinance Negotation / Correspondence / Notifications			
	Senior Project Manager	4.00	123.91	$495.64
HAA	Highway Authority Agreement IDOT Compliance / Technical Oversight			
	Senior Prof. Engineer	3.00	161.09	$483.27
HAA	HAA IDOT Certification			
	Engineer III	30.00	123.91	$3,717.30
HAA	HAA IDOT Development / Design / Correspondence			
	Senior Admin. Assistant	2.00	55.76	$111.52
HAA	HAA IDOT Compilation / Assembly / Distribution			
	Senior Draftperson/CAD	8.00	74.34	$594.72
HAA	Drafting of HAA IDOT Maps			

Employee Name	Personnel Title	Hours	Rate* ($)	Total Cost
Remediation Category	**Task**			
	Senior Project Manager	4.00	123.91	$495.64
HAA	HAA City Compliance / Technical Oversight			
	Senior Prof. Engineer	3.00	161.09	$483.27
HAA	HAA City Certification			
	Engineer III	30.00	123.91	$3,717.30
HAA	HAA City Development / Design / Correspondence			
	Senior Admin. Assistant	2.00	55.76	$111.52
HAA	HAA City Compilation / Assembly / Distribution			
	Senior Draftperson/CAD	8.00	74.34	$594.72
HAA	Drafting of HAA City Maps			

Employee Name	Personnel Title	Hours	Rate* ($)	Total Cost
Remediation Category	**Task**			
	Senior Project Manager	6.00	123.91	$743.46
CCA-Field	Drilling Coordination / Techincal Compliance / Scheduling			
	Senior Admin. Assistant	2.00	55.76	$111.52
CCA-Field	Office Preparation / Scheduling / Arrangements for Investigation			
	Professional Geologist	10.00	113.99	$1,139.90
CCA-Field	On-site Drilling			
	Engineer III	10.00	123.91	$1,239.10
CCA-Field	On-Site Drilling Oversight			
	Senior Project Manager	8.00	123.91	$991.28
CCA-Field	Analytical Review / Field Reports / SI Documentation / Boring Logs Review			
	Senior Draftperson/CAD	6.00	74.34	$446.04
CCA-Field	Drafting Locations / Elevations / Contamination Levels / Drilling Preparation			
	Engineer I	4.00	92.93	$371.72
CCA-Field	Boring/ Analysis Log Data Entry			

Employee Name	Personnel Title	Hours	Rate* ($)	Total Cost
Remediation Category	**Task**			
	Senior Prof. Engineer	6.00	161.09	$966.54
CA-Pay	Reimbursement Review and Certification			
	Senior Acct. Technician	30.00	68.14	$2,044.20
CA-Pay	Reimbursement Preparation			
	Senior Admin. Assistant	8.00	55.76	$446.08
CA-Pay	Reimbursement Compilation, Assembly, and Distribution			
	Senior Project Manager	16.00	123.91	$1,982.56
CA-Pay	Reimbursement Compliance / Technical Oversight			

Employee Name	Personnel Title	Hours	Rate* ($)	Total Cost
Remediation Category	**Task**			
	Senior Project Manager	6.00	123.91	$743.46
CACR	Report Coordination / Technical Oversight / Compliance			
	Senior Prof. Engineer	4.00	161.09	$644.36
CACR	Report Review and Certification			
	Senior Admin. Assistant	4.00	55.76	$223.04
CACR	Report Compilation, Assembly, and Distribution			
	Senior Project Manager	2.00	123.91	$247.82
CACR	NFR Review / IEPA Correspondence / Submittal Recorded NFR			
	Senior Admin. Assistant	2.00	55.76	$111.52
CACR	NFR Recording / Correspondence with City / Sending Fee			
	Engineer III	8.00	123.91	$991.28
CACR	Report Preparation / Development			
	Engineer I	40.00	92.93	$3,717.20
CACR	Report Development / Inputs			

*Refer to the applicable Maximum Payment Amounts document.

Total of Consulting Personnel Costs	**$46,397.44**

Consultant's Materials Costs Form

Materials, Equipment, or Field Purchase	Time or Amount Used	Rate ($)	Unit	Total Cost
Remediation Category	**Description/Justification**			
Copies	600.00	.15	/each	$90.00
CCAP	Copies of Plan and Report / Draft Plan			
Postage	3.00	6.00	/each	$18.00
CCAP	Report/ Forms/ Draft/ Distribution			
Copies	300.00	.15	/each	$45.00
CCAP-Budget	Copies of Budget/ Draft			
Postage	3.00	6.00	/each	$18.00
CCAP-Budget	Budget Distribution			
Copies	800.00	.15	/each	$120.00
CACR	Copies of Completion Report and Attachments/ Draft			
Postage	3.00	6.00	/each	$18.00
CACR	Completion Report Distribution/ Draft			
Copies	1,200.00	.15	/each	$180.00
CA-Pay	Copies of Reimbursement Claims			
Postage	6.00	8.00	/each	$48.00
CA-Pay	Reimbursement Distribution/ Forms			
Copies	1.00	70.00	/each	$70.00
CACR	NFR County Recording Fee			

Materials, Equipment, or Field Purchase	Time or Amount Used	Rate ($)	Unit	Total Cost
Remediation Category	**Description/Justification**			
Postage	4.00	6.00	/each	$24.00
CACR	NFR Recording / Correspondence - County / IEPA / Client			
Copies	150.00	.15	/each	$22.50
CACR	NFR Recording / Submittal / IEPA Correspondence			
Postage	8.00	6.00	/each	$48.00
ELUC	Groundwater Ordinance Negotiation / Ordinance Notification			
Copies	400.00	.15	/each	$60.00
ELUC	Groundwater Ordinance / Ordinance Notification			
PID Rental	1.00	148.00	/day	$148.00
CCA-Field	To detect VOC levels in soil samples			
Measuring Wheel	1.00	21.00	/day	$21.00
CCA-Field	Mapping sampling locations			
Mileage	310.00	.65	/mile	$201.50
CCA-Field	One round trip from Springfield office for drilling			
Disposable Gloves	2.00	16.00	/box	$32.00
CCA-Field	Disposable gloves for soil and groundwater sampling			
Copies	150.00	.15	/each	$22.50
CCA-Field	Field Notes / Boring Logs / Analytical / Correspondence			

Materials, Equipment, or Field Purchase	Time or Amount Used	Rate ($)	Unit	Total Cost
Remediation Category	**Description/Justification**			
Postage	4.00	6.00	/each	$24.00
HAA	Highway Authority Agreement Submittals			
Copies	300.00	.15	/each	$45.00
HAA	Copies of Highway Authority Agreements			

Total of Consultant Materials Costs	$1,255.50

APPENDIX E

TACO VARIABLES AND EQUATIONS & HYDRAULIC CONDUCTIVITY CALCULATIONS

CORRECTIVE ACTION PLAN
DERSCH CROSLOW'S
LAWRENCEVILLE, ILLINOIS

R-26 Input/Summary Sheet

Version: 10/25/2013

IEMA Incident # (6 or 8 digit)	2005-0374
IEPA LPC # (10 digit)	1010155024
Site Name:	Dersch Croslow's
Site Address:	1421 Lexington Avenue
City:	Lawrenceville
County:	Lawrence
Zip Code:	62439
SSL Equations Used:	S5,6,7,8,9,10,17,18,19,20,21,22,24
RBCA Equations Used:	R-1, R-2, R3
Contact Information for Individual who Performed Calculat	CWM Company, Inc.,
Land Use:	Residential & Construction Worker
Objective from S17 used in R26:	No
Groundwater:	Class 1
Standard or Mass Limit Equations:	Standard Equations — If Mass Limit, then Specifiy Acres:
Square Feet of Plume for Mass Limit Eq.:	0.00 < use this # above
Date Data is Entered:	April 25, 2014

Entry	Description		
	Holcomb Bulk Density (pcf), or	Shelby Tube Location:	
1.5	Dry Soil Bulk Density (g/cm³ or kg/L): 1.5, or Gravel =2.0, Sand = 1.8, Silt = 1.6, Clay = 1.7, or site specific		
2.65	ρs - Soil Particle Density	Reference	
0.434	Total Soil Porosity	0.434	0.434
0.279	Water Filled Porosity	0.279	0.279
0.155	Air Filled Porosity	0.155	0.155
0.430	θ_T - Total Soil Porosity (RBCA)	0.43 or; Gravel - 0.25; Sand = 0.32; Silt = 0.40; Clay = 0.36	
0.200	w - Average Soil Moisture Content	0.1, or; Subsurface Soil (top 1m) = 0.1; Subsurface Soil (below 1 m) =0.2; or Site Specific	
Silt Loam	USDA Soil Classification (Pick from List)		Entry
0.00200	Fractional Organic Carbon (foc) in g/g	Organic Matter (%):	
		Organic Matter (mg/kg):	
		Total Organic Carbon (g/g):	0.002
7.67E-05	Average Hydraulic Conductivity (cm/sec)	Well Name	
7.67E-05	Falling Hydraulic Conductivity (cm/sec)	MW-3	
	Rising Hydraulic Conductivity (cm/sec)		
0.03403	Hydraulic Gradient (0.02 for sites with no groundwater)	Meters	
10	d_a - Aquifer Thickness (ft)	3.048 m	
10	d_s - Depth of Source (ft) (Vertical Thickness of Contamination)	3.048 m	
	X - Distance along the centerline of the groundwater plume emanating to setback zone or surface water from the source in the direction of groundwater flow (ft) (RBCA)	0 cm	
192	L - Source Length Parallel to Groundwater Flow (ft)	58.576464 m	
162.65	Sw: Source Width -horizontal plane (ft) (RBCA)	4957.572 cm	

Hydraulic Gradient Calculations

MW-8	98.27
MW-1	91.73
Distance:	192.18

$C_{(x)}$ - Concentration of Contaminant in groundwater at distance X from the source (mg/L)		
	Benzene	MTBE
	Toluene	
	Ethylbenzene	
	Total Xylenes	

Surface Water

Chemicals of Concern		
Benzene	Naphthalene	
Toluene		Chrysene
Ethylbenzene		Benzo(k)fluoranthene
Total Xylenes		Indeno(1,2,3-cd)pyrene
MTBE		

☐ Mass Limit Equations

SSL Equations Needed

☑ Inhalation Equations

☑ Groundwater Ingestion Equations

☑ Csat Equations

☐ Fugitive Dust Equations

☑ Ingestion Equations

Text discussion for "i", L, d_a, d_s, S_w, S_d	
Hydraulic Gradient	The **Hydraulic Gradient** (*i*) was determined from an onsite survey of each of the groundwater monitoring wells. The riser elevations were determined and the depth to groundwater was noted in each well. This data was used to generate a potentiometric flow map with contour lines which show potentiometric head. A corresponding flow line, perpendicular to the contour lines, was determined between two known points of groundwater elevation. The hydraulic gradient was determined by the difference in elevation divided by the length of flow between the points.
Source Length	The **Source Length Parallel to Groundwater Flow (L)** was determined from the site map and analytical results. A value of 45.1104 m was used to encompass the length of contamination parallel to groundwater flow. This value is the distance between soil borings BH-1 and BH-2.
Aquifer Thickness	The **Aquifer Thickness (d_a)** is a site specific value determined by the length of the monitoring well screen. The Aquifer Thickness value used in the modeling equations was 3.048 meters.
Depth of Source	The **Depth of Source (d_s)** was determined from the analytical results and soil boring logs. A value of 3.048 m was used to encompass the vertical thickness of contamination based upon a clean soil sample at BH-1A, "hot" samples at BH-2B and BH-2C, and a clean soil sample at BH-2D. Thus the vertical thickness of soil contamination has been determined to be 3.048 m.
Source Width	**The source width perpendicular to groundwater flow direction in the Horizontal Plane (S_w)** was determined from the site map and analytical results. A value of 3566.16 cm was used to encompass the width of contamination in the horizontal plane. This value is the distance between clean wells MW-4 and and MW-6.
Source Depth	**The source width perpendicular to groundwater flow direction in the Vertical Plane (S_d)** was determined from the soil boring logs and analytical results. A value of 304.8 cm was used to encompass the width of contamination in the vertical plane based on the depths of contamination present and the PID readings from the bore logs.

Distance (X)

BENZENE								
Soil Exceedances					Groundwater Exceedances			
Location	Soil Concentration (mg/kg)	X (ft)	Gw_{obj} (mg/L) R26 Csource	C(x) (mg/L)	Location	Groundwater Concentration (mg/L)	X (ft)	C(x) (mg/L)
B-1	0.16	35	0.026	0.0050	MW-1	0.038	43	0.0050
B-3	0.8	70	0.129	0.0049	MW-3	0.240	84	0.0050
B-4	4.7	114	0.759	0.0049	MW-4	0.065	55	0.0048
B-5	3.4	105	0.549	0.0050	MW-5	1.000	121	0.0050
B-6	5.2	117	0.839	0.0049				

Toluene

Soil Exceedances					Groundwater Exceedances			
Location	Soil Concentration (mg/kg)	X (ft)	Gw_{obj} (mg/L) R26 Csource	C(x) (mg/L)	Location	Groundwater Concentration (mg/L)	X (ft)	C(x) (mg/L)

Ethylbenzene

Soil Exceedances					Groundwater Exceedances			
Location	Soil Concentration (mg/kg)	X (ft)	Gw_{obj} (mg/L) R26 Csource	C(x) (mg/L)	Location	Groundwater Concentration (mg/L)	X (ft)	C(x) (mg/L)
B-5	22	4	1.27984363	0.6652	MW-5	3.100	10	0.6821
B-6	21	4	1.222	0.6350				

Total Xylenes								
Soil Exceedances					Groundwater Exceedances			
Location	Soil Concentration (mg/kg)	X (ft)	Gw_{obj} (mg/L) R26 Csource	C(x) (mg/L)	Location	Groundwater Concentration (mg/L)	X (ft)	C(x) (mg/L)

MTBE								
Soil Exceedances					Groundwater Exceedances			
Location	Soil Concentration (mg/kg)	X (ft)	Gw_{obj} (mg/L) R26 Csource	C(x) (mg/L)	Location	Groundwater Concentration (mg/L)	X (ft)	C(x) (mg/L)
B-4	1.2	189	0.284	0.070	MW-3	0.210	148	0.0695
B-5	2	266	0.473	0.070	MW-4	0.260	176	0.0700
B-6	1.9	259	0.449	0.070	MW-5	0.160	113	0.0698

Naphthalene

Soil Exceedances					Groundwater Exceedances			
Location	Soil Concentration (mg/kg)	X (ft)	Gw_{obj} (mg/L) R26 Csource	C(x) (mg/L)	Location	Groundwater Concentration (mg/L)	X (ft)	C(x) (mg/L)
					MW-5	0.440	9	0.1255
								#VALUE!

Benzo[a]pyrene

Soil Exceedances					Groundwater Exceedances			
Location	Soil Concentration (mg/kg)	X (ft)	Gw_{obj} (mg/L) R26 Csource	C(x) (mg/L)	Location	Groundwater Concentration (mg/L)	X (ft)	C(x) (mg/L)

Dersch Croslow's				
GROUNDWATER CLEAN-UP OBJECTIVES				
(mg/L)				
	Most Stringent	**Class I**	**Class II**	**ADLs**
Parameter	**CUO**	**GW**	**GW**	**(U)**
Benzene	**0.005**	**0.005**	0.025	<0.002
Ethylbenzene	**0.7**	**0.7**	1	<0.002
MTBE	**0.07**	**0.07**	**0.07**	<0.005
Toluene	**1.0**	**1.0**	2.5	<0.002
Total Xylenes	**10.0**	**10.0**	**10.0**	<0.005
Acenaphthene	**0.42**	**0.42**	2.1	<0.018
Acenaphthylene^	**0.21**	**0.21**	1.05	<0.010
Anthracene	**2.1**	**2.1**	10.5	<0.0066
Benzo(a)anthracene	**0.00013**	**0.00013**	0.00065	<0.00013
Benzo(a)pyrene	**0.0002**	**0.0002**	0.002	<0.0002
Benzo(b)fluoranthene	**0.00018**	**0.00018**	0.0009	<0.00018
Benzo(g,h,i)perylene^	**0.21**	**0.21**	1.05	<0.00076
Benzo(k)fluoranthene	**0.00017**	**0.00017**	0.00085	<0.00017
Chrysene	**0.0015**	**0.0015**	0.0075	<0.0015
Dibenz(a,h)anthracene	**0.0003**	**0.0003**	0.0015	<0.0003
Fluoranthene	**0.28**	**0.28**	1.4	<0.0021
Fluorene	**0.28**	**0.28**	1.4	<0.0021
Indeno(1,2,3-cd)pyrene	**0.00043**	**0.00043**	0.00215	<0.00043
Naphthalene	**0.14**	**0.14**	0.22	<0.010
Phenanthrene^	**0.21**	**0.21**	1.05	<0.0064
Pyrene	**0.21**	**0.21**	1.05	<0.0027
^Temporary Objectives from additional tables -- 10/1/04				
Updated 12/20/04				

Summary of Tier 2 Calculations
Dersch Croslow's
2005-0374
04/25/14

Table 3

Tier 1 Objectives

		Benzene		Toluene		Ethylbenzene		Total Xylenes		Naphthalene		MTBE	
Residential	Ingestion	12	mg/kg	16,000	mg/kg	7,800	mg/kg	16,000	mg/kg	1,600	mg/kg	780	mg/kg
	Inhalation	0.8	mg/kg	650	mg/kg	400	mg/kg	320	mg/kg	170	mg/kg	8,800	mg/kg
	Migration Class 1	0.03	mg/kg	12	mg/kg	13	mg/kg	150	mg/kg	12	mg/kg	0.32	mg/kg
	Migration Class 2	0.17	mg/kg	29	mg/kg	19	mg/kg	150	mg/kg	18	mg/kg	0.32	mg/kg
Industrial/Commercial	Ingestion	100	mg/kg	410,000	mg/kg	200,000	mg/kg	410,000	mg/kg	41,000	mg/kg	20,000	mg/kg
	Inhalation	1.60	mg/kg	650	mg/kg	400	mg/kg	320	mg/kg	270	mg/kg	8,800	mg/kg
Construction Worker	Ingestion	2,300	mg/kg	410,000	mg/kg	20,000	mg/kg	41,000	mg/kg	4,100	mg/kg	2,000	mg/kg
	Inhalation	2.20	mg/kg	42	mg/kg	58	mg/kg	5.6	mg/kg	1.80	mg/kg	140	mg/kg
Soil Saturation		580	mg/kg	290	mg/kg	150	mg/kg	110	mg/kg	129.83	mg/kg	8,400	mg/kg

Tier 2 SSL Objectives

		Benzene	Equation	Toluene	Equation	Ethylbenzene	Equation	Total Xylenes	Equation	Naphthalene	Equation	MTBE	
Residential	Ingestion	11.64	S-2	1,251	S-1	1,564	S-1	3,129	S-1	313	S-1	156.4	S-1
	Inhalation	1.81	S-6	[illegible]	S-4	[illegible]	S-4	[illegible]	S-4	271.91	S-4	[illegible]	S-4
	Migration Mass-Limit Class 1	0.28	S-28	55.12	S-28	38.58	S-28	[illegible]	S-28	7.72	S-28	3.86	S-28
	Migration Class 1	0.031	S-17	10.60	S-17	12.03	S-17	[illegible]	S-17	11.73	S-17	0.30	S-17
Industrial-Commercial	Ingestion	104.06	S-2	1,635,200	S-1	204,400	S-1	408,800	S-1	40,880	S-1	20,440	S-1
	Inhalation	3.45	S-6	[illegible]	S-4	[illegible]	S-4	[illegible]	S-4	432.91	S-4	[illegible]	S-4
	Migration Mass-Limit Class 1	0.28	S-28	55.12	S-28	38.58	S-28	[illegible]	S-28	7.72	S-28	3.86	S-28
	Migration Class 1	0.031	S-17	10.60	S-17	12.03	S-17	[illegible]	S-17	11.73	S-17	0.30	S-17
Construction Worker	Ingestion	2,258.21	S-3	163,236	S-1	10,202	S-1	81,618	S-1	122,427	S-1	20,405	S-1
	Inhalation	4.86	S-7	[illegible]	S-5	[illegible]	S-5	45.33	S-5	2.80	S-5	363.95	S-5
Soil Saturation		557.58	S-29	280.90	S-29	146.11	S-29	111.10	S-29	129.83	S-29	10,786.01	S-29

all values are in mg/kg

[illegible] Site Specific Value cannot exceed Soil Saturation Limit, otherwise Tier 2 Inhalation or Tier 2 Migration objectives are the Soil Saturation objective

Groundwater Contaminate Concentration Exceedances at Surface Water or Set Back Zone (mg/L)

	Benzene	Equation	Toluene	Equation	Ethylbenzene	Equation	Total Xylenes	Equation	Naphthalene	Equation	MTBE	
Result	#DIV/0!	R-26	#DIV/0!	R-26	#DIV/0!	R-26	#DIV/0!	R-26			#DIV/0!	R-26
Surface Water Objective	0.86		0.6		0.014		0.36					

Version: 10/25/2013

Math for R-26 Calculations
BENZENE MATH FOR VERTICAL SOIL MODELING AND R-26 MODELING OF VERTICAL MODELED SOIL (Attachment A)

Sample Location	C_w = (soil contamination at modeling point) / (Equation B-17)				$GW_{obs} = C_w / DF$				Conversion: 1 foot = 30.48 cm	R-16: $\alpha_x = 0.10 * X$					R-17: $\alpha_y = \alpha_x / 3$				R-18: $\alpha_z = \alpha_y / 20$				"Term 1" = [X / (2 * α_x)]					"Term 2" = (1 - SQRT[1 + (4 * A * α_z) / (U)])								
				C_w	C_w	/ DF	=	GW_{obs} (mg/L)	X (ft)	X (cm)	0.1	x	X (cm)	= α_x (cm)	α_x (cm)	/ 3	=	α_y (cm)	α_y (cm)	/ 20	=	α_z (cm)	X	/ 2	x	α_x	= "Term 1"	1 -	SQRT[	1	+ (	4	x	A	x	α_z	) /	U	] =	"Term 2"
B-1	0.16	/	0.310	=	0.517	/	20.000	=	0.025683	35	1066.8	0.1	x	1066.8	=	106.68	106.68	/	3	=	35.56	106.68	/	20	=	5.334	1066.8	/	2	x	106.68	=	5	1 -	SQRT[	1	+ (| 4 | x | 0.0009 | x | 106.68 |) /	0.52454	] =	-9.3181
B-3	0.6	/	0.310	=	2.583	/	20.000	=	0.12913	70	2133.6	0.1	x	2133.6	=	213.36	213.36	/	3	=	71.12	213.36	/	20	=	10.668	2133.6	/	2	x	213.36	=	5	1 -	SQRT[	1	+ (| 4 | x | 0.0009 | x | 213.36 |) /	0.52454	] =	-9.6686
B-4	4.7	/	0.310	=	15.173	/	20.000	=	0.75864	114	3474.72	0.1	x	3474.72	=	347.472	347.472	/	3	=	115.824	347.472	/	20	=	17.3736	3474.72	/	2	x	347.472	=	5	1 -	SQRT[	1	+ (| 4 | x | 0.0009 | x | 347.472 |) /	0.52454	] =	-9.8367
B-6	3.4	/	0.310	=	10.976	/	20.000	=	0.54880	105	3200.4	0.1	x	3200.4	=	320.04	320.04	/	3	=	106.68	320.04	/	20	=	16.002	3200.4	/	2	x	320.04	=	5	1 -	SQRT[	1	+ (| 4 | x | 0.0009 | x | 320.04 |) /	0.52454	] =	-9.7878
B-8	5.2	/	0.310	=	16.787	/	20.000	=	0.83934	117	3566.16	0.1	x	3566.16	=	356.616	356.616	/	3	=	118.872	356.616	/	20	=	17.8308	3566.16	/	2	x	356.616	=	5	1 -	SQRT[	1	+ (| 4 | x | 0.0009 | x | 356.616 |) /	0.52454	] =	-9.9947

Sample Location	$\beta_1 = S_y / (4 * SQRT[\alpha_y * X])$										$\beta_2 = S_y / (2 * SQRT[\alpha_y * X])$										ERF(β_1) Section 742 APPENDIX C: Table G	ERF(β_2) Section 742 APPENDIX C: Table G	$C_{gw} = C_{source} * e^{-(Term\ 1 + Term\ 2)} * erf(\beta_1) * erf(\beta_2)$									
	S_y	/ (	4	x	SQRT	(α_y	x	X	)) =	β_1	S_y	/ (	2	x	SQRT	(α_y	x	X	)) =	β_2			C_{source}	x e					ERF(β_1)	x	ERF(β_2)	=	mg/L
B-1	4957.572	/ (	4	x	SQRT	(35.56	x	1066.8	)) =	6.36336	200	/ (	2	x	SQRT	(6.334	x	1066.8	)) =	1.32588	1.000000	0.936175	0.02583	x e	5	x	-4.2181	=	1.000000	x	0.936175	=	0.00698
B-3	4957.572	/ (	4	x	SQRT	(71.12	x	2133.6	)) =	3.18168	200	/ (	2	x	SQRT	(10.668	x	2133.6	)) =	0.66293	0.999993	0.651438	0.12913	x e	5	x	-4.8686	=	0.999993	x	0.651438	=	0.00487
B-4	4957.572	/ (	4	x	SQRT	(115.824	x	3474.72	)) =	1.96366	200	/ (	2	x	SQRT	(17.3736	x	3474.72	)) =	0.40760	0.994271	0.435105	0.75864	x e	5	x	-4.8367	=	0.994271	x	0.435105	=	0.00433
B-6	4957.572	/ (	4	x	SQRT	(106.68	x	3200.4	)) =	2.12112	200	/ (	2	x	SQRT	(16.002	x	3200.4	)) =	0.44189	0.997298	0.467978	0.54880	x e	5	x	-4.7878	=	0.997298	x	0.467978	=	0.00499
B-8	4957.572	/ (	4	x	SQRT	(118.872	x	3566.16	)) =	1.96367	200	/ (	2	x	SQRT	(17.8308	x	3566.16	)) =	0.39668	0.992899	0.425085	0.83934	x e	5	x	-4.9947	=	0.992899	x	0.425085	=	0.00489

Dersch Croslow's *2005-0374*

R-35 Calculations
BENZENE MATH FOR R-26 MODELING OF GROUNDWATER (Attachment A)

Sample Location	GW Value	Conversion 1 foot = 30.48 cm		R-16 α_h = 0.10 * X				R-17 α_v = α_h / 3				R-18 α_s = α_v / 20				"Term 1" = [X / (2 * α_s)]					"Term 2" = {1 - SQRT[1 + (4 * λ * α_s) / (U)]}								
		X (ft)	X (cm)	0.1	x	X (cm)	=	α_h (cm)	α_h (cm)	/	3	=	α_v (cm)	α_v (cm)	/	20	=	α_s (cm)	X	/	2	x	α_s	=	"Term 1"	1 -	SQRT[	1 + (| 4 | x | λ | x | α_s |)/	U	] =	"Term 2"
MW-1	0.036	43	1310.64	0.1	x	1310.64	=	131.064	131.064	/	3	=	43.688	131.064	/	20	=	6.5532	1310.64	/	2	x	131.064	=	5	1 -	SQRT[	1 + (| 4 | x | 0.0008 | x | 131.064 |)/	0.52458	] =	-0.3783
MW-3	0.24	84	2560.32	0.1	x	2560.32	=	256.032	256.032	/	3	=	85.344	256.032	/	20	=	12.8016	2560.32	/	2	x	256.032	=	5	1 -	SQRT[	1 + (| 4 | x | 0.0008 | x | 256.032 |)/	0.52458	] =	-0.6604
MW-4	0.045	56	1678.4	0.1	x	1678.4	=	167.84	167.84	/	3	=	55.88	167.84	/	20	=	8.392	1678.4	/	2	x	167.84	=	5	1 -	SQRT[	1 + (| 4 | x | 0.0008 | x | 167.84 |)/	0.52458	] =	-0.4664
MW-5	1	121	3688.08	0.1	x	3688.08	=	368.808	368.808	/	3	=	122.936	368.808	/	20	=	18.4404	3688.08	/	2	x	368.808	=	5	1 -	SQRT[	1 + (| 4 | x | 0.0008 | x | 368.808 |)/	0.52458	] =	-0.8791

Sample Location	$\beta_t = \alpha_h / (4 * SQRT[\alpha_h * X])$									$\beta_s = S_y / (2 * SQRT[\alpha_s * X])$									ERF(β_t)	ERF(β_s)	$C_{ss} = C_{max} * e^{("Term 1" + "Term 2")} * erf(\beta_t) * erf(\beta_s)$									
	S_y	/ (	4	x	SQRT	(	α_h	x	X	)) =	β_t	S_y	/ (	2	x SQRT	(	α_s	x	X	)) =	β_s	Section 7(c) APPENDIX C: Table		C_{max}	x e	("Term 1" + "Term 2")	x	ERF(β_t)	x	ERF(β_s)	=	mg/L
MW-1	4957.572	/ (	4	x	SQRT	(	43.688	x	1310.64	)) =	8.17848	200	/ (	2	x SQRT	(	6.5532	x	1310.64	)) =	1.87903	1.000000	0.872983	0.503800	x e	-0.3783 + -0.6604	x	1.000000	x	0.872983	=	0.00881
MW-3	4957.572	/ (	4	x	SQRT	(	85.344	x	2560.32	)) =	2.98109	200	/ (	2	x SQRT	(	12.8016	x	2560.32	)) =	6.65726	0.999673	0.995787	0.24000	x e	-1.0387	x	0.999673	x	0.995787	=	0.09199
MW-4	4957.572	/ (	4	x	SQRT	(	55.88	x	1678.4	)) =	4.04941	200	/ (	2	x SQRT	(	8.392	x	1678.4	)) =	6.64388	1.000000	0.767143	0.09500	x e	-1.1128	x	1.000000	x	0.767143	=	0.06484
MW-5	4957.572	/ (	4	x	SQRT	(	122.936	x	3688.08	)) =	1.84094	200	/ (	2	x SQRT	(	18.4404	x	3688.08	)) =	9.98346	0.990780	0.412380	1.00000	x e	-1.3167	x	0.990780	x	0.412380	=	0.00604

Dersch Croslow's — **2005-0374**

Math for R-26 Calculations

ETHYLBENZENE MATH FOR VERTICAL SOIL MODELING AND R-26 MODELING OF VERTICAL MODELED SOIL (Attachment A)

Sample Location	C_v = (soil contamination at modeling point) / (Equation S-17)				$GW_{obj} = C_s / DF$					Conversion: 1 foot = 30.48 cm		R-16: a_x = 0.10 * X					R-17: $a_y = a_x / 3$					R-18: $a_z = a_x / 20$				
				C_s	C_s	/	DF	=	GW_{obj} (mg/L)	X (ft)	X (cm)	0.1	x	X (cm)	=	a_x (cm)	a_x (cm)	/	3	=	a_y (cm)	a_x (cm)	/	20	=	a_z (cm)
B-5	22	/	0.859 =	25.597	25.597	/	20.000	=	1.27964	4	121.92	0.1	x	121.92	=	12.192	12.192	/	3	=	4.064	12.192	/	20	=	0.6096
B-6	21	/	0.859 =	24.433	24.433	/	20.000	=	1.22187	4	121.92	0.1	x	121.92	=	12.192	12.192	/	3	=	4.064	12.192	/	20	=	0.6096

Sample Location	"Term 1" = [X / (2 * a_x)]							"Term 2" = (1 - SQRT[1 + (4 * λ * a_x) / (U)])													
	X	/	2	x	a_x	=	"Term 1"	1	-	SQRT [	1	+ (	4	x	λ	x	a_x	) /	U	) =	"Term 2"
B-5	121.92	/	2	x	12.192	=	5	1	-	SQRT [	1	+ (	4	x	0.003	x	12.192	) /	0.52458	) =	-0.1309
B-6	121.92	/	2	x	12.192	=	5	1	-	SQRT [	1	+ (	4	x	0.003	x	12.192	) /	0.52458	) =	-0.1309

Sample Location	$β_1 = S_w / (4 * SQRT[a_y * X])$										$β_2 = S_d / (2 * SQRT[a_z * X])$										ERF($β_1$)	ERF($β_2$)
	S_w	/ (	4	x	SQRT (	a_y	x	X	)) =	$β_1$	S_d	/ (	2	x	SQRT (	a_z	x	X	)) =	$β_2$	Section 742.APPENDIX C: Table G	
B-5	4957.572	/ (	4	x	SQRT (	4.064	x	121.92	)) =	56.67942	200	/ (	2	x	SQRT (	0.6096	x	121.92	)) =	11.69962	1.000000	1.000000
B-6	4957.572	/ (	4	x	SQRT (	4.064	x	121.92	)) =	56.67942	200	/ (	2	x	SQRT (	0.6096	x	121.92	)) =	11.69962	1.000000	1.000000

Sample Location	$C_{(x)} = C_{source} \times e^{(Term 1 \times Term 2)} \times erf(β_1) \times erf(β_2)$									
	C_{source}	x e	("Term 1"	x	"Term 2")	x ERF($β_1$)		x ERF($β_2$)	=	mg/L
B-5	1.27964	x e	5	x	-0.1309	x	1.000000	x 1.000000	=	0.66519
B-6	1.22187	x e	5	x	-0.1309	x	1.000000	x 1.000000	=	0.63496

Dersch Croslow's *2005-0374*

R-26 Calculations

ETHYLBENZENE MATH FOR R-26 MODELING OF GROUNDWATER (Attachment A)

Sample Location	GW Value	Conversion: 1 foot = 30.48 cm		R-16: $\alpha_x = 0.10 * X$					R-17: $\alpha_y = \alpha_x / 3$					R-18: $\alpha_z = \alpha_x / 20$					"Term 1" = [X / (2 * α_x)]							"Term 2" = (1 - SQRT[1 + (4 * λ * α_x) / (U)])													
		X (ft)	X (cm)	0.1	x	X (cm)		α_x (cm)	α_x (cm)	/	3	=	α_y (cm)	α_x (cm)	/	20	=	α_z (cm)	X	/	2	x	α_x	=	"Term 1"	1	-	SQRT[	1	+(	4	x	λ	x	α_x	)/	U	]= "Term 2"
MW-6	3.1	10	304.8	0.1	x	304.8	=	30.48	30.48	/	3	=	10.16	30.48	/	20	=	1.524	304.8	/	2	x	30.48	=	5	1	-	SQRT[	1	+(	4	x	0.003	x	30.48	)/(	0.52458	]= -0.3025

Sample Location	$\beta_1 = S_w / (4 * SQRT[\alpha_y * X])$										$\beta_2 = S_d / (2 * SQRT[\alpha_z * X])$										ERF(β_1)	ERF(β_2)	$C_{(x)} = C_{source} \times e^{(Term 1 \times Term 2)} \times erf(\beta_1) \times erf(\beta_2)$										
																					Section 742 APPENDIX C: Table G											
	S_w	/(	4	x	SQRT	(	α_y	x	X	))=	β_1	S_d	/(	2	x SQRT	(	α_z	x	X	))=	β_2			C_{source}	x e	("Term 1"	x	"Term 2")	x	ERF(β_1)	x	ERF(β_2)	=	mg/L
MW-6	4957.872	/(	4	x	SQRT	(	10.16	x	304.8	))=	22.27177	200	/(	2	x SQRT	(	1.524	x	304.8	))=	4.63961	1.000000	1.000000	3.10000	x e	5	x	-4.3025	x	1.000000	x	1.000000	=	[illegible]

Dersch Croslow's ***2005-0374***

Math for R-26 Calculations

MTBE MATH FOR VERTICAL SOIL MODELING AND R-26 MODELING OF VERTICAL MODELED SOIL (Attachment A)

Sample Location	C_s = (soil contamination at modeling point) / (Equation S-17)					$GW_{obj} = C_s / DF$					Conversion: 1 foot = 30.48 cm		R-16: $\alpha_x = 0.10 * X$					R-17: $\alpha_y = \alpha_x / 3$					R-18: $\alpha_z = \alpha_x / 20$				
					C_s	C_s	/	DF	=	GW_{obj} (mg/L)	X (ft)	X (cm)	0.1	x	X (cm)	=	α_x (cm)	α_x (cm)	/	3	=	α_y (cm)	α_x (cm)	/	20	=	α_z (cm)
B-4	1.2	/	0.211	=	5.674	5.674	/	20.000	=	0.28370	189	5760.72	0.1	x	5760.72	=	576.072	576.072	/	3	=	192.024	576.072	/	20	=	28.8036
B-5	2	/	0.211	=	9.457	9.457	/	20.000	=	0.47283	266	8107.68	0.1	x	8107.68	=	810.768	810.768	/	3	=	270.256	810.768	/	20	=	40.5384
B-6	1.9	/	0.211	=	8.984	8.984	/	20.000	=	0.44919	259	7894.32	0.1	x	7894.32	=	789.432	789.432	/	3	=	263.144	789.432	/	20	=	39.4716

Sample Location	"Term 1" = [X / (2 * α_x)]							"Term 2" = [1 - SQRT[1 + (4 * λ * α_x) / (U)]]													
	X	/	2	x	α_x	=	"Term 1"	1	-	SQRT [	1	+ (	4	x	λ	x	α_x	) /	U	] =	"Term 2"
B-4	5760.72	/	2	x	576.072	=	5	1	-	SQRT [	1	+ (	4	x	0	x	576.072	) /	0.52456	] =	0.0000
B-5	8107.68	/	2	x	810.768	=	5	1	-	SQRT [	1	+ (	4	x	0	x	810.768	) /	0.52456	] =	0.0000
B-6	7894.32	/	2	x	789.432	=	5	1	-	SQRT [	1	+ (	4	x	0	x	789.432	) /	0.52456	] =	0.0000

Sample Location	$\beta_1 = S_w / (4 * SQRT[\alpha_y * X])$										$\beta_2 = S_d / (2 * SQRT[\alpha_z * X])$										ERF(β_1)	ERF(β_2)
																					Section 742 APPENDIX C: Table G	
	S_w	/(	4	x	SQRT (	α_y	x	X	)) =	β_1	S_d	/(	2	x	SQRT (	α_z	x	X	)) =	β_2		
B-4	4957.572	/(	4	x	SQRT (	192.024	x	5760.72	)) =	1.17949	200	/(	2	x	SQRT (	28.8036	x	5760.72	)) =	0.24549	0.904388	0.271543
B-5	4957.572	/(	4	x	SQRT (	270.256	x	8107.68	)) =	0.83728	200	/(	2	x	SQRT (	40.5384	x	8107.68	)) =	0.17443	0.763626	0.194644
B-6	4957.572	/(	4	x	SQRT (	263.144	x	7894.32	)) =	0.86901	200	/(	2	x	SQRT (	39.4716	x	7894.32	)) =	0.17914	0.778054	0.200000

Sample Location	$C_{(x)} = C_{source} \times e^{(Term 1 \times Term 2)} \times erf(\beta_1) \times erf(\beta_2)$										
	C_{source}	x e	("Term 1"	x	"Term 2")	x	ERF(β_1)	x	ERF(β_2)	=	mg/L
B-4	0.28370	x e	5	x	0.0000	x	0.904388	x	0.271543	=	0.06967
B-5	0.47283	x e	5	x	0.0000	x	0.763626	x	0.194644	=	0.07036
B-6	0.44919	x e	5	x	0.0000	x	0.778054	x	0.200000	=	0.06972

Dersch Croslow's 2005-0374

R-2S Calculations

MTBE MATH FOR R-2S MODELING OF GROUNDWATER (Attachment A)

Sample Location	GW Value	Conversion: 1 foot = 30.48 cm		R-16: $\alpha_x = 0.10 * X$				R-17: $\alpha_y = \alpha_x / 3$				R-18: $\alpha_z = \alpha_y / 20$				"Term 1" = [X / (2 * α_x)]					"Term 2" = {1 - SQRT[1 + (4 * λ * α_x) / (U)²]}								
		X (ft)	X (cm)	0.1	x	X (cm)	= α_x (cm)	α_x (cm)	/	3	=	α_y (cm)	α_y (cm)	/	20	=	α_z (cm)	X	/	2	x	α_x	= "Term 1"	1 -	SQRT[	1 + (| 4 | x | λ | x | α_x |)² /	U	]² = "Term 2"
MW-3	0.21	166	4511.04	0.1	x	4511.04	= 451.104	451.104	/	3	=	150.368	451.104	/	20	=	22.5552	4511.04	/	2	x	451.104	= 5	1 -	SQRT[	1 + (| 4 | x | 0 | x | 451.104 |)² /	0.52456	]² = 0.0000
MW-4	0.29	176	5364.48	0.1	x	5364.48	= 536.448	536.448	/	3	=	178.816	536.448	/	20	=	26.8224	5364.48	/	2	x	536.448	= 5	1 -	SQRT[	1 + (| 4 | x | 0 | x | 536.448 |)² /	0.52456	]² = 0.0000
MW-5	0.18	113	3444.24	0.1	x	3444.24	= 344.424	344.424	/	3	=	114.808	344.424	/	20	=	17.2212	3444.24	/	2	x	344.424	= 5	1 -	SQRT[	1 + (| 4 | x | 0 | x | 344.424 |)² /	0.52456	]² = 0.0000

Sample Location	$\beta_1 = S_x / (4 * SQRT[\alpha_x * X])$									$\beta_2 = S_y / (2 * SQRT[\alpha_y * X])$										ERF(β_1)	ERF(β_2)	$C_{GW} = C_{max} \times e^{("Term 1" + "Term 2")} \times erf(\beta_1) \times erf(\beta_2)$								
	S_x	/ (	4	x	SQRT	(	α_x	x	X	))=	β_1	S_y	/ (	2	x SQRT	(	α_y	x	X	))=	β_2	Section 742 APPENDIX C: Table		C_{max}	x e	("Term 1" + "Term 2")	x	erf(β_1)	x	erf(β_2)	= mg/L
MW-3	4957.572	/ (	4	x	SQRT	(	150.368	x	4511.04	))=	1.89486	200	/ (	2	x SQRT	(	22.5552	x	4511.04	))=	0.311369	0.988678	0.342492	0.21000	x e	1	x	0.9887	x	0.926482	x	0.290729	= 0.06383
MW-4	4957.572	/ (	4	x	SQRT	(	178.816	x	5364.48	))=	1.26844	200	/ (	2	x SQRT	(	26.8224	x	5364.48	))=	0.262363	0.926482	0.290729	0.26000	x e	1	x	0.9268	x	0.994586	x	0.438544	= 0.07005
MW-5	4957.572	/ (	4	x	SQRT	(	114.808	x	3444.24	))=	1.97086	200	/ (	2	x SQRT	(	17.2212	x	3444.24	))=	0.410699	0.994586	0.438544	0.18000	x e	1	x	0.9946	x	0.994586	x	0.438544	= 0.08579

Dersch Croslow's *2005-0374*

R-26 Calculations

NAPTHALENE MATH FOR R-26 MODELING OF GROUNDWATER (Attachment A)

Sample Location	GW Value	Conversion: 1 foot = 30.48 cm		R-16: $\alpha_x = 0.10 * X$					R-17: $\alpha_y = \alpha_x / 3$					R-18: $\alpha_z = \alpha_x / 20$				
		X (ft)	X (cm)	0.1	x	X (cm)		α_x (cm)	α_x (cm)	/	3	=	α_y (cm)	α_x (cm)	/	20	=	α_z (cm)
MW-5	0.44	9	274.32	0.1	x	274.32	=	27.432	27.432	/	3	=	9.144	27.432	/	20	=	1.3716
			#VALUE!	0.1	x	#VALUE!	=	#VALUE!	#VALUE!	/	3	=	#VALUE!	#VALUE!	/	20	=	#VALUE!

Sample Location	"Term 1" = $[X / (2 * \alpha_x)]$							"Term 2" = $(1 - SQRT[1 + (4 * \lambda * \alpha_x) / (U)])$													
	X	/	2	x	α_x	=	"Term 1"	1	-	SQRT [	1	+ (	4	x	λ	x	α_x	) /	U	] =	"Term 2"
MW-5	274.32	/	2	x	27.432	=	5	1	-	SQRT [	1	+ (	4	x	0.0027	x	27.432	) /	0.52458	] =	-0.2500
	#VALUE!	/	2	x	#VALUE!	=	#VALUE!	1	-	SQRT [	1	+ (	4	x	0.0027	x	#VALUE!	) /	0.52458	] =	#VALUE!

Sample Location	$\beta_1 = S_w / (4 * SQRT[\alpha_y * X])$											
	S_w	/ (	4	x	SQRT	(	α_y	x	X	)) =	β_1
MW-5	4957.572	/ (	4	x	SQRT	(	9.144	x	274.32	)) =	24.74641
	4957.572	/ (	4	x	SQRT	(	#VALUE!	x	#VALUE!	)) =	#VALUE!

Sample Location	$\beta_2 = S_d / (2 * SQRT[\alpha_z * X])$									ERF(β_1)	ERF(β_2)
	S_d	/ (	2	x SQRT	(	α_z	x	X	)) =	Section 742 APPENDIX C: Table G	
									β_2		
MW-5	200	/ (	2	x SQRT	(	1.3716	x	274.32	)) = 8.19834	1.000000	1.000000
	200	/ (	2	x SQRT	(	#VALUE!	x	#VALUE!	)) = #VALUE!	#VALUE!	#VALUE!

Sample Location	$C_{(x)} = C_{source} \times e^{(Term 1 \times Term 2)} \times erf(\beta_1) \times erf(\beta_2)$									
	C_{source}	x e	("Term 1"	x	"Term 2")	x	ERF(β_1)	x	ERF(β_2)	= mg/L
MW-5	0.44000	x e	5	x	-0.2500	x	1.000000	x	1.000000	= 0.12643
		x e	#VALUE!	x	#VALUE!	x	#VALUE!	x	#VALUE!	= #VALUE!

Illinois Enviromental Protection Agency
Leaking Underground Storage Tank Program
SSL Input Parameters for Use with Tier 2 Calculations

A. Site Identification

IEMA Incident # (6- or 8-digit): 2005-0374 IEPA LPC # (10-digit): 1010155024

Site Name: Dersch Croslow's

Site Address (not a P.O. Box): 1421 Lexington Avenue

City: Lawrenceville County: Lawrence Zip Code: 62439

Leaking UST Technical File

B. Tier 2 Calculation Information

Equation(s) Used (ex: S12,S17,S28): S5,6,7,8,9,10,17,18,19,20,21,22,24

Contact Information for Individual Who Performed Calculations:

CWM Company, Inc.,

Land Use: Residential Soil Type: Silt Loam

Groundwater: [X] Class I [ ] Class II

Mass Limit: [ ] Yes [X] No If Yes, then Specify Acreage:

- Mass Limit Acreage other than defaults must always be rounded up.
- Failure to use site-specific parameters where allowed could affect payment from the UST Fund
- Maps depicting source width, plume dimensions, distance, etc. must also be submitted.
- Inputs must be submitted in the designated unit.

AT (ingestion)	=	Residential = 6	yr
		Con. Worker = 0.115	yr
AT (inhalation)	=	Residential = 30	yr
		Con. Worker = 0.115	yr
AT_c	=	70	yr
BW	=	Res. (NonCarcinogen) = 15	kg
		Res. (Carcinogen) = 70	kg
		Con. Worker = 70	kg
C_{sat}	=	Benzene = 557.58	mg/kg
		Toluene = 280.901	mg/kg
		Ethylbenzene = 146.111	mg/kg
		Total Xylenes = 111.1	mg/kg
		MTBE = 10786.007	mg/kg
		Naphthalene = 129.829	mg/kg
			mg/kg
			mg/kg
			mg/kg
			mg/kg

d_a	=	3.048	m
d_s	=	3.048	m
DA	=	Benzene = 0.000467150208001905	cm^2/s
		Toluene = 0.000317734203748812	cm^2/s
		Ethylbenzene = 0.000201878581604976	cm^2/s
		Xylenes = 0.000140958164288606	cm^2/s
		MTBE = 8.54293313038304E-05	cm^2/s
		Naphthalene = 2.07752281713632E-06	cm^2/s
			cm^2/s
			cm^2/s
			cm^2/s
			cm^2/s

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C_w	=	Benzene = 0.1	mg/L
		Toluene = 20	mg/L
		Ethylbenzene = 12.032	mg/L
		Total Xylenes = 202	mg/L
		MTBE = 0.296	mg/L
		Naphthalene = 11.726	mg/L
			mg/L
			mg/L
			mg/L
			mg/L
			mg/L
d	=	9.244	m
ED (inhalation of carcinogens)	=	Residential = 30	yr
		Con. Worker = 1	yr
ED (ingestion of noncarcinogens)	=	Residential = 6	yr
		Con. Worker = 1	yr
ED (inhalation of noncarcinogens)	=	Residential = 30	yr
		Con. Worker = 1	yr
ED (ingestion of groundwater)	=	Residential = 30	yr
		Con. Worker = 1	yr
ED_{M-L}	=	70	yr
EF	=	Residential = 350	d/yr
		Con. Worker = 30	d/yr
F(x)	=	0.194	unitless
f_{oc}	=	0.002	g/g
GW_{obj}	=	Benzene = 0.005	mg/L
		Toluene = 1	mg/L
		Ethylbenzene = 0.7	mg/L
		Total Xylenes = 10	mg/L
		MTBE = 0.07	mg/L
		Naphthalene = 0.14	mg/L
			mg/L
			mg/L
			mg/L
			mg/L
H'	=	Benzene = 0.23	unitless
		Toluene = 0.271	unitless
		Ethylbenzene = 0.324	unitless
		Total Xylenes = 0.271	unitless
		MTBE = 0.0241	unitless
		Naphthalene = 0.0198	unitless
			unitless
			unitless
			unitless
			unitless
i	=	0.034030596	m/m
I	=	0.3	m/yr
I_{M-L}	=	0.18	m/yr
$IF_{soil-adj}$	=	114	(mg-yr)/(kg-d)
IR_{soil}	=	Residential = 200	mg/d
		Con. Worker = 480	mg/d

D_i	=	Benzene = 0.088	cm^2/s
		Toluene = 0.087	cm^2/s
		Ethylbenzene = 0.075	cm^2/s
		Total Xylenes = 0.0735	cm^2/s
		MTBE = 0.102	cm^2/s
		Naphthalene = 0.0000075	cm^2/s
			cm^2/s
			cm^2/s
			cm^2/s
			cm^2/s
D_w	=	Benzene = 0.0000102	cm^2/s
		Toluene = 0.0000086	cm^2/s
		Ethylbenzene = 0.0000078	cm^2/s
		Total Xylenes = 0.00000923	cm^2/s
		MTBE = 0.000011	cm^2/s
		Naphthalene = 0.0000075	cm^2/s
			cm^2/s
			cm^2/s
			cm^2/s
			cm^2/s
DF	=	1.433118489	unitless
ED (ingestion of carcinogens	=	Con. Worker = 1	yr
K_{oc}	=	Benzene = 50	cm^3/g or L/kg
		Toluene = 158	cm^3/g or L/kg
		Ethylbenzene = 320	cm^3/g or L/kg
		Total Xylenes = 398	cm^3/g or L/kg
		MTBE = 11.5	cm^3/g or L/kg
		Naphthalene = 2000	cm^3/g or L/kg
			cm^3/g or L/kg
			cm^3/g or L/kg
			cm^3/g or L/kg
			cm^3/g or L/kg
K_s	=	120	m/yr
L	=	58.576464	m
PEF	=		m^3/kg
PEF'	=		m^3/kg
Q/C (VF equations)	=	Residential = 68.81	$(g/m^2\text{-}s)/(kg/m^3)$
		Con. Worker = 85.81	$(g/m^2\text{-}s)/(kg/m^3)$
Q/C (PEF equations)	=		$(g/m^2\text{-}s)/(kg/m^3)$

RfC (mg/m^3)		**Chronic**	**Subchronic**
Benzene	=	0.03	0.08
Toluene	=	5	5
Ethylbenzene	=	1	9
Total Xylenes	=	0.1	0.4
MTBE	=	3	2.5
Naphthalene	=	0.003	0.003
	=		NA
	=		NA
	=		NA
	=		NA

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IR_w	=	Residential = 2	L/d
K	=	24.19378848	m/yr
K_d(non-ionizing organcis)	=	Benzene = 0.1	cm^3/g or L/kg
		Toluene = 0.316	cm^3/g or L/kg
		Ethylbenzene = 0.64	cm^3/g or L/kg
		Total Xylenes = 0.796	cm^3/g or L/kg
		MTBE = 0.023	cm^3/g or L/kg
		Naphthalene = 4	cm^3/g or L/kg
			cm^3/g or L/kg
			cm^3/g or L/kg
			cm^3/g or L/kg
			cm^3/g or L/kg
K_d (ionizing organics)	=		cm^3/g or L/kg
K_d (inorganics)	=		cm^3/g or L/kg
VF'	=	Benzene = 444.943	m^3/kg
		Toluene = 539.511	m^3/kg
		Ethylbenzene = 676.842	m^3/kg
		Total Xylenes = 810.004	m^3/kg
		MTBE = 1040.469	m^3/kg
		Naphthalene = 6672.058	m^3/kg
			m^3/kg
			m^3/kg
			m^3/kg
			m^3/kg
VM_{M-L}	=	#VALUE!	m^3/kg
		#VALUE!	m^3/kg
		#VALUE!	m^3/kg
		#VALUE!	m^3/kg
		#VALUE!	m^3/kg
		#VALUE!	m^3/kg
			m^3/kg
			m^3/kg
			m^3/kg
			m^3/kg
VF'_{M-L}	=	#VALUE!	m^3/kg
		#VALUE!	m^3/kg
		#VALUE!	m^3/kg
		#VALUE!	m^3/kg
		#VALUE!	m^3/kg
		#VALUE!	m^3/kg
			m^3/kg
			m^3/kg
			m^3/kg
			m^3/kg
			m^3/kg
η	=	0.434	L_{pore}/L_{soil}
θ_a	=	0.155	L_{air}/L_{soil}

RfD_o mg/(kg-d)		Chronic	Subchronic
Benzene	=	0.004	0.012
Toluene	=	0.08	0.8
Ethylbenzene	=	0.1	0.05
Total Xylenes	=	0.2	0.4
MTBE	=	0.01	0.1
Naphthalene	=	0.02	0.6
	=		0.6
	=		NA
	=		NA
	=		NA

S	=	Benzene = 1800	mg/L
		Toluene = 530	mg/L
		Ethylbenzene = 170	mg/L
		Total Xylenes = 110	mg/L
		MTBE = 51000	mg/L
		Naphthalene = 31	mg/L
			mg/L
			mg/L
			mg/L
			mg/L
SF_o	=	Benzene = 0.055	$(mg/kg-d)^{-1}$
		Toluene = NA	$(mg/kg-d)^{-1}$
		Ethylbenzene = 0.011	$(mg/kg-d)^{-1}$
		Total Xylenes = NA	$(mg/kg-d)^{-1}$
		MTBE = NA	$(mg/kg-d)^{-1}$
		Naphthalene = NA	$(mg/kg-d)^{-1}$
			$(mg/kg-d)^{-1}$
			$(mg/kg-d)^{-1}$
			$(mg/kg-d)^{-1}$
			$(mg/kg-d)^{-1}$
T	=	Residential = 9.5E08	s
		Con. Worker = 3.6×10^6	s
T_{M-L}	=	30	yr
THQ	=	1	unitless
TR	=	1.00E-06	unitless
U_m	=	4.69	m/s
URF	=	Benzene = 7.8×10^{-6}	$(\mu g/m^3)^{-1}$
U_t	=	11.32	m/s
V	=	0.5	unitless
VF	=	Benzene = 5796.003	m^3/kg
		Toluene = 7027.889	m^3/kg
		Ethylbenzene = 8816.816	m^3/kg
		Total Xylenes = 10551.441	m^3/kg
		MTBE = 13553.561	m^3/kg
		Naphthalene = 86912.857	m^3/kg
			m^3/kg
			m^3/kg
			m^3/kg
			m^3/kg

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θ_w	=	0.279	L_{water}/L_{soil}
ρ_b	=	1.5	kg/l or g/cm^3
ρ_s	=	2.65	g/cm^3
ρ_w	=	1	g/cm^3
1/(2b+3)	=	0.074	unitless

Tier 2 Industrial/Commercial Calculations for Benzene

Dersch Croslow's
2005-0374

SSL	SSL & RBCA
RBCA	IRIS/HEAST

Date Compiled: 04/25/14
Version: 10/25/2013

Input Values

Holcomb's Bulk Density -->	0	Converted Value to be used in calculation sheet -->			–	USDA Soil Classification:	Silt Loam				
Organic Matter (%) -->	0	FOC % (0.58 conversion) -->		0.000	Organic Matter (mg/kg)	0	FOC mg/kg (0.58 conversion)	0.000	foc conversion to g/g:	0.000	

1.500	ρ_b - Dry Soil Bulk Density			1.5 or; Gravel = 2.0; Sand = 1.8; Silt = 1.8; Clay = 1.7; or Site Specific
2.65	ps - Soil Particle Density			2.65 or; Site Specific
0.155	Θ_a - Air Filled Soil Porosity	*0.155*	Value from S-21	Top 1 meter = 0.28; below 1 meter = 0.13; Gravel = 0.05; Sand = 0.14; Silt =0.24; Clay = 0.19; or Calculated Value (S21)
0.279	Θw - Water Filled Soil Porosity	*0.279*	Value from S-20	Top 1 meter = 0.15; below 1 meter = 0.30; Gravel = 0.20; Sand = 0.18; Silt =0.16; Clay = 0.17; or Calculated Value (S20)
0.434	η - SSL: Total Soil Porosity	*0.434*	Value from S-24	0.43 or; Gravel - 0.25; Sand = 0.32; Silt = 0.40; Clay = 0.36; or Calculated Value (S24)
0.0340306	I - Hydraulic Gradient			Site Specific
0.002	foc - Total Organic Carbon (g/g)			Surface Soil = 0.006; Subsurface Soil = 0.002; or Site Specific
20.000	DF - Dilution Factor	*1.433*	Value from S-22	If calculated value for DF is less than 20, then 20 default is used, else calculated value is used
9.244	d - Mixing Zone (m)	*9.244*	Value from S-25	2; or calculated value
3.048	d_s - Depth of source (m)		feet = 10	Depth of Source (Vertical thickness of contamination)
24.19	K - Hydraulic Conductivity (m/yr)	cm/sec =	7.67E-05	Site Specific 6.63E+00 cm/d 2.42E+03 cm/yr Use cm/d for R15, R19, & R26. cm/yr for R24
58.576	L - Source Length Parallel to Groundwater Flow (m)		feet = 192.18	Site Specific (m)
3.048	d_a - Aquifer Thickness (m)		feet = 10	Site Specific (m)
0.3	I - Infiltration Rate (m/yr)			0.3 for Illinois
120	K_s - Saturated Hydraulic Conductivity			See Table K for Input Values
0.005	GW_{obj} - Groundwater Remediation Objective Class 1			0.025 GW_{obj} - Groundwater Remediation Objective Class 2
0.074	1/(2b+3) - Exponent for S20			See Table K for Input Values
70	BW - Body Weight			Residential = 70 (carcinogenic); 15 (non-carcinogenic); Industrial/Commercial = 70; Construction Worker = 70; RBCA = 70
114	$IF_{soil-adj}$ -Age Adjusted Soil Ingestion Factor for Carcinogens			114
50	IR_{soil} -Soil Ingestion Rate			Residential = 200; Industrial/Commercial = 50; Construction Worker = 480
0.055	SF_o -Orat Slope Factor			Benzene = 0.055
1	IR_w -Daily Water Ingestion Rate			Residential = 2; Industrial/Commercial = 1
1800	S - Solubility in Water			Benzene = 1750
1.0E-06	TR - Target Cancer Risk			Residential = 10^{-6}; Industrial/Commercial = 10^{-6}; Construction Worker = 10^{-6} at point of human exposure
70	AT_c -Average Time for Carcinogens			70
7.80E-06	URF - Inhalation Unit Risk Factor			Benzene =7.8 x 10^{-6}
250	EF - Exposure Frequency			Residential = 350; Industrial/Commercial = 250; Construction Worker = 30
25	ED - Exposure Duration for Inhalation fo Carcinogens			Residential = 30; Industrial/Commercial = 25; Construction Worker = 1
68.81	Q/C - Inverse of the mean concentration at the center of a square source			Residential = 68.81; Industrial/Commercial = 85.81; Construction Worker = 85.81; or Table H
7.90E+08	T - Exposure Interval			Residential = 9.5 x 10^8; Industrial/Commercial = 7.9 x 10^8; Construction Worker = 3.6 x 10^8
30	T_{M-L} - Exposure Interval for Mall Limit Volatilization Factor Equation S26			30
70	ED_{M-L} - Exposure Duration for Migration to Groundwater Mass-Limit Equation S28			70
0.18	I_{M-L} - Infiltration Rate for Migration to Groundwater Mass-Limit Equation S28			0.18
0.088	D_i - Diffusivity in Air			Benzene = 0.088
0.23	H' - Henry's Law Constant			Benzene = 0.228
1.02E-05	D_w - Diffusivity in Water			Benzene = 9.8 x 10^{-6}
50	K_{oc} - Organic Carbon Partition Coefficient			Benzene = 58.9

Industrial/Commercial Ingestion Tier II Benzene Objective

$$S\text{-}3 = \frac{TR \times BW \times AT_c \times 365}{SF_o \times 10^{-6} \times EF \times ED \times IRsoil} = \frac{1.0E\text{-}06 \times 70 \times 70 \times 365}{0.055 \times 1.00E\text{-}06 \times 250 \times 25 \times 50} = \frac{1.8E+00}{1.72E\text{-}02} = 104.058 \text{ mg/kg}$$

Construction Worker Ingestion Tier II Benzene Objective

$$S\text{-}3 = \frac{TR \times BW \times AT_c \times 365}{SF_o \times 10^{-6} \times EF \times IRsoil} = \frac{1.0E\text{-}06 \times 70 \times 70 \times 365}{0.055 \times 1.00E\text{-}06 \times 30 \times 480} = \frac{1.8E+00}{7.92E\text{-}04} = 2258.21 \text{ mg/kg}$$

Tier 2 Industrial/Commercial Calculations for Benzene

Dersch Croslow's
2005-0374

Industrial/Commercial Inhalation Tier II Benzene Objective

$$S\text{-}6 = \frac{TR \times ATc \times 365}{URF \times 1000 \times EF \times ED \times 1/VF} = \frac{1.0E\text{-}06 \times 70 \times 365}{7.80E\text{-}06 \times 1000 \times 250 \times 25 \times (1/\ 6.59E{+}03)} = \frac{0.02555}{7.40E\text{-}03} = 3.454 \text{ mg/kg}$$

Construction Worker Inhalation Tier II Benzene Objective

$$S\text{-}7 = \frac{TR \times ATc \times 365}{URF \times 1000 \times EF \times ED \times 1/VF'} = \frac{1.0E\text{-}06 \times 70 \times 365}{7.80E\text{-}06 \times 1000 \times 30 \times 1 \times (1/\ 4.45E{+}01)} = \frac{0.02555}{5.26E\text{-}03} = 4.858 \text{ mg/kg}$$

RESIDENTIAL OR COMMERCIAL

$$S\text{-}8 = VF = \frac{Q}{C} \times \frac{(3.14 \times D_A \times T)^{1/2} \times 10^{-4}}{(2 \times \rho_b \times D_A)} = 85.81 \times \frac{(3.14 \times 4.67E\text{-}04 \times 7.90E{+}08)^{1/2} \times 0.0001}{(2 \times 1.5 \times 4.67E\text{-}04)} = \frac{9.2373}{0.0014} = 6591.2342$$

Construction Worker

$$S\text{-}8 = VF = \frac{Q}{C} \times \frac{(3.14 \times D_A \times T)^{1/2} \times 10^{-4}}{(2 \times \rho_b \times D_A)} = 85.81 \times \frac{(3.14 \times 4.67E\text{-}04 \times 3.60E{+}06)^{1/2} \times 0.0001}{(2 \times 1.5 \times 4.67E\text{-}04)} = \frac{0.6236}{0.0014} = 444.9431$$

Equation for Derivation of Volatilization Factor - Construction Worker

$$S\text{-}9 = VF' = \frac{VF}{10} = \frac{444.9431}{10} = 44.4943$$

Equation for Derivation of Apparent Diffusivity

$$S\text{-}10 = D_A = \frac{(\theta_a^{3.33} \times D_i \times H') + (\theta_w^{3.33} \times D_w)}{\eta^2} \times \frac{1}{(\rho_b \times K_d) + \theta_w + (\theta_a \times H')}$$

$$= \frac{(2.01E\text{-}03 \times 0.088 \times 0.230) + (0.0143 \times 1.02E\text{-}05)}{0.1884} \times \frac{1}{(1.5 \times 0.1) + 0.28 + (0.155 \times 0.230)} = 4.67E\text{-}04$$

Soil Component of the Migration to Groundwater Cleanup Objective (Class 1)

$$S\text{-}17 = C_w \times \left[K_d + \frac{(\theta_w + \theta_a \times H')}{pb} \right] = 0.1 \times \left[0.1 + \frac{(0.279 + 0.155 \times 0.230)}{1.5} \right] = 0.031 \text{ mg/kg}$$

Tier 2 Industrial/Commercial Calculations for Benzene

Dersch Croslow's
2005-0374

Target Soil Leachate Concentration (Class 1)

S-18 = C_w = $DF \times GW_{obj}$ = 20.00 x 0.005 = 0.1

Soil-Water Partition Coefficient

S-19 = K_d = $K_{oc} \times f_{oc}$ = 50.00 x 0.002 = 0.1

Water-Filled Porosity

S-20 = $\Theta_w = \eta \times \left(\frac{1}{K_a}\right)^{1/(2b+3)}$ = 0.43 x $\left[\frac{0.300}{120.000}\right]^{0.074}$ = 0.2786

Air-Filled Porosity

S-21 = $\Theta_a = \eta - \Theta_w$ = 0.43 - 0.28 = 0.1550

Dilution Factor

S-22 = $DF = 1 + \frac{K \times I \times d}{I \times L}$ = $\frac{24.19}{0.300} \times \frac{0.0340}{58.576} \times 9.244 + 1$ = 1.4331

GW Ingestion

S-23 = $\frac{TR \times BW \times AT_c \times 365}{SF_o \times IR_w \times EF \times ED}$ = $\frac{1.0E\text{-}06}{0.055} \times \frac{70}{1.000} \times \frac{70}{250} \times \frac{365}{25}$ = $\frac{1.8E+00}{343.75}$ = 0.0052 mg/L

Total Soil Porosity

S-24 = $\eta = 1 - \frac{\rho_b}{\rho_s}$ = $1 - \frac{1.5}{2.65}$ = 0.4340

Estimation of Mixing Zone Depth

S-25 = $d = (0.0112 \times L^2)^{0.5} + d_a\left[1 - \exp\frac{(-L \times I)}{(K \times i \times d_a)}\right]$

= (0.0112 x 58.576 ^{2})$^{0.5}$ + 3.048 x $\left[1 - \exp\left(\frac{-58.576}{24.194} \times \frac{0.3}{0.0340} \times \frac{1}{3.048}\right)\right]$ = 9.244 m

Soil Saturation Limit

S-29 = $C_{sat} = \frac{S}{\rho_b} \times [(K_d \times \rho b) + \Theta w + (H' \times \theta a)]$ = $\frac{1800}{1.5}$ x [(0.1 x 1.5) + 0.279 + (0.230 x 0.155)] = 557.58 mg/kg

Tier 2 Industrial/Commercial Calculations for Ethylbenzene

Darsch Croslow's
2005-0374

SSL / RBCA | SSL & RBCA / IRIS/HEAST

Date Compiled: 04/25/14
Version: 10/25/2013

Input Values

Holcomb's Bulk Density -->	0	Converted Value to be used in calculation sheet -->		–	USDA Soil Classification:	Silt Loam				
Organic Matter (%) -->	0	FOC % (0.58 conversion) -->	0.000	Organic Matter (mg/kg)	0	FOC mg/kg (0.58 conversion)	0.000	foc conversion to g/g:	0.000	

1.500	ρ_b - Dry Soil Bulk Density			1.5 or; Gravel = 2.0; Sand = 1.8; Silt = 1.6; Clay = 1.7; or Site Specific
2.65	ps - Soil Particle Density			2.65 or; Site Specific
0.155	Θ_a - Air Filled Soil Porosity	0.155	Value from S-21	Top 1 meter = 0.28; below 1 meter = 0.13; Gravel = 0.05; Sand = 0.14; Silt =0.24; Clay = 0.19; or Calculated Value (S21)
0.279	Θw - Water Filled Soil Porosity	0.279	Value from S-20	Top 1 meter = 0.15; below 1 meter = 0.30; Gravel = 0.20; Sand = 0.18; Silt =0.16; Clay = 0.17; or Calculated Value (S20)
0.434	η - SSL: Total Soil Porosity	0.434	Value from S-24	0.43 or; Gravel - 0.25; Sand = 0.32; Silt = 0.40; Clay = 0.36; or Calculated Value (S24)
0.0340306	I - Hydraulic Gradient			Site Specific
0.002	foc - Total Organic Carbon (g/g)			Surface Soil = 0.006; Subsurface Soil = 0.002; or Site Specific
20.000	DF - Dilution Factor	1.433	Value from S-22	If calculated value for DF is less than 20, then 20 default is used, else calculated value is used
9.244	d - Mixing Zone (m)	9.244	Value from S-25	2; or calculated value
3.048	d_a - Depth of source (m)		feet = 10	Depth of Source (Vertical thickness of contamination)
24.19	K - Hydraulic Conductivity (m/yr)	cm/sec =	7.67E-05	Site Specific 6.63E+00 cm/d 2.42E+03 cm/yr Use cm/d for R15, R19, & R26. cm/yr for R24
58.576	L - Source Length Parallel to Groundwater Flow (m)		feet = 192.18	Site Specific (m)
3.048	d_a - Aquifer Thickness (m)		feet = 10	Site Specific (m)
0.3	I - Infiltration Rate (m/yr)			0.3 for Illinois
120	K_s - Saturated Hydraulic Conductivity			See Table K for Input Values
0.700	GW_{obj} - Groundwater Remediation Objective Class 1			1 GW_{obj} - Groundwater Remediation Objective Class 2
0.074	1/(2b+3) - Exponent for S20			See Table K for Input Values
70	BW - Body Weight			Residential = 70 (carcinogenic); 15 (non-carcinogenic); Industrial/Commercial = 70; Construction Worker = 70; RBCA = 70
114	$IF_{soil-adj}$ -Age Adjusted Soil Ingestion Factor for Carcinogens			114
50	IR_{soil} -Soil Ingestion Rate			Residential = 200; Industrial/Commercial = 50; Construction Worker = 480
1	IR_w -Daily Water Ingestion Rate			Residential = 2; Industrial/Commercial = 1
170	S - Solubility in Water			Ethylbenzene = 169
1.0E-06	TR - Target Cancer Risk			Residential = 10^{-6}; Industrial/Commercial = 10^{-4}; Construction Worker = 10^{-4} at point of human exposure
250	EF - Exposure Frequency			Residential = 350; Industrial/Commercial = 250; Construction Worker = 30
25	ED - Exposure Duration for Inhalation for Non-Carcinogens			Residential = 30; Industrial/Commercial = 25; Construction Worker = 1
68.81	Q/C - Inverse of the mean concentration at the center of a square source			Residential = 68.81; Industrial/Commercial = 85.81; Construction Worker = 85.81; or Table H
7.90E+08	T - Exposure Interval			Residential = 9.5×10^8; Industrial/Commercial = 7.9×10^8; Construction Worker = 3.6×10^8
30	T_{M-L} - Exposure Interval for Mall Limit Volatilization Factor Equation S26			30
70	ED_{M-L} - Exposure Duration for Migration to Groundwater Mass-Limit Equation S28			70
0.18	I_{M-L} - Infiltration Rate for Migration to Groundwater Mass-Limit Equation S28			0.18
0.075	D_i - Diffusivity in Air			Ethylbenzene = 0.075
0.324	H' - Henry's Law Constant			Ethylbenzene = 0.323
7.80E-06	D_w - Diffusivity in Water			Ethylbenzene = 7.8×10^{-6}
25	AT - Average Time for Non-Carcinogens in Ingestion Equation			Residential = 6; Industrial/Commercial = 25; Construction Worker = 0.115
25	AT - Average Time for Non-Carcinogens in Inhalation Equation			Residential = 30; Industrial/Commercial = 25; Construction Worker = 0.115
1	THQ - Target Hazard Quotient			1
1	RfC - Inhalation Reference Concentration			Chronic = 1; Subchronic = 9
0.1	RfD_o - Oral Reference Dose			Chronic = 0.1; Subchronic = 0.05
320.00	K_{oc} - Organic Carbon Partition Coefficient			Ethylbenzene = 363

Industrial/Commercial Ingestion Remediation Objectives for Non-Carcinogenic Contaminants

$$S\text{-}1 = \frac{THQ \times BW \times AT \times 365}{10^{-6} \times (1/RfD_o) \times EF \times ED \times IR_{soil}} = \frac{1}{0.000001} \times \frac{70}{0.1} \times \frac{25}{250} \times \frac{365}{25} \times \frac{}{50} = \frac{638750}{3.125} = 204400 \text{ mg/kg}$$

Construction Worker Ingestion Remediation Objectives for Non-Carcinogenic Contaminants

$$S\text{-}1 = \frac{THQ \times BW \times AT \times 365}{10^{-6} \times (1/RfD_o) \times EF \times ED \times IR_{soil}} = \frac{1}{0.000001} \times \frac{70}{0.05} \times \frac{0.115}{30} \times \frac{365}{1} \times \frac{}{480} = \frac{2938.25}{0.288} = 10202 \text{ mg/kg}$$

Inhalation Non-Carcinogenic Residential, Ind/Commercial

$$S\text{-}4 = \frac{THQ \times AT \times 365}{EF \times ED \times (1/RfC \times 1/VF)} = \frac{1}{250} \times \frac{25}{25} \times \frac{365}{1/1} \times \frac{}{1/10026.51238} = \frac{9125}{0.623347} = 14639 \text{ mg/kg}$$

Tier 2 Inhalation Objective cannot exceed Soil Saturation Limit

Inhalation Non-Carcinogenic Construction Worker

$$S\text{-}5 = \frac{THQ \times AT \times 365}{EF \times ED \times (1/RfC \times 1/VF)} = \frac{1}{30} \times \frac{0.115}{1} \times \frac{365}{9} \times \frac{}{1/67.68424663} = \frac{41.975}{0.049248} = 852.314 \text{ mg/kg}$$

Tier 2 Inhalation Objective cannot exceed Soil Saturation Limit

RESIDENTIAL OR COMMERCIAL

$$S\text{-}8 = VF = \frac{Q}{C} \times \frac{(3.14 \times D_A \times T)^{1/2} \times 10^{-4}}{(2 \times \rho_b \times D_A)} = 85.81 \times \frac{\left(\frac{3.14}{2} \times \frac{2.02E\text{-}04}{1.5} \times \frac{7.90E+08}{2.02E\text{-}04}\right)^{1/2} \times 0.0001}{6.06E\text{-}04} = 10026.5124$$

C (Ethylbenzene)

Tier 2 Industrial/Commercial Calculations for Ethylbenzene

Dersch Croslow's
2005-0374

Construction Worker

S-8 = $VF = \frac{Q}{C} \times \frac{(3.14 \times D_A \times T)^{1/2} \times 10^{-4}}{(2 \times \rho_b \times D_A)}$ = 85.81 × $\frac{(3.14 \times 2.02E\text{-}04 \times 3.60E+06)^{1/2} \times 0.0001}{(2 \times 1.5 \times 2.02E\text{-}04)}$ = $\frac{0.4099}{6.06E\text{-}04}$ = 676.8425

Equation for Derivation of Volatilization Factor - Construction Worker

S-9 = $VF' = \frac{VF}{10}$ = $\frac{676.8425}{10}$ = 67.6842

Equation for Derivation of Apparent Diffusivity

S-10 = $D_A = \frac{(\theta_a^{3.33} \times D_i \times H') + (\theta_w^{3.33} \times D_w)}{\eta^2} \times \frac{1}{(\rho_b \times K_d) + \theta_w + (\theta_a \times H')}$

$= \frac{(2.01E\text{-}03 \times 0.075 \times 0.324) + (0.0143 \times 7.80E\text{-}06)}{0.1884} \times \frac{1}{(1.5 \times 0.64) + 0.28 + (0.155 \times 0.324)}$ = 2.02E-04

Soil Component of the Migration to Groundwater Cleanup Objective (Class 1)

S-17 = $C_w \times \left[K_d + \frac{(\theta_w + \theta_a \times H')}{\rho b} \right]$ = 14 × $\left[0.64 + \frac{(0.279 + 0.155 \times 0.324)}{1.5} \right]$ = 12.033 mg/kg

Target Soil Leachate Concentration (Class 1)

S-18 = $C_w = DF \times GW_{obj}$ = 20.00 × 0.700 = 14

Soil-Water Partition Coefficient

S-19 = $K_d = K_{oc} \times f_{oc}$ = 320.00 × 0.002 = 0.64

Water-Filled Porosity

S-20 = $\Theta_w = \eta \times \frac{1}{K_a}^{1/(2b+3)}$ = 0.43 × $\left[\frac{0.300}{120.000} \right]^{0.074}$ = 0.2786

Tier 2 Industrial/Commercial Calculations for Ethylbenzene

Dersch Croslow's
2005-0374

Air-Filled Porosity

S-21 = $\Theta_a = \eta - \theta_w$ = 0.43 - 0.28 = **0.1550**

Dilution Factor

S-22 = $DF = 1 + \frac{K \times i \times d}{I \times L}$ = $\frac{24.19}{0.300} \times \frac{0.0340}{58.576} \times 9.244 + 1$ = **1.4331**

GW Ingestion

S-23 = $\frac{TR \times BW \times AI_c \times 365}{SF_o \times IR_w \times EF \times ED}$ = $\frac{1.0E\text{-}06}{0.000} \times \frac{70}{1.000} \times \frac{0}{250} \times \frac{365}{25}$ = $\frac{0.0E+00}{0}$ = **#DIV/0!** mg/L

Total Soil Porosity

S-24 = $\eta = 1 - \frac{\rho_b}{\rho_s}$ = 1 - $\frac{1.5}{2.65}$ = **0.4340**

Estimation of Mixing Zone Depth

S-25 = $d = (0.0112 \times L^2)^{0.5} + d_a\left[1 - \exp\frac{(-L \times I)}{(K \times i \times d_a)}\right]$

= (0.0112 × 58.576 ^{2})$^{0.5}$ +

3.048 × [1 - exp ($\frac{-58.576}{24.194} \times \frac{0.3}{0.0340} \times \frac{}{3.048}$)] = **9.244** m

Soil Saturation Limit

S-29 = $C_{sat} = \frac{S}{\rho_b} \times [(K_d \times \rho b) + \theta w + (H' \times \theta a)]$ = $\frac{170}{1.5}$ × [(0.64 × 1.5) + 0.279 + (0.324 × 0.155)] = **146.11** mg/kg

Tier 2 Industrial/Commercial Calculations for Naphthalene

Dersch Croslow's
2005-0374

SSL / RBCA | SSL & RBCA / IRIS/HEAST

Date Compiled: 04/25/14
Version: 10/25/2013

Input Values

Holcomb's Bulk Density -->	0	Converted Value to be used in calculation sheet -->			--	USDA Soil Classification:	Silt Loam				
Organic Matter (%) -->	0	FOC % (0.58 conversion) -->	0.000	Organic Matter (mg/kg)	0	FOC mg/kg (0.58 conversion)	0.000	foc conversion to g/g:	0.000		

1.500	ρ_b - Dry Soil Bulk Density			1.5 or; Gravel = 2.0; Sand = 1.8; Silt = 1.6; Clay = 1.7; or Site Specific
2.65	ρ_s - Soil Particle Density			2.65 or; Site Specific
0.155	θ_a - Air Filled Soil Porosity	*0.155*	Value from S-21	Top 1 meter = 0.28; below 1 meter = 0.13; Gravel = 0.05; Sand = 0.14; Silt =0.24; Clay = 0.19; or Calculated Value (S21)
0.279	θw - Water Filled Soil Porosity	*0.279*	Value from S-20	Top 1 meter = 0.15; below 1 meter = 0.30; Gravel = 0.20; Sand = 0.18; Silt =0.16; Clay = 0.17; or Calculated Value (S20)
0.434	η - SSL: Total Soil Porosity	*0.434*	Value from S-24	0.43 or; Gravel - 0.25; Sand = 0.32; Silt = 0.40; Clay = 0.36; or Calculated Value (S24)
0.0340306	i - Hydraulic Gradient			Site Specific
0.002	foc - Total Organic Carbon (g/g)			Surface Soil = 0.006; Subsurface Soil = 0.002; or Site Specific
20.000	DF - Dilution Factor			If calculated value for DF is less than 20, then 20 default is used, else calculated value is used
9.244	d - Mixing Zone (m)			2; or calculated value
3.048	d_a - Depth of source (m)		feet = 10	Depth of Source (Vertical thickness of contamination)
24.19	K - Hydraulic Conductivity (m/yr)	cm/sec =	7.67E-05	Site Specific | 6.63E+00 | cm/d | 2.42E+031 cm/yr | Use cm/d for R15, R19, & R26. cm/yr for R24
58.576	L - Source Length Parallel to Groundwater Flow (m)		feet = 192.18	Site Specific (m)
3.048	d_a - Aquifer Thickness (m)		feet = 10	Site Specific (m)
0.3	I - Infiltration Rate (m/yr)			0.3 for Illinois
120	K_s - Saturated Hydraulic Conductivity			See Table K for Input Values
0.140	GW_{obj} - Groundwater Remediation Objective Class 1			0.22 GW_{obj} - Groundwater Remediation Objective Class 2
0.074	1/(2b+3) - Exponent for S20			See Table K for Input Values
70	BW - Body Weight			Residential = 70 (carcinogenic); 15 (non-carcinogenic); Industrial/Commercial = 70; Construction Worker = 70; RBCA = 70
114	$IF_{soil-adj}$ -Age Adjusted Soil Ingestion Factor for Carcinogens			114
50	IR_{soil} -Soil Ingestion Rate			Residential = 200; Industrial/Commercial = 50; Construction Worker = 480
1	IR_w -Daily Water Ingestion Rate			Residential = 2; Industrial/Commercial = 1
31	S - Solubility in Water			Naphthalene = 31
1.0E-06	TR - Target Cancer Risk			Residential = 10^{-6}; Industrial/Commercial = 10^{-6}; Construction Worker = 10^{-6} at point of human exposure
250	EF - Exposure Frequency			Residential = 350; Industrial/Commercial = 250; Construction Worker = 30
25	ED - Exposure Duration for Inhalation for Non-Carcinogens			Residential = 30; Industrial/Commercial = 25; Construction Worker = 1
68.81	Q/C - Inverse of the mean concentration at the center of a square source			Residential = 68.81; Industrial/Commercial = 85.81; Construction Worker = 85.81; or Table H
7.90E+08	T - Exposure Interval			Residential = 9.5×10^8; Industrial/Commercial = 7.9×10^8; Construction Worker = 3.6×10^8
30	T_{M-L} - Exposure Interval for Mass Limit Volatilization Factor Equation S26			30
70	ED_{M-L} - Exposure Duration for Migration to Groundwater Mass-Limit Equation S28			70
0.18	I_{M-L} - Infiltration Rate for Migration to Groundwater Mass-Limit Equation S28			0.18
0.059	D_i - Diffusivity in Air			Naphthalene = 0.059
0.0198	H' - Henry's Law Constant			Naphthalene = 0.0198
7.50E-06	D_w - Diffusivity in Water			Naphthalene = 7.5×10^{-6}
25	AT - Average Time for Non-Carcinogens in Ingestion Equation			Residential = 6; Industrial/Commercial = 25; Construction Worker = 0.115
25	AT - Average Time for Non-Carcinogens in Inhalation Equation			Residential = 30; Industrial/Commercial = 25; Construction Worker = 0.115
1	THQ - Target Hazard Quotient			1
0.003	RfC - Inhalation Reference Concentration			Chronic = 0.003; Subchronic = 0.003
0.020	RfD_o - Oral Reference Dose			Chronic = 0.02; Subchronic = 0.6
2000.00	K_{oc} - Organic Carbon Partition Coefficient			Naphthalene = 2,000

Industrial/Commercial Ingestion Remediation Objectives for Non-Carcinogenic Contaminants

$$S\text{-}1 = \frac{THQ \times BW \times AT \times 365}{10^{-6} \times (1/RfD_o) \times EF \times ED \times IR_{soil}} = \frac{1 \times 70 \times 25 \times 365}{0.000001 \times 1/0.02 \times 250 \times 25 \times 50} = \frac{638750}{15.625} = 40880 \text{ mg/kg}$$

Construction Worker Ingestion Remediation Objectives for Non-Carcinogenic Contaminants

$$S\text{-}1 = \frac{THQ \times BW \times AT \times 365}{10^{-6} \times (1/RfD_o) \times EF \times ED \times IR_{soil}} = \frac{1 \times 70 \times 0.115 \times 365}{0.000001 \times 1/0.6 \times 30 \times 1 \times 480} = \frac{2938.25}{0.024} = 122427 \text{ mg/kg}$$

Inhalation Non-Carcinogenic Residential, Ind/Commercial

$$S\text{-}4 = \frac{THQ \times AT \times 365}{EF \times ED \times (1/RfC \times 1/VF)} = \frac{1 \times 25 \times 365}{250 \times 25 \times 1/0.003 \times 1/98837.58284} = \frac{9125}{21.07835} = 432.909 \text{ mg/kg}$$

Inhalation Non-Carcinogenic Construction Worker

$$S\text{-}5 = \frac{THQ \times AT \times 365}{EF \times ED \times (1/RfC \times 1/VF)} = \frac{1 \times 0.115 \times 365}{30 \times 1 \times 1/0.003 \times 1/667.2058116} = \frac{41.975}{14.98788} = 2.801 \text{ mg/kg}$$

RESIDENTIAL OR COMMERCIAL

$$S\text{-}8 = VF = \frac{Q}{C} \times \frac{(3.14 \times D_A \times T)^{1/2} \times 10^{-4}}{(2 \times \rho_b \times D_A)} = 85.81 \times \frac{\left(\frac{3.14}{2} \times \frac{2.08E\text{-}06}{1.5} \times \frac{7.90E+08}{2.08E\text{-}06}\right)^{1/2} \times 0.0001}{6.23E\text{-}06} = \frac{0.6160}{6.23E\text{-}06} = 98837.5828$$

-C (Naphthalene)

Tier 2 Industrial/Commercial Calculations for Naphthalene

Dersch Croslow's
2005-0374

Construction Worker

$$S\text{-}8 = VF = \frac{Q}{C} \times \frac{(3.14 \times D_A \times T)^{1/2} \times 10^{-4}}{(2 \times \rho_b \times D_A)} = 85.81 \times \frac{(3.14 \times 2.08E\text{-}06 \times 3.60E+06)^{1/2} \times 0.0001}{(2 \times 1.5 \times 2.08E\text{-}06)} = \frac{0.0416}{6.23E\text{-}06} = 6672.0581$$

Equation for Derivation of Volatilization Factor - Construction Worker

$$S\text{-}9 = VF' = \frac{VF}{10} = \frac{6672.0581}{10} = 667.2058$$

Equation for Derivation of Apparent Diffusivity

$$S\text{-}10 = D_A = \frac{(\theta_a^{3.33} \times D_i \times H') + (\theta_w^{3.33} \times D_w)}{\eta^2} \times \frac{1}{(\rho_b \times K_d) + \theta_w + (\theta_a \times H')}$$

$$= \frac{(2.01E\text{-}03 \times 0.059 \times 0.020) + (0.0143 \times 7.50E\text{-}06)}{0.1884} \times \frac{1}{(1.5 \times 4) + 0.28 + (0.155 \times 0.020)} = 2.08E\text{-}06$$

Soil Component of the Migration to Groundwater Cleanup Objective (Class 1)

$$S\text{-}17 = C_w \times \left[K_d + \frac{(\theta_w + \theta_a \times H')}{\rho b} \right] = 2.8 \times \left[4 + \frac{(0.279 + 0.155 \times 0.020)}{1.5} \right] = 11.727 \text{ mg/kg}$$

Target Soil Leachate Concentration (Class 1)

$$S\text{-}18 = C_w = DF \times GW_{obj} = 20.00 \times 0.140 = 2.8$$

Soil-Water Partition Coefficient

$$S\text{-}19 = K_d = K_{oc} \times f_{oc} = 2000.00 \times 0.002 = 4$$

Water-Filled Porosity

$$S\text{-}20 = \Theta_w = \eta \times \frac{I}{K_s}^{1/(2b+3)} = 0.43 \times \left[\frac{0.300}{120.000} \right]^{0.074} = 0.2786$$

Tier 2 Industrial/Commercial Calculations for Naphthalene

Dersch Croslow's
2005-0374

Air-Filled Porosity

S-21 = $\theta_a = \eta - \theta_w$ = 0.43 - 0.28 = 0.1550

Dilution Factor

S-22 = $DF = 1 + \frac{K \times i \times d}{I \times L}$ = $\frac{24.19}{0.300} \times \frac{0.0340}{58.576} \times 9.244 + 1$ = 1.4331

GW Ingestion

S-23 = $\frac{TR \times BW \times AT_a \times 365}{SF_o \times IR_w \times EF \times ED}$ = $\frac{1.0E\text{-}06}{0.000} \times \frac{70}{1.000} \times \frac{0}{250} \times \frac{365}{25}$ = $\frac{0.0E+00}{0}$ = #DIV/0! mg/L

Total Soil Porosity

S-24 = $\eta = 1 - \frac{\rho_b}{\rho_s}$ = $1 - \frac{1.5}{2.65}$ = 0.4340

Estimation of Mixing Zone Depth

S-25 = $d = (0.0112 \times L^2)^{0.5} + d_a\left[1 - \exp\frac{(-L \times I)}{(K \times I \times d_a)}\right]$

= $(0.0112 \times 58.576^2)^{0.5} + 3.048 \times \left[1 - \exp\left(\frac{-58.576}{24.194} \times \frac{0.3}{0.0340} \times \frac{1}{3.048}\right)\right]$ = 9.244 m

Soil Saturation Limit

S-29 = $C_{sat} = \frac{S}{\rho_b} \times [(K_d \times \rho b) + \theta w + (H' \times \theta a)]$ = $\frac{31}{1.5} \times [(4 \times 1.5) + 0.279 + (0.020 \times 0.155)]$ = 129.83 mg/kg

Tier 2 Industrial/Commercial Calculations for MTBE

Dersch Croslow's
2005-0374

SSL / RBCA | SSL & RBCA IRIS/HEAST

Date Compiled: 04/25/14
Version: 10/25/2013

Input Values

Holcomb's Bulk Density -->	0	Converted Value to be used in calculation sheet -->			–	USDA Soil Classification:	Silt Loam				
Organic Matter (%) -->	0	FOC % (0.58 conversion) -->		0.000	Organic Matter (mg/kg)	0	FOC mg/kg (0.58 conversion)	0.000	foc conversion to g/g:	0.000	

1.500	ρ_b - Dry Soil Bulk Density				1.5 or; Gravel = 2.0; Sand = 1.8; Silt = 1.6; Clay = 1.7; or Site Specific
2.65	ρ_s - Soil Particle Density				2.65 or; Site Specific
0.155	Θ_a - Air Filled Soil Porosity	*0.155*	Value from S-21		Top 1 meter = 0.28; below 1 meter = 0.13; Gravel = 0.05; Sand = 0.14; Silt =0.24; Clay = 0.19; or Calculated Value (S21)
0.279	Θw - Water Filled Soil Porosity	*0.279*	Value from S-20		Top 1 meter = 0.15; below 1 meter = 0.30; Gravel = 0.20; Sand = 0.18; Silt =0.16; Clay = 0.17; or Calculated Value (S20)
0.434	η - SSL & Θ_T - RBCA Total Soil Porosity	*0.434*	Value from S-24		0.43 or; Gravel - 0.25; Sand = 0.32; Silt = 0.40; Clay = 0.36; or Calculated Value (S24)
0.0340306	i - Hydraulic Gradient				Site Specific
0.002	foc - Total Organic Carbon (g/g)				Surface Soil = 0.006; Subsurface Soil = 0.002; or Site Specific
20.000	DF - Dilution Factor	*1.433*	Value from S-22		If calculated value for DF is less than 20, then 20 default is used, else calculated value is used
9.244	d - Mixing Zone (m)	*9.244*	Value from S-25		2; or calculated value
3.048	d_s - Depth of source (m)		feet = 10		Depth of Source (Vertical thickness of contamination)
24.19	K - Hydraulic Conductivity (m/yr)	cm/sec =	7.67E-05	Site Specific	6.63E+00 cm/d | 2.42E+03 cm/yr | Use cm/d for R15, R19, & R26. cm/yr for R24
58.576	L - Source Length Parallel to Groundwater Flow (m)		feet = 192.18		Site Specific (m)
3.048	d_a - Aquifer Thickness (m)		feet = 10		Site Specific (m)
0.3	I - Infiltration Rate (m/yr)				0.3 for Illinois
120	K_s - Saturated Hydraulic Conductivity				See Table K for Input Values
0.070	GW_{obj} - Groundwater Remediation Objective Class 1			0.07	GW_{obj} - Groundwater Remediation Objective Class 2
0.074	1/(2b+3) - Exponent for S20				See Table K for Input Values
70	BW - Body Weight				Residential = 70 (carcinogenic); 15 (non-carcinogenic); Industrial/Commercial = 70; Construction Worker = 70; RBCA = 70
114	$IF_{soil-adj}$ -Age Adjusted Soil Ingestion Factor for Carcinogens				114
50	IR_{soil} -Soil Ingestion Rate				Residential = 200; Industrial/Commercial = 50; Construction Worker = 480
1	IR_w -Daily Water Ingestion Rate				Residential = 2; Industrial/Commercial = 1
51000	S - Solubility in Water				MTBE = 51,000
1.0E-06	TR - Target Cancer Risk				Residential = 10^{-6}; Industrial/Commercial = 10^{-6}; Construction Worker = 10^{-6} at point of human exposure
250	EF - Exposure Frequency				Residential = 350; Industrial/Commercial = 250; Construction Worker = 30
25	ED - Exposure Duration for Inhalation for Non-Carcinogens				Residential = 30; Industrial/Commercial = 25; Construction Worker = 1
68.81	Q/C - inverse of the mean concentration at the center of a square source				Residential = 68.81; Industrial/Commercial = 85.81; Construction Worker = 85.81; or Table H
7.00E+08	T - Exposure Interval				Residential = 9.6×10^8; Industrial/Commercial = 7.9×10^8; Construction Worker = 3.6×10^8
30	T_{ss-L} - Exposure Interval for Mass Limit Volatilization Factor Equation S26				30
70	ED_{ss-L} - Exposure Duration for Migration to Groundwater Mass-Limit Equation S28				70
0.18	I_{ss-L} - Infiltration Rate for Migration to Groundwater Mass-Limit Equation S28				0.18
0.102	D_i - Diffusivity in Air				MTBE = 0.102
0.0241	H' - Henry's Law Constant				MTBE = 0.0241
1.10E-05	D_w - Diffusivity in Water				MTBE = 1.1×10^{-5}
25	AT - Average Time for Non-Carcinogens In Ingestion Equation				Residential = 6; Industrial/Commercial = 25; Construction Worker = 0.115
25	AT - Average Time for Non-Carcinogens In Inhalation Equation				Residential = 30; Industrial/Commercial = 25; Construction Worker = 0.115
1	THQ - Target Hazard Quotient				1
3	RfC - Inhalation Reference Concentration				Chronic = 3; Subchronic = 2.5
0.01	RfD_o - Oral Reference Dose				Chronic = 0.01; Subchronic = 0.1
11.50	K_{oc} - Organic Carbon Partition Coefficient				MTBE = 11.5

Residential Ingestion Remediation Objectives for Non-Carcinogenic Contaminants

$$S\text{-}1 = \frac{THQ \times BW \times AT \times 365}{10^{-6} \times (1/RfD_o) \times EF \times ED \times IR_{soil}} = \frac{1}{0.000001} \times \frac{70}{1/0.01} \times \frac{25}{250} \times \frac{365}{25} \times \frac{}{50} = \frac{638750}{31.25} = 20440 \text{ mg/kg}$$

Construction Worker Ingestion Remediation Objectives for Non-Carcinogenic Contaminants

$$S\text{-}1 = \frac{THQ \times BW \times AT \times 365}{10^{-6} \times (1/RfD_o) \times EF \times ED \times IR_{soil}} = \frac{1}{0.000001} \times \frac{70}{1/0.1} \times \frac{0.115}{30} \times \frac{365}{1} \times \frac{}{480} = \frac{2938.25}{0.144} = 20405 \text{ mg/kg}$$

Inhalation Non-Carcinogenic Residential, Ind/Commercial

$$S\text{-}4 = \frac{THQ \times AT \times 365}{EF \times ED \times (1/R'C \times 1/VF)} = \frac{1}{250} \times \frac{25}{1/3} \times \frac{365}{1/15413.15385} = \frac{9125}{0.135166} = 67509.614 \text{ mg/kg}$$

Tier 2 Inhalation Objective cannot exceed Soil Saturation Limit

Inhalation Non-Carcinogenic Construction Worker

$$S\text{-}5 = \frac{THQ \times AT \times 365}{EF \times ED \times (1/R'C \times 1/VF)} = \frac{1}{30} \times \frac{0.115}{1/1} \times \frac{365}{2.5} \times \frac{}{1/104.0469175} = \frac{41.975}{0.115333} = 363.947 \text{ mg/kg}$$

Tier 2 Industrial/Commercial Calculations for MTBE

Dersch Croslow's
2005-0374

RESIDENTIAL OR COMMERCIAL

S-8 = $VF = \frac{Q}{C} \times \frac{(3.14 \times D_A \times T)^{1/2} \times 10^{-4}}{(2 \times \rho_b \times D_A)}$ = 85.81 × $\frac{(3.14 \times 8.54E\text{-}05 \times 7.90E+08)^{1/2} \times 0.0001}{(2 \times 1.5 \times 8.54E\text{-}05)}$ = $\frac{3.9502}{2.56E\text{-}04}$ = 15413.1539

Construction Worker

S-8 = $VF = \frac{Q}{C} \times \frac{(3.14 \times D_A \times T)^{1/2} \times 10^{-4}}{(2 \times \rho_b \times D_A)}$ = 85.81 × $\frac{(3.14 \times 8.54E\text{-}05 \times 3.60E+06)^{1/2} \times 0.0001}{(2 \times 1.5 \times 8.54E\text{-}05)}$ = $\frac{0.2667}{2.56E\text{-}04}$ = 1040.4692

Equation for Derivation of Volatilization Factor - Construction Worker

S-9 = $VF' = \frac{VF}{10}$ = $\frac{1040.4692}{10}$ = 104.0469

Equation for Derivation of Apparent Diffusivity

S-10 = $D_A = \frac{(\theta_a^{3.33} \times D_i \times H') + (\theta_w^{3.33} \times D_w)}{\eta^2} \times \frac{1}{(\rho_b \times K_d) + \theta_w + (\theta_a \times H')}$

= $\frac{(2.01E\text{-}03 \times 0.102 \times 0.024) + (0.0143 \times 1.10E\text{-}05)}{0.1884} \times \frac{1}{(1.5 \times 0.023) + 0.28 + (0.155 \times 0.024)}$ = 8.54E-05

Soil Component of the Migration to Groundwater Cleanup Objective (Class 1)

S-17 = $C_w \times \left[K_d + \frac{(\theta_w + \theta_a \times H')}{\rho b}\right]$ = 1.4 × $\left[0.023 + \frac{0.279 + 0.155 \times 0.024}{1.5}\right]$ = **0.296** **mg/kg**

Target Soil Leachate Concentration (Class 1)

S-18 = C_w = $DF \times GW_{obj}$ = 20.00 × 0.070 = 1.4

Soil-Water Partition Coefficient

S-19 = K_d = $K_{oc} \times f_{oc}$ = 11.50 × 0.002 = 0.023

Tier 2 Industrial/Commercial Calculations for MTBE

Dersch Croslow's
2005-0374

Water-Filled Porosity

S-20 = $\Theta_w = \eta \times \left(\frac{I}{K_s}\right)^{1/(2b+3)} = 0.43 \times \left[\frac{0.300}{120.000}\right]^{0.074} = 0.2786$

Air-Filled Porosity

S-21 = $\Theta_a = \eta - \Theta_w = 0.43 - 0.28 = 0.1550$

Dilution Factor

S-22 = $DF = 1 + \frac{K \times I \times d}{I \times L} = \frac{24.19}{0.300} \times \frac{0.0340}{58.576} \times 9.244 + 1 = 1.4331$

GW Ingestion

S-23 = $\frac{TR \times BW \times At_c \times 365}{SF_o \times IR_w \times EF \times ED} = \frac{1.0E\text{-}06}{0.000} \times \frac{70}{1.000} \times \frac{0}{250} \times \frac{365}{25} = \frac{0.0E+00}{0} = \#DIV/0!$ mg/L

Total Soil Porosity

S-24 = $\eta = 1 - \frac{\rho_b}{\rho_s} = 1 - \frac{1.5}{2.65} = 0.4340$

Estimation of Mixing Zone Depth

S-25 = $d = (0.0112 \times L^2)^{0.5} + d_a\left[1 - \exp\frac{(-L \times I)}{(K \times I \times d_a)}\right]$

$= (0.0112 \times 58.576^2)^{0.5} + 3.048 \times \left[1 - \exp\frac{(-58.576 \times 0.3)}{(24.194 \times 0.0340 \times 3.048)}\right] = 9.244$ m

Soil Saturation Limit

S-29 = $C_{sat} = \frac{S}{\rho_b} \times [(K_d \times \rho b) + \Theta w + (H' \times \theta a)] = \frac{51000}{1.5} \times [(0.023 \times 1.5) + 0.279 + (0.024 \times 0.155)] = 10{,}786.01$ mg/kg

Dersch Croslow's
2005-0374

Appendix C - Table K
Parameter Estimates for Calculating Water - Filled Soil Porosity (Ow)

Soil Texture	Saturated Hydraulic Conductivity (Ks) (m/yr)	1/ (2b+3)
Sand	1830	0.09
Loamy Sand	540	0.085
Sandy Loam	230	0.08
Silt Loam	**120**	**0.074**
Loam	60	0.073
Sandy Clay Loam	40	0.058
Silt Clay Loam	13	0.054
Clay Loam	20	0.05
Sandy Clay	10	0.042
Silt Clay	8	0.042
Clay	5	0.039

Version: 10/25/2013

Hydraulic Conductivity from Slug Test Data
using Bouwer and Rice Method

Project: Croslow's Shell - MW-1 Date: 10/24/2006
Calc. By: JME Chk'd by:

Well Column Diameter (2rc):		2.0	inches	Depth to water tbl(ft):	5.47
Sand Pack Diameter (2rw):		8.0	inches	Depth of well bot (ft):	20.00
Screened Length (Le):		10.0	feet	Ref Depth: top of riser	96
Aquifer Thickness (H):		18.00	feet	Depth/Xducer:	Depth
Water ht above screen bot (Lw):		14.13	feet		
	Lw/rw:	42.4			
	Le/rw:	30.0	ln(Le/rw):	3.40	
Bouwer-Rice Factors:	A:	2.37		4th Order Polynomial	
	B:	2.21		approximations to curves in	
	C:	1.81		1989 paper	
ln(Re/rw):	H=Lw:				
	H>Lw:	1.808			
Hydr. Cond. (cm/s)	H=Lw:			best fit slope:	0.00401
	H>Lw:	7.6718E-05			

	TIME(sec)	D sub n	h sub n	ln(h sub n)	ln(hn/hn-1)	ln(h/h-1)/t	Estimated Slope
1	0	0	5.47	1.70			
2	5	0.7	4.77	1.56	-0.136932	-0.027386	-0.0273865
3	10	1.2	4.27	1.45	-0.110732	-0.022146	-0.0247665
4	15	1.7	3.77	1.33	-0.124539	-0.024908	-0.0245469
5	20	2.14	3.33	1.20	-0.124103	-0.024821	-0.0245577
6	25	2.62	2.85	1.05	-0.155653	-0.031131	-0.0254998
7	30	2.86	2.61	0.96	-0.087969	-0.017594	-0.0249892
8	35	3.08	2.39	0.87	-0.088057	-0.017611	-0.0241616
9	40	3.32	2.15	0.77	-0.105826	-0.021165	-0.0235756
10	45	3.58	1.89	0.64	-0.128891	-0.025778	-0.0233974
11	50	3.7	1.77	0.57	-0.065597	-0.013119	-0.0228331
12	55	3.86	1.61	0.48	-0.094745	-0.018949	-0.0223581
13	60	3.98	1.49	0.40	-0.077458	-0.015492	-0.0218447
14	70	4.18	1.29	0.25	-0.144134	-0.014413	-0.0210398
15	80	4.33	1.14	0.13	-0.123614	-0.012361	-0.0200722
16	90	4.48	0.99	-0.01	-0.141079	-0.014108	-0.0192155
17	100	4.59	0.88	-0.13	-0.117783	-0.011778	-0.0184054
18	110	4.64	0.83	-0.19	-0.058496	-0.00585	-0.0174821
19	120	4.71	0.76	-0.27	-0.088107	-0.008811	-0.0166487
20	130	4.76	0.71	-0.34	-0.068053	-0.006805	-0.0068053
21	140	4.8	0.67	-0.40	-0.057987	-0.005799	-0.006302
22	150	4.83	0.64	-0.45	-0.04581	-0.004581	-0.0057354
23	160	4.84	0.63	-0.46	-0.015748	-0.001575	-0.0047899
24	170	4.85	0.62	-0.48	-0.016	-0.0016	-0.0040641
25	180	4.87	0.60	-0.51	-0.03279	-0.003279	-0.0037208
26	190	4.89	0.58	-0.54	-0.033902	-0.00339	-0.0035502
27	200	4.91	0.56	-0.58	-0.035091	-0.003509	-0.0034678
28	210	4.92	0.55	-0.60	-0.018019	-0.001802	-0.003335
29	220	4.93	0.54	-0.62	-0.018349	-0.001835	-0.0031944

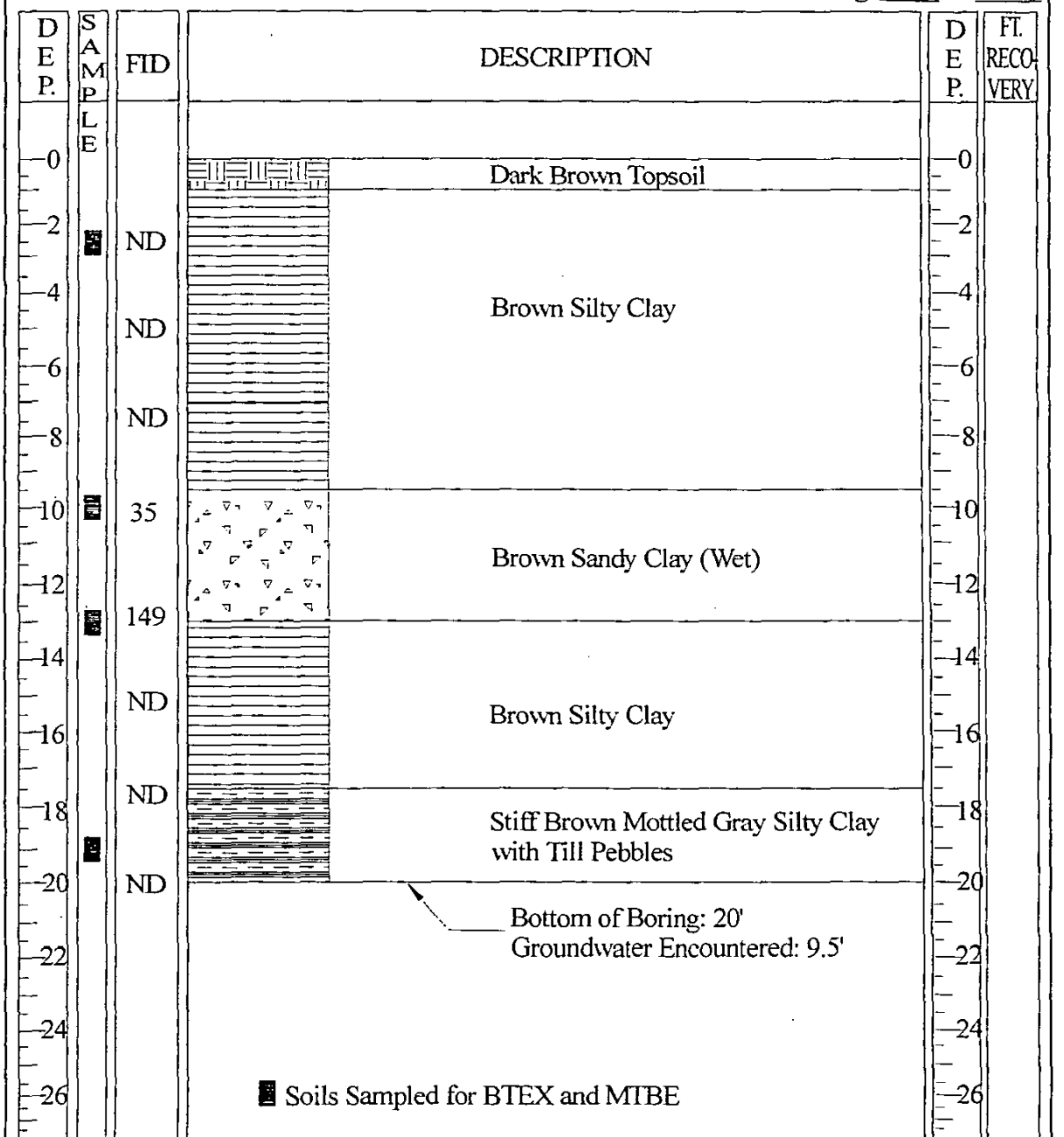
30	230	4.94	0.53	-0.63	-0.018692	-0.001869	-0.0030623
31	240	4.94	0.53	-0.63	0	0	-0.0028815
32	250	4.95	0.52	-0.65	-0.019048	-0.001905	-0.00274
33	260	4.96	0.51	-0.67	-0.019418	-0.001942	-0.002628
34	270	4.97	0.50	-0.69	-0.019803	-0.00198	-0.0025388
35	280	4.98	0.49	-0.71	-0.020203	-0.00202	-0.0024674
36	290	4.99	0.48	-0.73	-0.020619	-0.002062	-0.0024102
37	300	5	0.47	-0.76	-0.021053	-0.002105	-0.0023644
38	320	5.02	0.45	-0.80	-0.043485	-0.002174	-0.002323
39	340	5.03	0.44	-0.82	-0.022473	-0.001124	-0.0022583
40	360	5.05	0.42	-0.87	-0.04652	-0.002326	-0.0022137
41	380	5.06	0.41	-0.89	-0.024098	-0.001205	-0.0021584
42	400	5.08	0.39	-0.94	-0.05001	-0.002501	-0.0021266
43	420	5.09	0.38	-0.97	-0.025975	-0.001299	-0.0020884
44	440	5.01	0.46	-0.78	0.191055	0.009553	-0.0018624
45	460						
46	480						
47	500						
48	520						
49	540						
50	560						
51	580						
52	600						
53	660						
54	720						
55	780						
56	840						
57	900						
58	960						
59	1020						

APPENDIX F

BORE LOGS AND WELL COMPLETION REPORTS

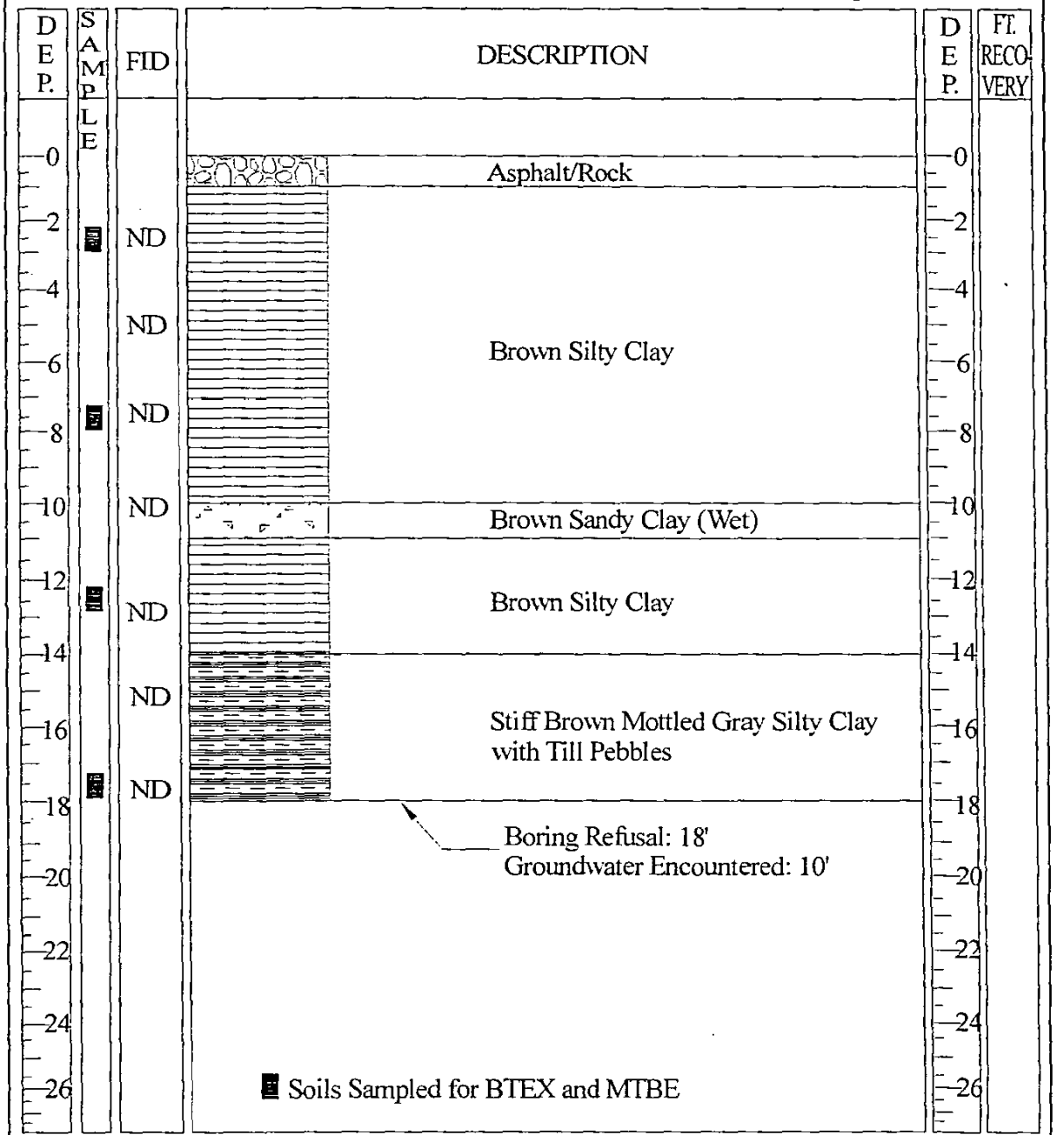
CORRECTIVE ACTION PLAN
DERSCH CROSLOW'S
LAWRENCEVILLE, ILLINOIS

PROJECT: Crosslow's Shell - Dersch Energies, Inc. BORING NO.: B-1 MW-1
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 20'
WATER INDICATION: 9.5'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-2 MW-2
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



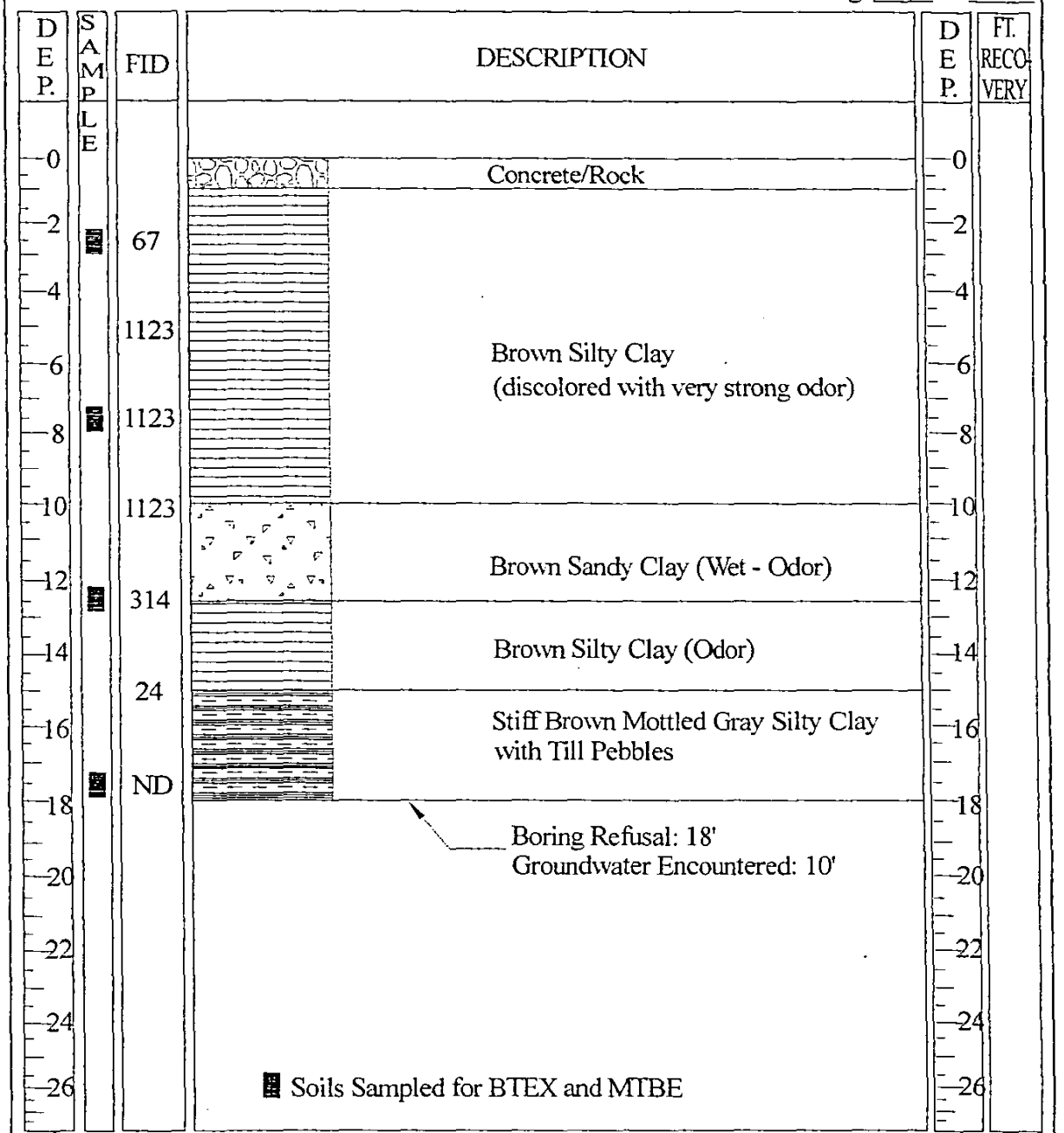
BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-3 MW-3
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 19'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1

DEP.	SAMPLE	FID	DESCRIPTION	DEP.	FT. RECOVERY
0			Concrete/Rock	0	
2	■	ND	Brown Silty Clay (discolored with very strong odor)	2	
4		ND		4	
6				6	
8	■	1123		8	
10		892	Brown Sandy Clay (Wet - Odor)	10	
12	■	248	Brown Silty Clay (Odor)	12	
14		14	Stiff Brown Mottled Gray Silty Clay with Till Pebbles	14	
16				16	
18	■	2.5	Sandstone	18	
		ND	Boring Refusal: 19' Groundwater Encountered: 10'		
20				20	
22				22	
24				24	
26			■ Soils Sampled for BTEX and MTBE	26	

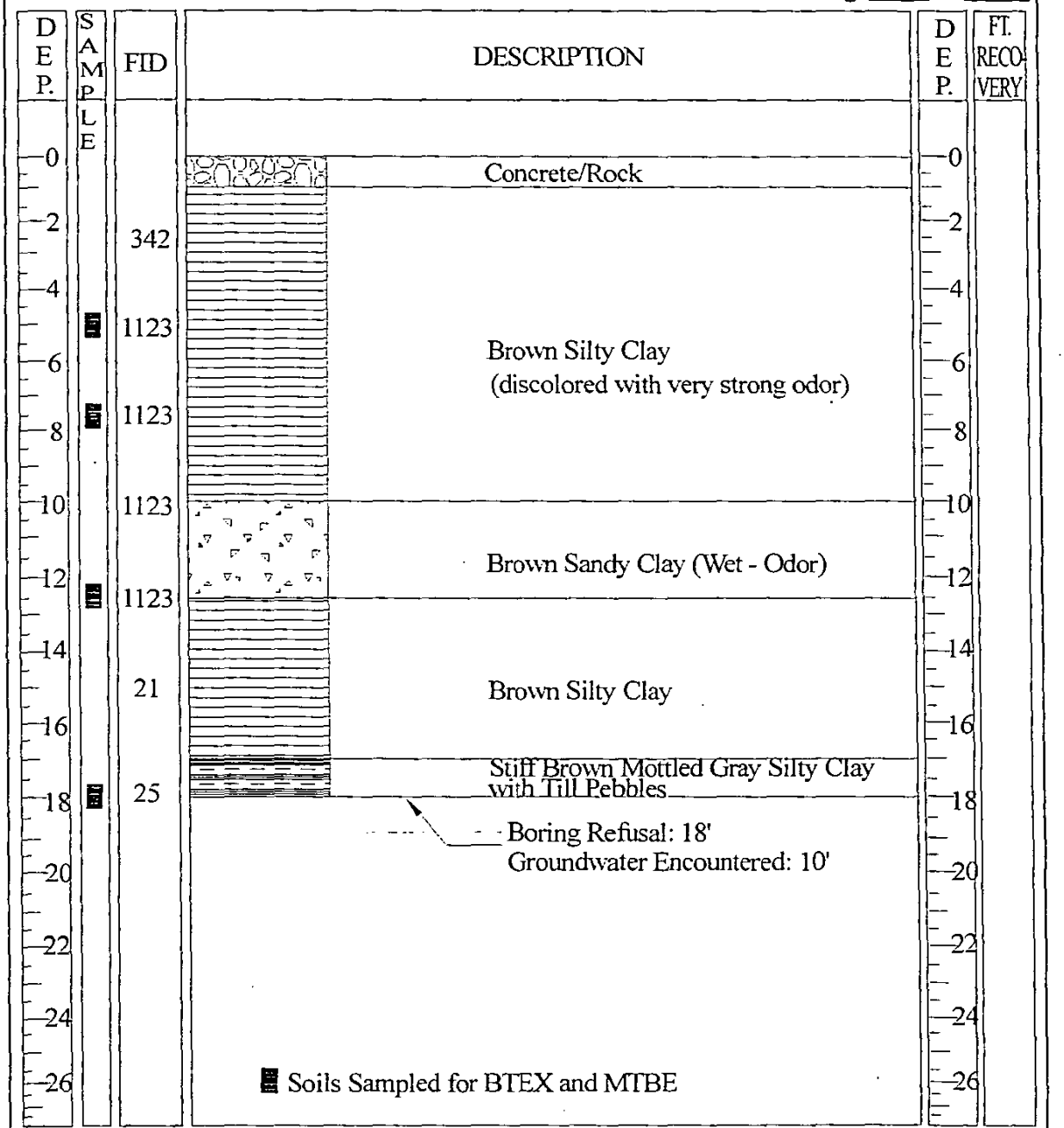
BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-4 MW-4
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



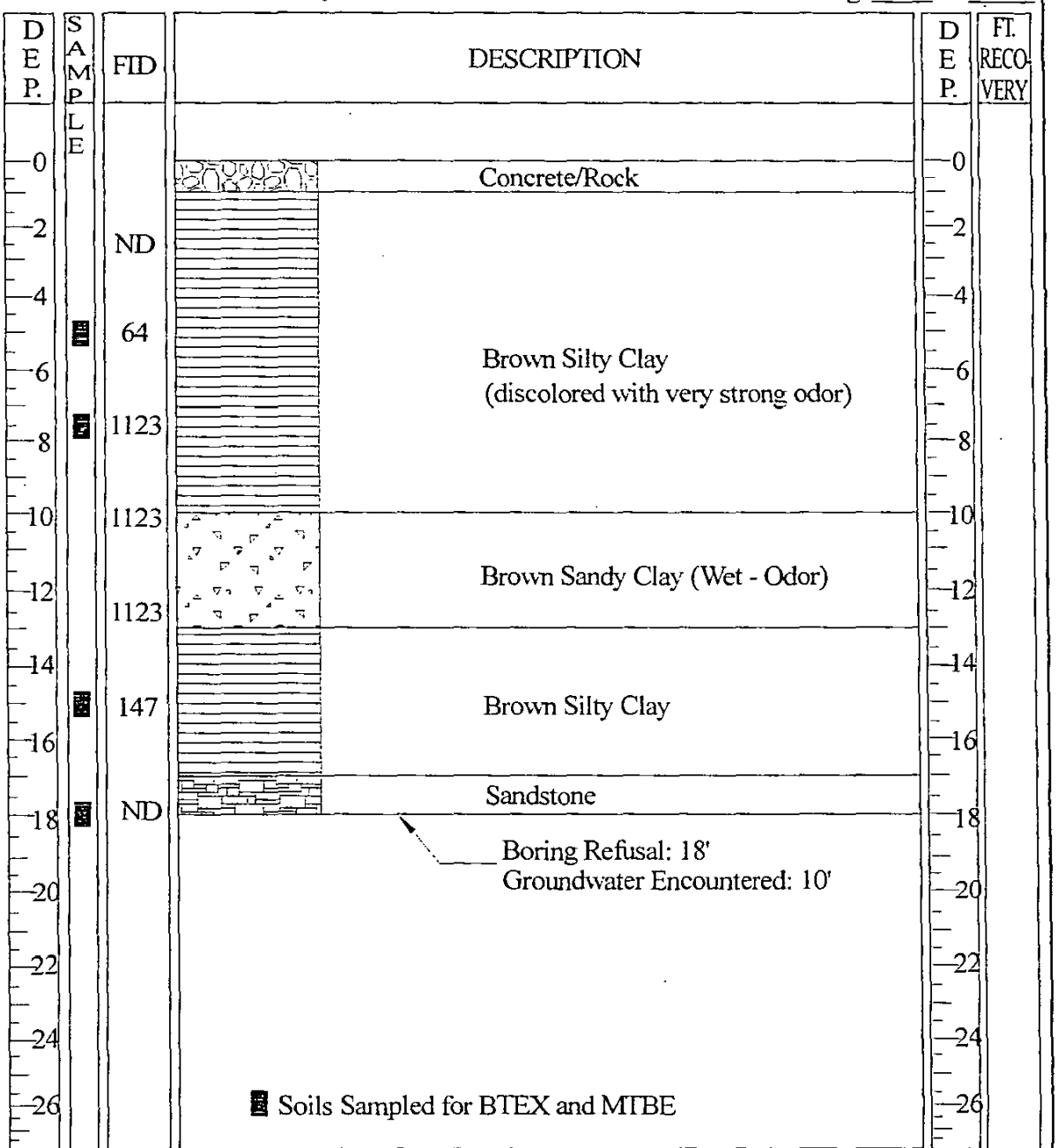
BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-5 MW-5
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



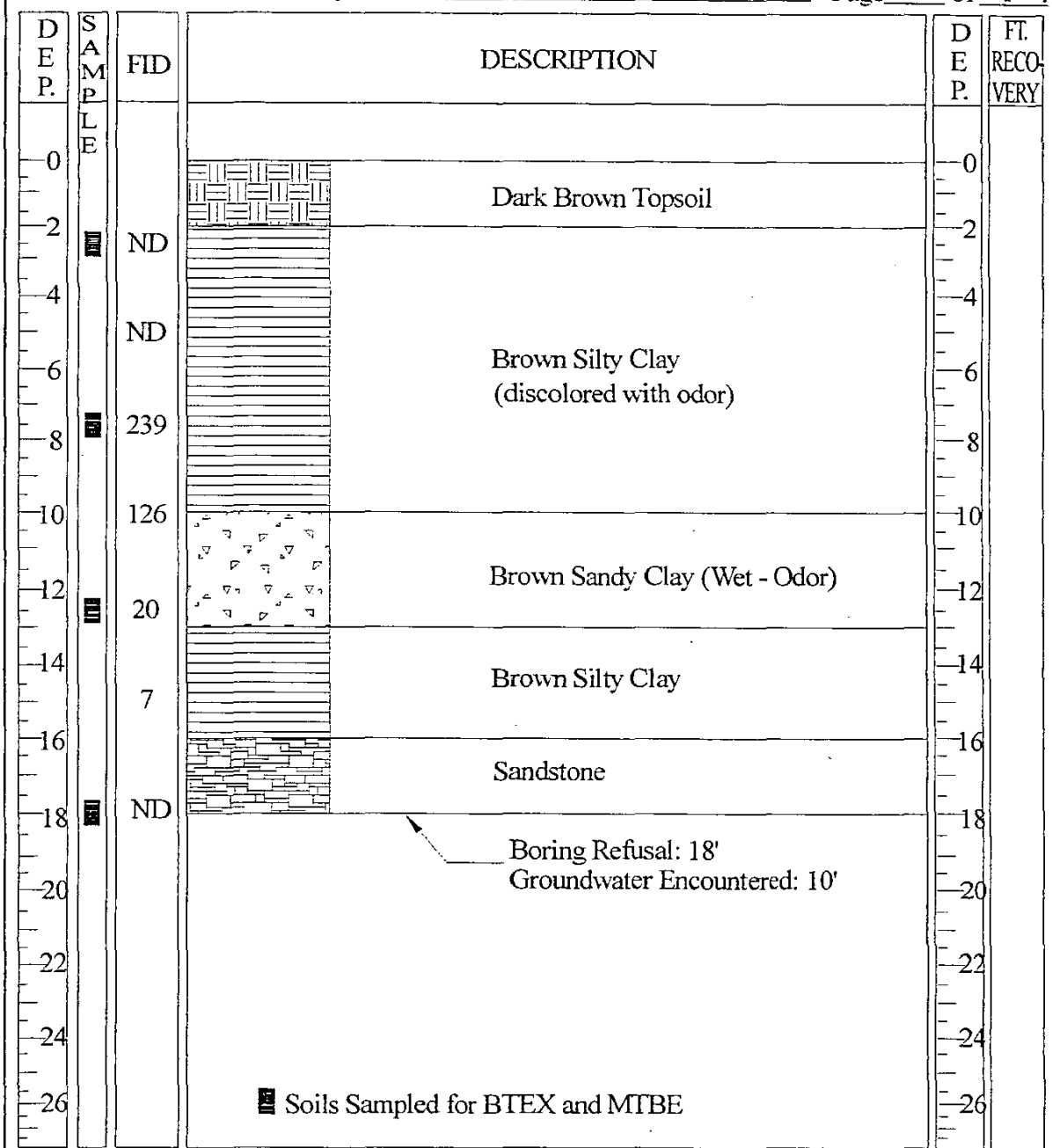
BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-6
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



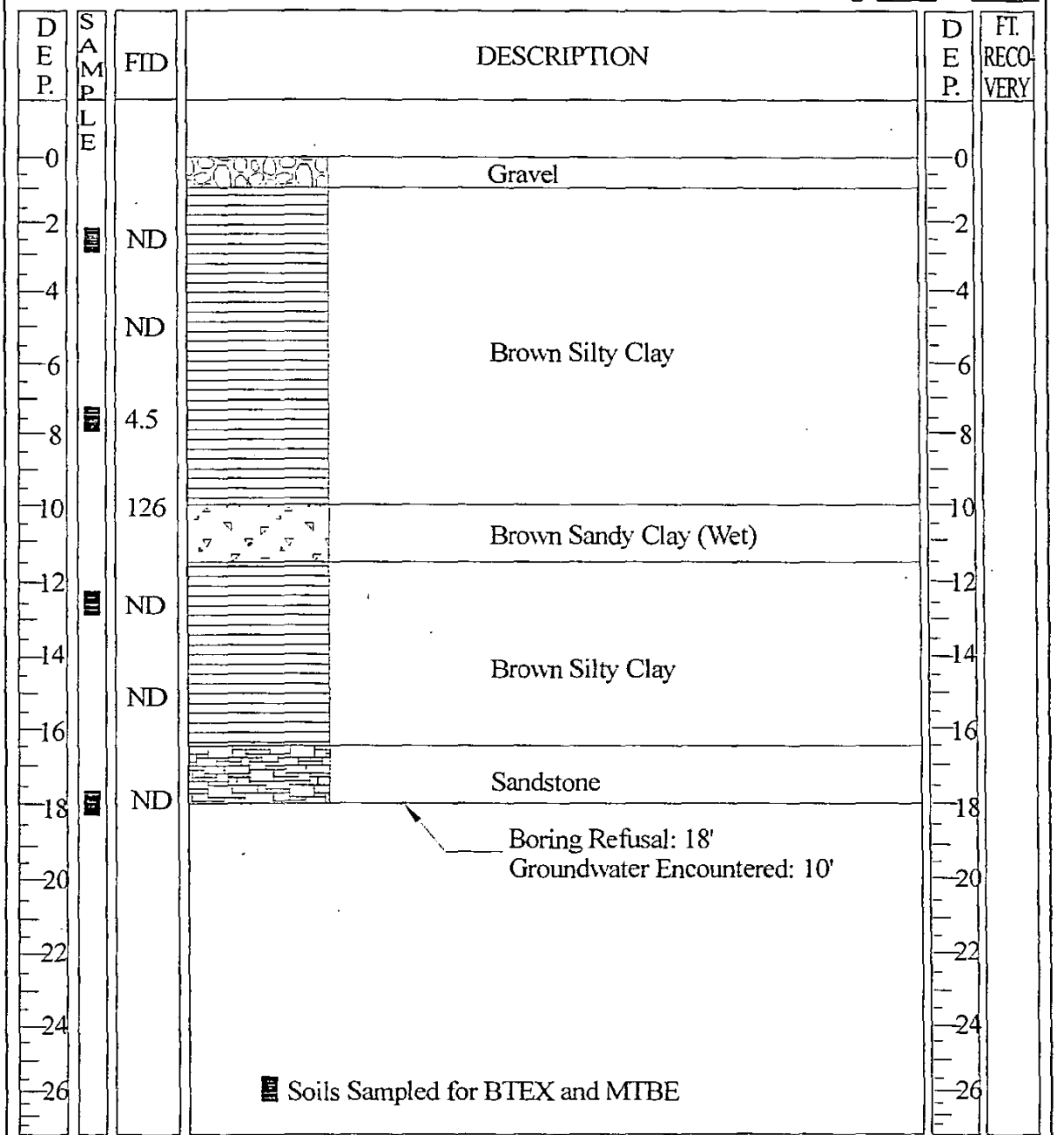
BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-7
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



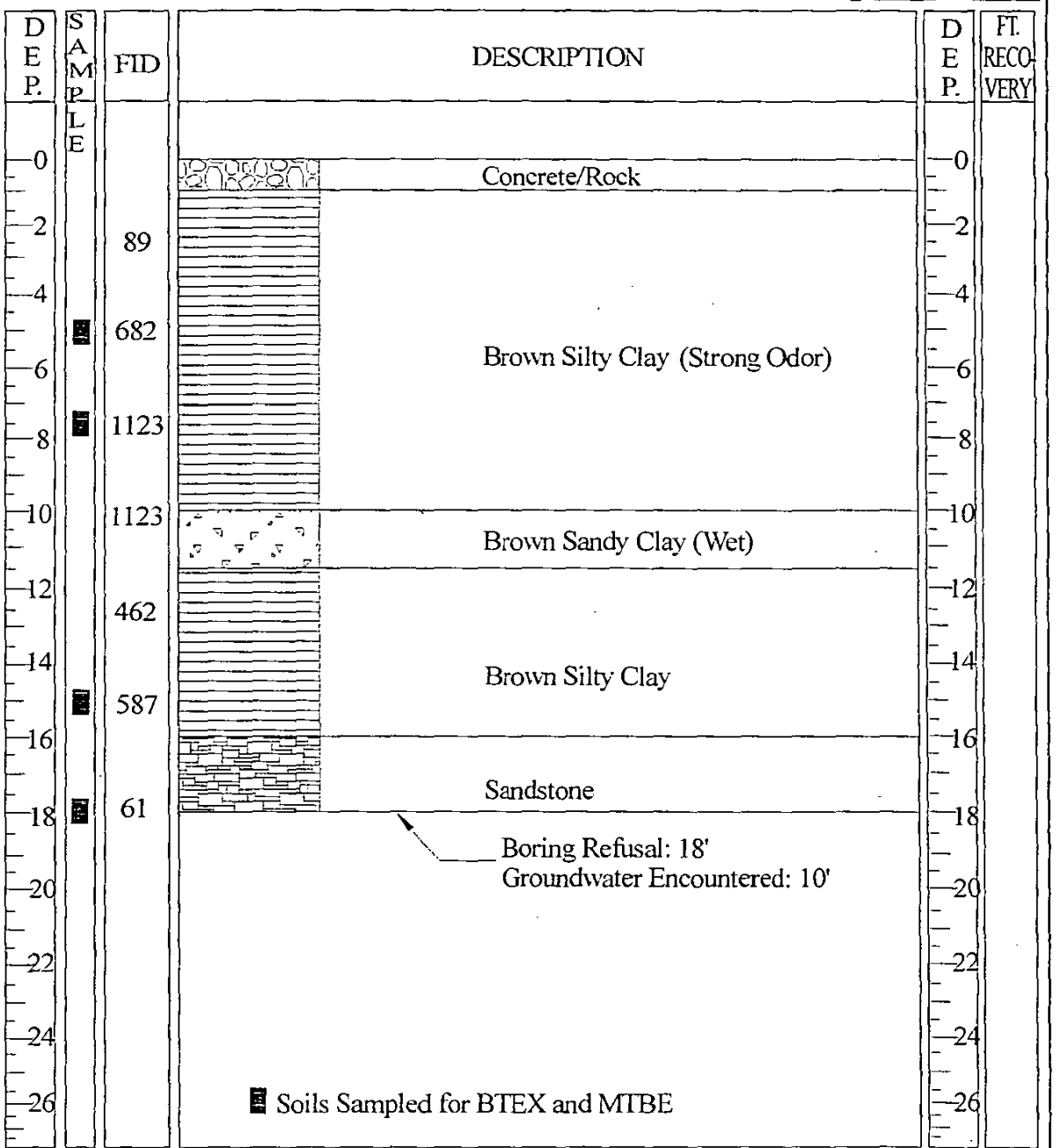
BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-8
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



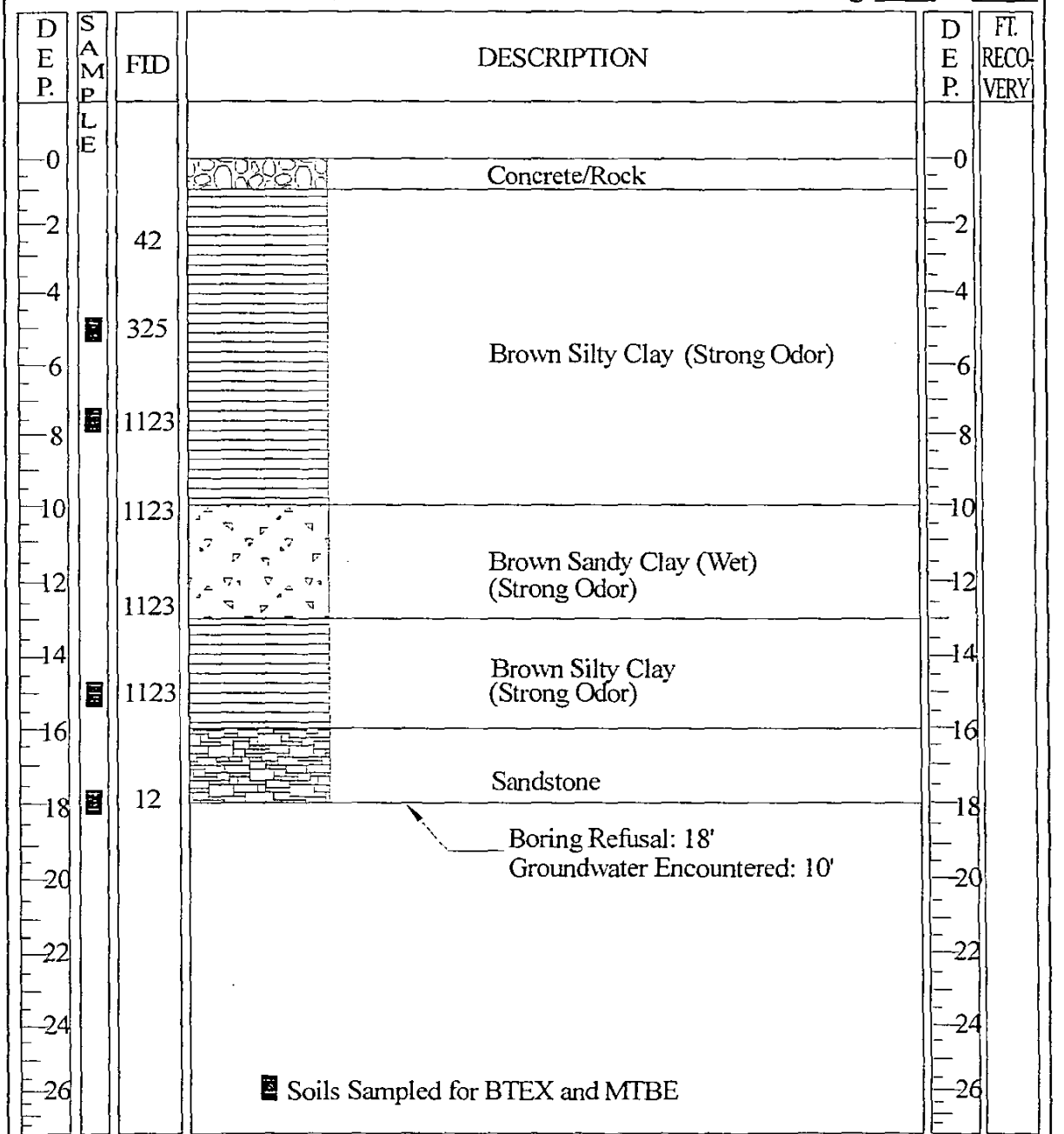
BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-9
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-10
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



BORING LOG | Applied Environmental Technologies, Inc.

Illinois Environmental Protection Agency

CW M COMPANY, INC.
DRILLING BOREHOLE LOG

LUST INCIDENT #: 2005-0374	BOREHOLE NUMBER: MW-6
SITE NAME: Dersch Croslow Shell Lawrenceville	BORING LOCATION: 25'S &98'E of SE corner of Croslows (50'E of MW-1)
SITE ADDRESS: 1421 Lexington Avenue Lawrenceville, Illinois 62439	RIG TYPE: Truck mounted drill rig
DATE/TIME STARTED: 3/27/14 12:00	DRILLING/SAMPLE METHOD: continuous sampling/hollow stem auger
DATE/TIME FINISHED: 3/27/14 12:50	BACKFILL: Installed Monitoring Well

DEPTH (FEET)	SOIL AND ROCK DESCRIPTION	USCS CLASS	Sample Recovery	PID (ppm)	Sample Type	SAMPLE NUMBER	REMARKS: (Odor, Color, Moisture, Penetrometer, etc.)
0	Asphalt						
1	Gravel Subbase						No Odor or Discoloration Throughout
2	Brown Silty Clay with Fine Grain to Medium Grain Sand	CL	95%	0	Grab	MW6-2.5	BETX, MTBE
3							
4							
5							
6							
7	Brown Mottled Grey Silty Clay	CL					
8			85%	0	Grab	MW6-7.5	BETX, MTBE
9							
10							
11							
12							
13	Brown Mottled Grey Silty Clay with Fine Grained Sand	CL	100%	0	Grab	MW6-12.5	BETX, MTBE
14							
15	End of Boring 15'						

Stratification lines are approximate, in-situ transition between soil types may be gradual.

NOTES: Sampled at 2.5, 7.5, and 12.5 per regulations

Manway / Surface Elevation:	96.94				
Groundwater Depth While Drilling:	~9-11	Auger Depth:	15'	Driller:	AEDC
Groundwater Depth After Drilling:	93.18	Rotary Depth:		Geologist:	RJS/BMW

Illinois Environmental Protection Agency

CW M COMPANY, INC.
DRILLING BOREHOLE LOG

ST INCIDENT #: 2005-0374	BOREHOLE NUMBER: MW-7
SITE NAME: Dersch Crostow Shell Lawrenceville	BORING LOCATION: 105'S & 21'W of SE Corner of Croslows
SITE ADDRESS: 1421 Lexington Avenue Lawrenceville, Illinois 62439	RIG TYPE: Truck mounted drill rig
DATE/TIME STARTED: 3/27/14 12:50	DRILLING/SAMPLE METHOD: continuous sampling/hollow stem auger
DATE/TIME FINISHED: 3/27/14 1:40	BACKFILL: Installed Monitoring Well

DEPTH (FEET)	SOIL AND ROCK DESCRIPTION	USCS CLASS	Sample Recovery	PID (ppm)	Sample Type	SAMPLE NUMBER	REMARKS: (Odor, Color, Moisture, Penetrometer, etc.)
0	Decorative Gravel						
1	Gravel/Soil subbase						
2	Brown Silty Clay with Fine Grain to Medium Grain Sand	CL	95%	0	Grab	MW7-2.5	BETX, MTBE
3							
4							
5							
6							
7	Brown Mottled Grey Silty Clay	CL	90%	0	Grab	MW7-7.5	BETX, MTBE
8							
9							
10							
11							
12	Grey Mottled Brown Silty Clay with Fine Grain Sand	CL					
13			90%	226	Grab	MW7-12.5	BETX, MTBE Odor and Discoloration 12.5'
14							
15	End of Boring 15'						

Stratification lines are approximate. in-situ transition between soil types may be gradual.

NOTES: Sampled at 2.5, 7.5, and 12.5 per regulations

Manway / Surface Elevation:	98.41				
▼ Groundwater Depth While Drilling:	~9-11	Auger Depth:	15'	Driller:	AEDC
▽ Groundwater Depth After Drilling:	94.2	Rotary Depth:		Geologist:	RJS/BMW

Illinois Environmental Protection Agency

CW M COMPANY, INC.
DRILLING BOREHOLE LOG

LUST INCIDENT #: 2005-0374	BOREHOLE NUMBER: MW-8
SITE NAME: Dersch Croslow Shell Lawrenceville	BORING LOCATION: 35'S &108'W of NW Corner of Croslows
SITE ADDRESS: 1421 Lexington Avenue Lawrenceville, Illinois 62439	RIG TYPE: Truck mounted drill rig
DATE/TIME STARTED: 3/27/14 1:40	DRILLING/SAMPLE METHOD: continuous sampling/hollow stem auger
DATE/TIME FINISHED: 3/27/14 2:30	BACKFILL: Installed Monitoring Well

DEPTH (FEET)	SOIL AND ROCK DESCRIPTION	USCS CLASS	Sample Recovery	PID (ppm)	Sample Type	SAMPLE NUMBER	REMARKS: (Odor, Color, Moisture, Penetrometer, etc.)
0	Grass						
1	Silt Loam top soil						Slight Odor Throughout
2	Brown Silty Clay with Fine Grain to Medium Grain Sand	CL	90%	16.3	Grab	MW8-2.5	BETX, MTBE
3							
4							
5							
6							
7	Brown Mottled Grey Silty Clay	CL					very soft
8			90%	0	Grab	MW8-7.5	BETX, MTBE
9							
10							
11							
12							
13			90%	0	Grab	MW8-12.5	BETX, MTBE
14							
15	End of Boring 15'						

Stratification lines are approximate, in-situ transition between soil types may be gradual.

NOTES: Sampled at 2.5, 7.5, and 12.5 per regulations

Manway / Surface Elevation:	101.52				
Groundwater Depth While Drilling:	~9-11	Auger Depth:	15'	Driller:	AEDC
Groundwater Depth After Drilling:	98.27	Rotary Depth:		Geologist:	RJS /BMW

Illinois Environmental Protection Agency

CW M COMPANY, INC.
DRILLING BOREHOLE LOG

LUST INCIDENT #: 2005-0374	BOREHOLE NUMBER: MW-9
SITE NAME: Dersch Croslow Shell Lawrenceville	BORING LOCATION: 20'E of NE Corner of Croslows
SITE ADDRESS: 1421 Lexington Avenue Lawrenceville, Illinois 62439	RIG TYPE: Truck mounted drill rig
DATE/TIME STARTED: 3/27/14 2:30	DRILLING/SAMPLE METHOD: continuous sampling/hollow stem auger
DATE/TIME FINISHED: 3/27/14 3:20	BACKFILL: Installed Monitoring Well

DEPTH (FEET)	SOIL AND ROCK DESCRIPTION	USCS CLASS	Sample Recovery	PID (ppm)	Sample Type	SAMPLE NUMBER	REMARKS: (Odor, Color, Moisture, Penetrometer, etc.)
0	Gravel						
1	Subbase						No Odor & Discoloration
2	Brown Mottled Grey Silty Clay with Fine Grain to Medium Grain Sand	CL	90%	0	Grab	MW9-2.5	BETX, MTBE
3							
4							
5							
6							
7	Brown Mottled Greay Silty Clay	CL					very soft
8			90%	0	Grab	MW9-7.5	BETX, MTBE
9							
10							
11							
12							
13			95%	0	Grab	MW9-12.5	BETX, MTBE
14	Brown Mottled Grey Silty Clay with trace sand	CL					
15	End of Boring 15'						

Stratification lines are approximate, in-situ transition between soil types may be gradual.

NOTES: Sampled at 2.5, 7.5, and 12.5 per regulations

Manway / Surface Elevation:	99.36				
▼ Groundwater Depth While Drilling:	~9-11	Auger Depth:	15'	Driller:	AEDC
▽ Groundwater Depth After Drilling:	97.74	Rotary Depth:		Geologist:	RJS / BMW

Illinois Environmental Protection Agency

CW M COMPANY, INC.
DRILLING BOREHOLE LOG

LUST INCIDENT #: 2005-0374	**BOREHOLE NUMBER:** SB-1
SITE NAME: Dersch Croslow Shell Lawrenceville	**BORING LOCATION:** 10'S & 20'W of NW Corner of Croslows
SITE ADDRESS: 1421 Lexington Avenue Lawrenceville, Illinois 62439	**RIG TYPE:** Truck mounted drill rig
DATE/TIME STARTED: 3/27/14 3:20	**DRILLING/SAMPLE METHOD:** continuous sampling/hollow stem auger
DATE/TIME FINISHED: 3/27/14 3:50	**BACKFILL:** Installed Monitoring Well

DEPTH (FEET)	SOIL AND ROCK DESCRIPTION	USCS CLASS	Sample Recovery	PID (ppm)	Sample Type	SAMPLE NUMBER	REMARKS: (Odor, Color, Moisture, Penetrometer, etc.)
0	Concrete						
1	with Gravel Subbase						Slight Odor & Discoloration Throughout
2	Brown Silty Clay with Fine Grain to Medium Grain Sand	CL					
3			75%	2.1	Grab	SB1-2.5	BETX, MTBE
4							
5							
6							
7	Brown Silty Clay	CL					
8			90%	0	Grab	SB1-7.5	BETX, MTBE
9							
10							
11							
12							
13			95%	0	Grab	SB1-12.5	BETX, MTBE
14	Brown Mottled Grey Silty Clay with Fine Grain Sand	CL					
15	End of Boring 15'						

Stratification lines are approximate, in-situ transition between soil types may be gradual.

NOTES: Sampled at 2.5, 7.5, and 12.5 per regulations

Manway / Surface Elevation:

Groundwater Depth While Drilling:	~9-11	**Auger Depth:**	15'	**Driller:**	AEDC
Groundwater Depth After Drilling:		**Rotary Depth:**		**Geologist:**	RJS / BMW

Applied Environmental Technologies

Well Completion Report

Incident No.: H-20050374
Site Name: Croslow's Shell - Dersch Energies, Inc.
Drilling Contractor: Advanced Environmental Drilling
Driller: Greg Courson
Drilling Method: Hollow Stem Augers

Well No.: MW - 1
Date Drilled Start: 10/17/06
Date Completed: 10/17/06
Geologist: Bryan Williams
Drilling Fluids (type): N/A

Annular Space Details

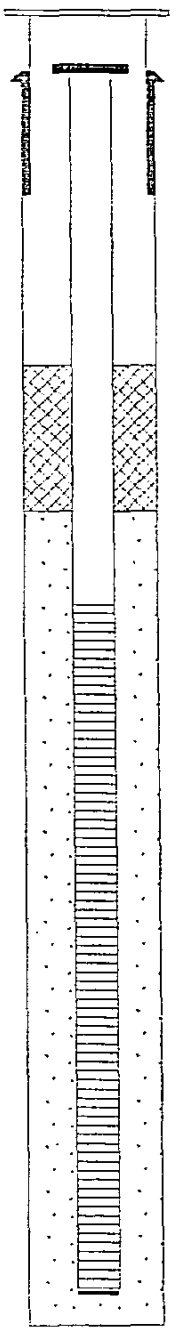
Type of Surface Seal: Concrete
Type of Annular Sealant: Bentonite
Type of Bentonite Seal (Granular, Pellet): Granular
Type of Sand Pack: Silica Sand

Well Construction Materials

	Stainless Steel Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint		Screw	
Riser Pipe Above w.t.		Sched 40 - 2"	
Riser Pipe Below w.t.		Sched 40 - 2"	
Screen		Sched 40 - 2"	
Coupling Joint Screen to Riser		Screw	
Protective Casing			Steel

Measurements

Riser Pipe Length	9.60'
Screen Length	10'
Screen Slot Size	0.010"
Protective Casing Length	1'
Depth to Water	5.47'
Elevation of Water	90.53'
Free Product Thickness	N/A
Gallons Removed (develop)	N/A
Gallons Removed (purge)	8 Gallons
Other	



Elevations - .01 ft.

96.40' Top of Protective Casing
96.00' Top of Riser Pipe
96.40' Ground Surface
95.40' Top of Annular Sealant
N/A Casing Stickup
95.40' Top of Seal
5' Total Seal Interval
90.40' Top of Sand
86.40' Top of Screen
10' Total Screen Interval
76.40' Bottom of Screen
76.40' Bottom of Borehole

Completed By: Jay Emery

Applied Environmental Technologies

Well Completion Report

Incident No.: H-20050374
Site Name: Croslow's Shell - Dersch Energies, Inc.
Drilling Contractor: Advanced Environmental Drilling
Driller: Greg Courson
Drilling Method: Hollow Stem Augers

Well No.: MW - 2
Date Drilled Start: 10/17/06
Date Completed: 10/17/06
Geologist: Bryan Williams
Drilling Fluids (type): N/A

Annular Space Details

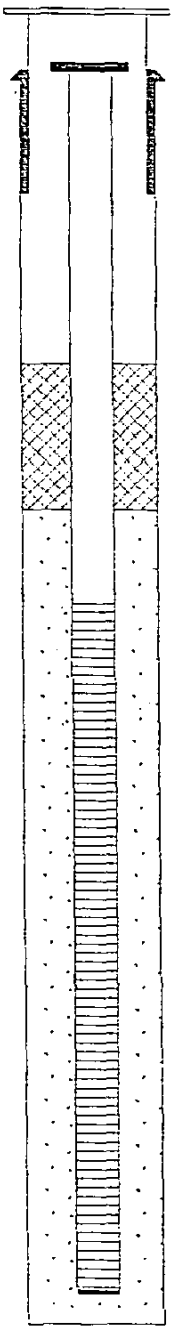
Type of Surface Seal: Concrete
Type of Annular Sealant: Bentonite
Type of Bentonite Seal (Granular, Pellet): Granular
Type of Sand Pack: Silica Sand

Well Construction Materials

	Stainless Steel Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint		Screw	
Riser Pipe Above w.t.		Sched 40 - 2"	
Riser Pipe Below w.t.		Sched 40 - 2"	
Screen		Sched 40 - 2"	
Coupling Joint Screen to Riser		Screw	
Protective Casing			Steel

Measurements

Riser Pipe Length	9.70'
Screen Length	10'
Screen Slot Size	0.010"
Protective Casing Length	1'
Depth to Water	5.96'
Elevation of Water	92.74'
Free Product Thickness	N/A
Gallons Removed (develop)	N/A
Gallons Removed (purge)	8 Gallons
Other	



Elevations - .01 ft.

99.00' Top of Protective Casing
98.70' Top of Riser Pipe
99.00' Ground Surface
98.00' Top of Annular Sealant
N/A Casing Stickup
98.00' Top of Seal
5' Total Seal Interval
93.00' Top of Sand
89.00' Top of Screen
10' Total Screen Interval
79.00' Bottom of Screen
79.00' Bottom of Borehole

Completed By: Jay Emery

Applied Environmental Technologies

Well Completion Report

Incident No.: H-20050374
Site Name: Croslow's Shell - Dersch Energies, Inc.
Drilling Contractor: Advanced Environmental Drilling
Driller: Greg Courson
Drilling Method: Hollow Stem Augers

Well No.: MW - 3
Date Drilled Start: 10/17/06
Date Completed: 10/17/06
Geologist: Bryan Williams
Drilling Fluids (type): N/A

Annular Space Details

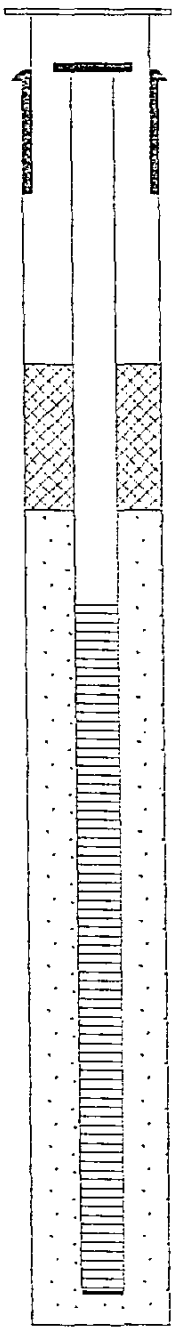
Type of Surface Seal: Concrete
Type of Annular Sealant: Bentonite
Type of Bentonite Seal (Granular, Pellet): Granular
Type of Sand Pack: Silica Sand

Well Construction Materials

	Stainless Steel Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint		Screw	
Riser Pipe Above w.t.		Sched 40 - 2"	
Riser Pipe Below w.t.		Sched 40 - 2"	
Screen		Sched 40 - 2"	
Coupling Joint Screen to Riser		Screw	
Protective Casing			Steel

Measurements

Riser Pipe Length	9.67'
Screen Length	10'
Screen Slot Size	0.010"
Protective Casing Length	1'
Depth to Water	5.68'
Elevation of Water	92.50'
Free Product Thickness	N/A
Gallons Removed (develop)	N/A
Gallons Removed (purge)	8 Gallons
Other	



Elevations - .01 ft.

98.51' Top of Protective Casing
98.18' Top of Riser Pipe
98.51' Ground Surface
97.51' Top of Annular Sealant
N/A Casing Stickup
97.51' Top of Seal
5' Total Seal Interval
92.51' Top of Sand
88.51' Top of Screen
10' Total Screen Interval
78.51' Bottom of Screen
78.51' Bottom of Borehole

Completed By: Jay Emery

Applied Environmental Technologies

Well Completion Report

Incident No.: H-20050374
Site Name: Croslow's Shell - Dersch Energies, Inc.
Drilling Contractor: Advanced Environmental Drilling
Driller: Greg Courson
Drilling Method: Hollow Stem Augers

Well No.: MW - 4
Date Drilled Start: 10/17/06
Date Completed: 10/17/06
Geologist: Bryan Williams
Drilling Fluids (type): N/A

Annular Space Details

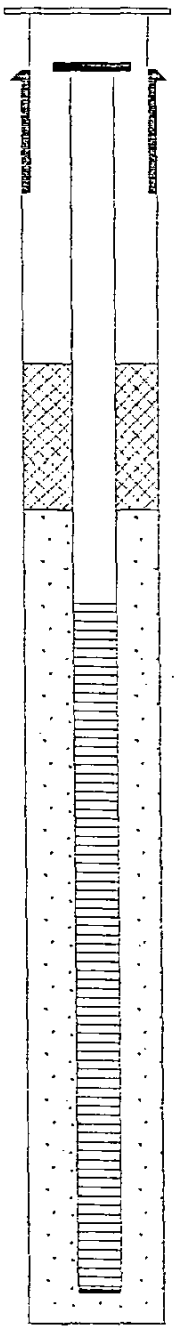
Type of Surface Seal: Concrete
Type of Annular Sealant: Bentonite
Type of Bentonite Seal (Granular, Pellet): Granular
Type of Sand Pack: Silica Sand

Well Construction Materials

	Stainless Steel Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint		Screw	
Riser Pipe Above w.t.		Sched 40 - 2"	
Riser Pipe Below w.t.		Sched 40 - 2"	
Screen		Sched 40 - 2"	
Coupling Joint Screen to Riser		Screw	
Protective Casing			Steel

Measurements

Riser Pipe Length	9.62'
Screen Length	10'
Screen Slot Size	0.010"
Protective Casing Length	1'
Depth to Water	4.02'
Elevation of Water	94.02'
Free Product Thickness	N/A
Gallons Removed (develop)	N/A
Gallons Removed (purge)	8 Gallons
Other	



Elevations - .01 ft.

98.42' Top of Protective Casing
98.04' Top of Riser Pipe
98.42' Ground Surface
97.42' Top of Annular Sealant
N/A Casing Stickup
97.42' Top of Seal
5' Total Seal Interval
92.42' Top of Sand
88.42' Top of Screen
10' Total Screen Interval
78.42' Bottom of Screen
78.42' Bottom of Borehole

Completed By: Jay Emery

Applied Environmental Technologies

Well Completion Report

Incident No.: H-20050374
Site Name: Croslow's Shell - Dersch Energies, Inc.
Drilling Contractor: Advanced Environmental Drilling
Driller: Greg Courson
Drilling Method: Hollow Stem Augers

Well No.: MW - 5
Date Drilled Start: 10/17/06
Date Completed: 10/17/06
Geologist: Bryan Williams
Drilling Fluids (type): N/A

Annular Space Details

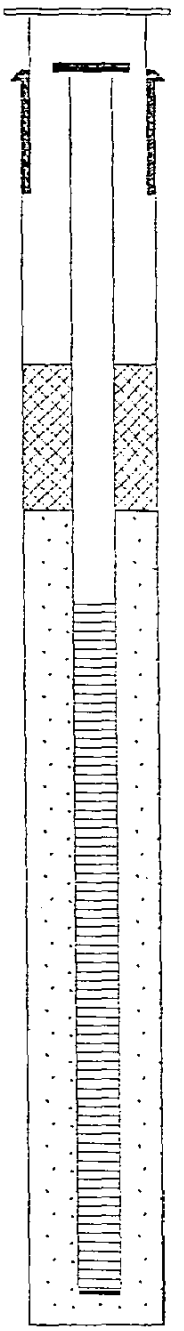
Type of Surface Seal: Concrete
Type of Annular Sealant: Bentonite
Type of Bentonite Seal (Granular, Pellet): Granular
Type of Sand Pack: Silica Sand

Well Construction Materials

	Stainless Steel Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint		Screw	
Riser Pipe Above w.t.		Sched 40 - 2"	
Riser Pipe Below w.t.		Sched 40 - 2"	
Screen		Sched 40 - 2"	
Coupling Joint Screen to Riser		Screw	
Protective Casing			Steel

Measurements

Riser Pipe Length	9.60'
Screen Length	10'
Screen Slot Size	0.010"
Protective Casing Length	1'
Depth to Water	5.13'
Elevation of Water	91.13'
Free Product Thickness	N/A
Gallons Removed (develop)	N/A
Gallons Removed (purge)	8 Gallons
Other	



Elevations - .01 ft.

96.66' Top of Protective Casing
96.26' Top of Riser Pipe
96.66' Ground Surface
95.66' Top of Annular Sealant
N/A Casing Stickup
95.66' Top of Seal
5' Total Seal Interval
90.66' Top of Sand
86.66' Top of Screen
10' Total Screen Interval
76.66' Bottom of Screen
76.66' Bottom of Borehole

Completed By: Jay Emery

Illinois Environmental Protection Agency — **LUST Well Completion Report**

Incident No.	2005-0374	**Well No.**	MW-6
Site Name	Dersch Lawrenceville	**Date Drilled**	3/27/2014
Drilling Contractor	CW^{3}M	**Date Completed**	3/27/2014
Driller	CW^{3}M	**Geologist**	RJS/BMW
Drilling Method	Hollow Stem Auger	**Drilling Fluids**	N/A

Annular Space Details

Type of Surface Seal	Concrete
Type of Annular Sealant	Bentonite
Type of Bentonite	High-Yield
Type of Sand Pack	Coarse 20-20

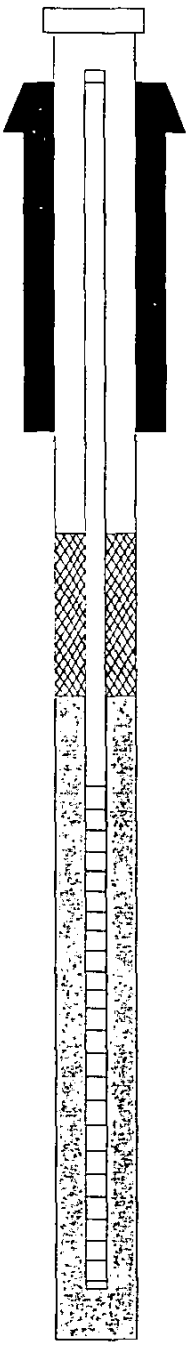
Well Construction Materials

	Stainless Steel Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint			
Riser Pipe Above w.t.		Sched.-40	
Riser Pipe Below w.t.			
Screen		Sched.-40	
Coupling Joint Screen to Riser		Sched.-40	
Protective Casing			Steel

Measurements

Riser Pipe Length	4.25 ft.
Screen Length	10.0 ft.
Screen Slot Size	10-slot
Protective Casing Length	N/A
Depth to Water	~9-11 ft. while drilling
Depth to Water	93.18 ft. static
Free Product Thickness	N/A
Gallons removed (develop)	Approximately 3 gallons
Gallons removed (purge)	Approximately 3 gallons
Other	

Completed by: BMW



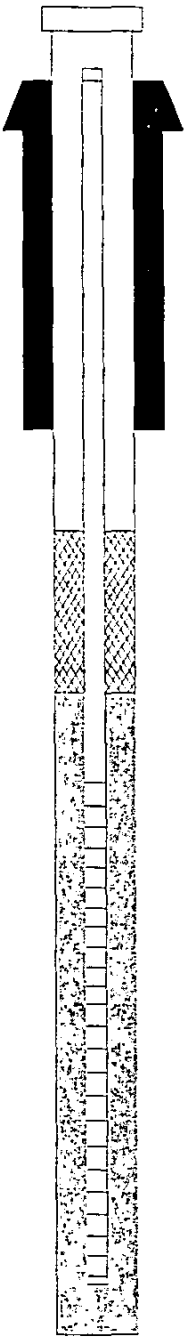
	Top of Protective
96.94 ft.	Casing
96.69 ft.	Top of riser pipe
96.94 ft.	Ground surface
	Top of Annular
96.44 ft.	Sealant
N/A	Casing Stickup
96.44 ft.	Top of Seal
3.00 ft.	Total Seal interval
93.44 ft.	Top of Sand
92.44 ft.	Top of Screen
	Total Screen
10.0 ft.	Interval
	Bottom of
82.44 ft.	Screen
	Bottom of
81.94 ft.	Borehole

Illinois Environmental Protection Agency — **LUST Well Completion Report**

Incident No.	2005-0374	**Well No.**	MW-7
Site Name	Dersch Lawrenceville	**Date Drilled**	3/27/2014
Drilling Contractor	CW^{3}M	**Date Completed**	3/27/2014
Driller	CW^{3}M	**Geologist**	RJS/BMW
Drilling Method	Hollow Stem Auger	**Drilling Fluids**	N/A

Annular Space Details

Type of Surface Seal	Concrete
Type of Annular Sealant	Bentonite
Type of Bentonite	High-Yield
Type of Sand Pack	Coarse 20-20



98.41 ft. Top of Protective Casing
98.16 ft. Top of riser pipe
98.41 ft. Ground surface
97.91 ft. Top of Annular Sealant
N/A Casing Stickup
97.91 ft. Top of Seal
3.00 ft. Total Seal interval
94.91 ft. Top of Sand
93.91 ft. Top of Screen
10.0 ft. Total Screen Interval
83.91 ft. Bottom of Screen
83.41 ft. Bottom of Borehole

Well Construction Materials

	Stainless Steel Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint			
Riser Pipe Above w.t.		Sched.-40	
Riser Pipe Below w.t.			
Screen		Sched.-40	
Coupling Joint Screen to Riser		Sched.-40	
Protective Casing			Steel

Measurements

Riser Pipe Length	4.25 ft.
Screen Length	10.0 ft.
Screen Slot Size	10-slot
Protective Casing Length	N/A
Depth to Water	~9-11 ft. while drilling
Depth to Water	94.20 ft. static
Free Product Thickness	N/A
Gallons removed (develop)	Approximately 3 gallons
Gallons removed (purge)	Approximately 3 gallons
Other	

Completed by: BMW

Illinois Environmental Protection Agency — **LUST Well Completion Report**

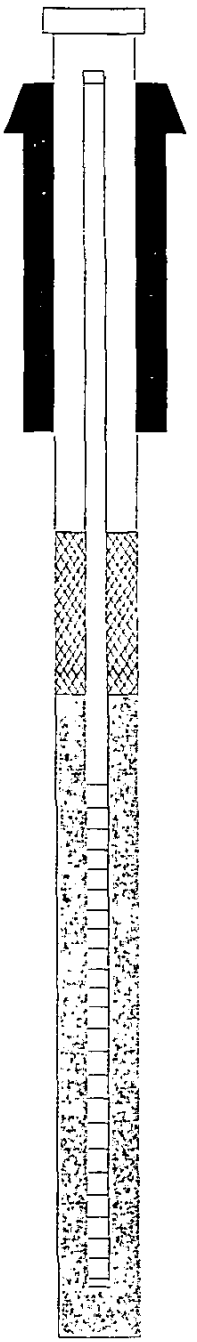
Incident No.	2005-0374	**Well No.**	MW-8
Site Name	Dersch Lawrenceville	**Date Drilled**	3/27/2014
Drilling Contractor	CW^{3}M	**Date Completed**	3/27/2014
Driller	CW^{3}M	**Geologist**	RJS/BMW
Drilling Method	Hollow Stem Auger	**Drilling Fluids**	N/A

Annular Space Details

Type of Surface Seal	Concrete
Type of Annular Sealant	Bentonite
Type of Bentonite	High-Yield
Type of Sand Pack	Coarse 20-20

Well Construction Materials

	Stainless Steel Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint			
Riser Pipe Above w.t.		Sched.-40	
Riser Pipe Below w.t.			
Screen		Sched.-40	
Coupling Joint Screen to Riser		Sched.-40	
Protective Casing			Steel



101.52 ft.	Top of Protective Casing
101.27 ft.	Top of riser pipe
101.52 ft.	Ground surface
101.02 ft.	Top of Annular Sealant
N/A	Casing Stickup
101.02 ft.	Top of Seal
3.00 ft.	Total Seal interval
98.02 ft.	Top of Sand
97.02 ft.	Top of Screen
10.0 ft.	Total Screen Interval
87.02 ft.	Bottom of Screen
86.52 ft.	Bottom of Borehole

Measurements

Riser Pipe Length	4.25 ft.
Screen Length	10.0 ft.
Screen Slot Size	10-slot
Protective Casing Length	N/A
Depth to Water	~9-11 ft. while drilling
Depth to Water	98.27 ft. static
Free Product Thickness	N/A
Gallons removed (develop)	Approximately 3 gallons
Gallons removed (purge)	Approximately 3 gallons
Other	

Completed by: BMW

Illinois Environmental Protection Agency — **LUST Well Completion Report**

Incident No.	2005-0374	**Well No.**	MW-9
Site Name	Dersch Lawrenceville	**Date Drilled**	3/27/2014
Drilling Contractor	CW^3M	**Date Completed**	3/27/2014
Driller	CW^3M	**Geologist**	RJS/BMW
Drilling Method	Hollow Stem Auger	**Drilling Fluids**	N/A

Annular Space Details

Type of Surface Seal	Concrete
Type of Annular Sealant	Bentonite
Type of Bentonite	High-Yield
Type of Sand Pack	Coarse 20-20

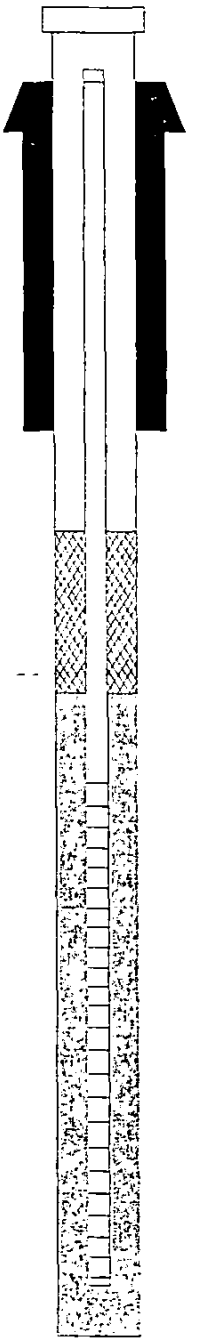
Well Construction Materials

	Stainless Steel Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint			
Riser Pipe Above w.t.		Sched.-40	
Riser Pipe Below w.t.			
Screen		Sched.-40	
Coupling Joint Screen to Riser		Sched.-40	
Protective Casing			Steel

Measurements

Riser Pipe Length	4.25 ft.
Screen Length	10.0 ft.
Screen Slot Size	10-slot
Protective Casing Length	N/A
Depth to Water	~9-11 ft. while drilling
Depth to Water	97.74 ft. static
Free Product Thickness	N/A
Gallons removed (develop)	Approximately 3 gallons
Gallons removed (purge)	Approximately 3 gallons
Other	

Completed by: BMW



99.36 ft.	Top of Protective Casing
99.11 ft.	Top of riser pipe
99.36 ft.	Ground surface
98.86 ft.	Top of Annular Sealant
N/A	Casing Stickup
98.86 ft.	Top of Seal
3.00 ft.	Total Seal interval
95.86 ft.	Top of Sand
94.86 ft.	Top of Screen
10.0 ft.	Total Screen Interval
84.86 ft.	Bottom of Screen
84.36 ft.	Bottom of Borehole

APPENDIX G

ANALYTICAL RESULTS

CORRECTIVE ACTION PLAN
DERSCH CROSLOW'S
LAWRENCEVILLE, ILLINOIS

Croslow's Shell
UST Removal Samples
Collected May 5, 2005

Analyte	Cleanup objectives	No. 1 W Wall S 8ft	No. 2 W Wall N 8ft	No. 3 N Wall W 7ft	No. 4 N Wall E 7ft	No. 5 E Wall N 8ft	No. 6 E Wall S 8ft	No. 7 S Wall E 6ft	No. 8 S Wall W 8ft	No. 9 SW Floor 12ft	No. 10 NW Floor 11ft
Date Sampled		5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005
BTEX											
Benzene	0.03	0.012	0.0087	0.0056	0.0028	0.013	**0.15**	**0.1**	**0.031**	**0.08**	**0.48**
Toluene	12	0.0078	0.011	0.019	0.007	<0.0063	0.62	<0.51	<0.24	<0.0062	<1.2
Ethylbenzene	13	0.002	0.0031	0.0078	0.0028	0.0022	0.7	<0.051	<0.024	0.0044	3.2
Total Xylene	150	0.019	0.012	0.04	0.0055	0.0098	3	0.44	0.09	0.012	7.9
MTBE	0.32	0.039	0.035	0.017	0.0013	0.005	<0.10	<0.10	0.079	0.075	<0.24
PNA's											
Anthracene	12,000	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Acenaphthene	570	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Acenaphthylene	30	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (a) anthracene	2	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (a) pyrene	0.8	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (b) fluoranthene	5	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (g,h,i) perylene	2,300	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (k) fluoranthene	49	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Chrysene	160	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Dibenzo (a,h) anthracene	0.8	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Fluoranthene	4,300	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Fluorene	560	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Indeno (1,2,3,-cd) pyrene	8	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Napthalene	12	<0.041	<0.041	<0.041	<0.041	<0.041	0.35	0.044	<0.041	<0.041	1.1
Phenanthrene		<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Pyrene	4,200	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040

Tier I Soil Remediation Objectives for Commerical/Industrial Property
All results given in mg/kg. Bold entries exceed cleanup objectives.

Croslow's Shell
UST Removal Samples
Collected May 5, 2005

Analyte	Cleanup objectives	No. 11 SE Floor 11.5ft	No. 12 NE Floor 11.5ft	No. 13 Diesel Fill 11ft	No. 14 Dispenser 1 2ft	No. 15 Dispenser 2 2ft	No. 16 Dispenser 3 2ft	No.17 Dispenser 4 2ft			
Date Sampled		5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005			
BTEX											
Benzene	0.03	0.12	0.16	1.5	0.065	0.024	0.073	0.062			
Toluene	12	<0.24	<0.26	<2.4	<0.56	<0.0063	<0.29	0.021			
Ethylbenzene	13	0.058	0.062	<0.24	<0.056	0.0024	<0.029	0.0014			
Total Xylene	150	0.15	0.16	<0.72	<0.17	<0.0019	<0.088	0.0065			
MTBE	0.32	0.068	<0.052	<0.48	<0.11	0.014	<0.058	0.015			
PNA's											
Anthracene	12,000	<0.042	<0.042	<0.041		<0.042					
Acenaphthene	570	<0.042	<0.042	<0.041		<0.042					
Acenaphthylene	30	<0.042	<0.042	<0.041		<0.042					
Benzo (a) anthracene	2	<0.042	<0.042	<0.041		<0.042					
Benzo (a) pyrene	0.8	<0.042	<0.042	<0.041		<0.042					
Benzo (b) fluoranthene	5	<0.042	<0.042	<0.041		<0.042					
Benzo (g,h,i) perylene	2,300	<0.042	<0.042	<0.041		<0.042					
Benzo (k) fluoranthene	49	<0.042	<0.042	<0.041		<0.042					
Chrysene	160	<0.042	<0.042	<0.041		<0.042					
Dibenzo (a,h) anthracene	0.8	<0.042	<0.042	<0.041		<0.042					
Fluoranthene	4,300	<0.042	<0.042	<0.041		<0.042					
Fluorene	560	<0.042	<0.042	<0.041		<0.042					
Indeno (1,2,3,-cd) pyrene	8	<0.042	<0.042	<0.041		<0.042					
Napthalene	12	<0.042	0.076	<0.041		<0.042					
Phenanthrene		<0.042	<0.042	<0.041		<0.042					
Pyrene	4,200	<0.042	<0.042	<0.041		<0.042					

Tier I Soil Remediation Objectives for Commerical/Industrial Property
All results given in mg/kg. Bold entries exceed cleanup objectives.

Analytical Summary
Croslow's Shell
Dersch Energies, Inc.
Lawrenceville, IL

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-1 2.5 Feet	B-1 10 Feet	B-1 13 Feet	B-1 19 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	0.8	0.03	<0.00063	0.0066	**0.16**	<0.00058	
Toluene	**16000**	650	12	<0.0063	0.0082	0.13	<0.0058	
Ethylbenzene	**7800**	400	13	<0.00063	0.0029	0.014	<0.00058	
Xylenes (total)	**160000**	320	150	<0.0019	0.0067	0.088	<0.0017	
MTBE	20000	8.8	0.32	<0.0012	0.0038	0.097	<0.0012	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-2 2.5 Feet	B-2 7.5 Feet	B-2 12.5 Feet	B-2 17.5 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	12	0.8	0.03	0.0017	0.0066	<0.00061	<0.006	
Toluene	16000	650	12	<0.0061	0.011	<0.0061	<0.006	
Ethylbenzene	7800	400	13	<0.00061	0.004	<0.00061	<0.0006	
Xylenes (total)	160000	320	150	<0.0018	0.0081	<0.0018	<0.0018	
MTBE	20000	8.8	0.32	0.0017	0.0031	0.003	0.0028	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-3 2.5 Feet	B-3 7.5 Feet	B-3 12.5 Feet	B-3 17.5 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	0.8	**0.03**	0.008	**0.8**	**0.13**	0.0038	
Toluene	**16000**	650	**12**	0.0096	0.9	0.026	<0.0062	
Ethylbenzene	**7800**	400	**13**	0.00068	0.35	0.012	<0.00062	
Xylenes (total)	**160000**	320	**150**	0.014	0.83	0.021	<0.0019	
MTBE	20000	8.8	0.32	0.0043	0.26	0.066	0.022	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Analytical Summary
Croslow's Shell
Dersch Energies, Inc.
Lawrenceville, IL

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-4 2.5 Feet	B-4 7.5 Feet	B-4 13 Feet	B-4 18 Feet
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06
BTEX							
Benzene	12	0.8	0.03	0.022	4.7	0.082	<0.00058
Toluene	16000	650	12	0.014	3.4	0.038	<0.0058
Ethylbenzene	7800	400	13	0.0043	3.1	0.037	0.00064
Xylenes (total)	160000	320	150	0.017	3.8	0.054	<0.0018
MTBE	20000	8.8	0.32	0.012	1.2	0.073	0.094

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-5 5 Feet	B-5 7.5 Feet	B-5 12.5 Feet	B-5 18 Feet
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06
BTEX							
Benzene	12	0.8	0.03	1.2	3.4	0.84	0.00062
Toluene	16000	650	12	2.4	3.6	<0.24	<0.0062
Ethylbenzene	7800	400	13	5.3	22	1.6	0.00071
Xylenes (total)	160000	320	150	2.9	64	0.28	0.0027
MTBE	20000	8.8	0.32	0.35	2	0.13	0.015

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-6 5 Feet	B-6 7.5 Feet	B-6 15 Feet	B-6 18 Feet
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06
BTEX							
Benzene	12	0.8	0.03	0.038	5.2	0.047	0.017
Toluene	16000	650	12	0.034	5	<0.0062	0.0098
Ethylbenzene	7800	400	13	0.016	21	0.0082	0.0025
Xylenes (total)	160000	320	150	0.051	10	0.0058	0.007
MTBE	20000	8.8	0.32	0.018	1.9	0.048	0.026
TOC							

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Analytical Summary
Croslow's Shell
Dersch Energies, Inc.
Lawrenceville, IL

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-10 5 Feet	B-10 10 Feet	B-10 15 Feet	B-10 18 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	12	0.8	0.03	**0.042**	**0.099**	**0.51**	0.011	
Toluene	16000	650	12	0.018	0.072	0.32	<0.0058	
Ethylbenzene	7800	400	13	0.0037	0.036	2.2	0.0053	
Xylenes (total)	160000	320	150	0.018	0.15	0.15	0.0052	
MTBE	20000	8.8	0.32	0.015	0.045	0.28	0.011	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Analytical Summary Table
Dersch Energies, Inc.
Croslow Shell
Lawrenceville, IL

Analyte	Class 1 GW Objectives	MW-1	MW-2	MW-3	MW-4	MW-5
Date Sampled		10/24/2006	10/24/2006	10/24/2006	10/24/2006	10/24/2006
BTEX						
Benzene	0.005	**0.038**	<0.0005	**0.24**	**0.055**	**1**
Toluene	1.0	<0.025	<0.005	<0.05	<0.12	<0.5
Ethylbenzene	0.7	0.004	<0.0005	0.062	0.11	**3.1**
Total Xylene	10.0	<0.0075	<0.0015	<0.015	<0.038	**3.5**
MTBE	0.07	0.023	0.013	**0.21**	**0.26**	**0.16**
PNA's						
Anthracene	2.1	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Acenaphthene	0.42	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Acenaphthylene		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (a) anthracene	0.00013	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (a) pyrene	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (b) fluoranthene	0.00018	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (g,h,i) perylene		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (k) fluoranthene	0.00017	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chrysene	0.0015	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dibenzo (a,h) anthracene	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoranthene	0.28	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluorene	0.28	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Indeno (1,2,3,-cd) pyrene	0.00043	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
1-Methylnaphthalene		0.017	<0.0001	0.076	0.076	0.23
2-Methylnaphthalene		0.014	<0.0001	0.12	0.072	0.29
Naphthalene	0.14	0.0055	<0.0001	0.046	0.078	**0.44**
Phenanthrene		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Pyrene	0.21	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Petroleum Cleanup Objectives for Groundwater (TACO Tier 1 Class 1).
All results given in mg/l. Bold entries exceed cleanup objectives.

Dersch Energies, Inc.
Lawrenceville, Illinois
Corrective Action Data

CWM SOIL 3-27-14

	Location	MW6	MW6	MW6	MW7	MW7	MW7	MW8	MW8	MW8	MW9	MW9	MW9	SB1	SB1	SB1
	Depth (ft)	2.5	7.5	12.5	2.5	7.5	12.5	2.5	7.5	12.5	2.5	7.5	12.5	2.5	7.5	12.5
	Date	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014	3/27/2014
Parameter	Class I CUO															
Benzene	0.03	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	13.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Toluene	12.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Total Xylenes	5.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MTBE	0.32	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Dersch Energies, Inc.
Lawrenceville, Illinois
Corrective Action Data

CWM GW 4-4-14

	Location	MW6	MW7	MW8	MW9	
	Date	4/4/2014	4/4/2014	4/4/2014	4/4/2014	
Parameter	Class I CUO					
Benzene	**0.005**	<0.002	<0.002	<0.002	<0.002	
Ethylbenzene	**0.7**	<0.002	<0.002	<0.002	0.002	
Toluene	**1.0**	0.003	0.011	0.003	0.018	
Total Xylenes	**10.0**	0.007	0.022	0.01	0.032	
MTBE	**0.07**	<0.005	<0.005	<0.005	<0.005	

10101 55024 - Lawrence

APPLIED ENVIRONMENTAL TECHNOLOGIES, INC.

Dersch Energies, Inc.

Bryan K. Williams
Professional Geologist/President

P.O. Box 303
Carmi, IL 62821
Bus. 618-382-8232
Fax 618-382-2462
Home 618-384-3601

February 23, 2007

Mr. Doug Clay
Illinois Environmental Protection Agency
Bureau of Land # 24
Leaking Underground Storage Tank Section
1021 N. Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

RECEIVED
FEB 27 2007
IEPA/BOL

RE: I.E.M.A. Incident No. H-20050374
Site Investigation Plan
Stage II and III
Croslow's Shell
1421 Lexington Avenue
Lawrenceville, IL 62439

Dear Mr. Clay,

Please find enclosed a copy of the Site Investigation Plan (Stage II and III) for the above referenced site.

If you have any questions or need additional information, please advise.

Sincerely yours,

Bryan Williams

Bryan Williams, P.G.
President

BKW:cjc
Enclosure

cc: Dersch Energies, Inc., Mr. Tom Dersch

RELEASABLE
APR 20 2007
REVIEWER MD

I.E.M.A. INCIDENT NO. H-20050374

SITE INVESTIGATION PLAN
STAGE II AND III

FOR

CROSLOW'S SHELL
1421 LEXINGTON AVENUE
LAWRENCEVILLE, ILLINOIS 62439

February 14, 2007

Bryan K. Williams
Professional Geologist/President

APPLIED ENVIRONMENTAL TECHNOLOGIES, INC.

P.O. Box 303
Carmi, IL 62821
618-382-8232
Fax 618-382-2462

Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
LUST Technical Form Cover Page

IEMA Incident #: H-20050374 IEPA LPC# (10-digit): _____
Site Name: Croslow's Shell
Site Address (Not a P.O. Box): 1421 Lexington Avenue
City: Lawrenceville County: Lawrence ZIP Code: 62439

Please indicate below the type of plan/report that is being submitted to the Illinois EPA at this time. This form must be attached to all plans and reports submitted to the Illinois EPA pursuant to 35 Ill. Adm. Code 731, 732 and/or 415 ILCS 5/57-57.17. Please check all that apply.

20 Day Certification	_____
45 Day Report	_____
Free Product Removal Report	_____
Owner/Operator Summary	_____
Election to Proceed Under Title XVI	_____

	Initial Submittal	Amended Submittal
Site Investigation Plan	X	_____
Site Investigation Budget	X	_____
Site Investigation Completion Report	_____	_____
Site Classification Plan	_____	_____
Site Classification Plan Budget	_____	_____
Site Classification Completion Report	_____	_____
Groundwater Monitoring Plan (Low Priority)	_____	_____
Groundwater Monitoring Plan Budget (Low Priority)	_____	_____
Groundwater Monitoring Results (Low Priority)	_____	_____
Corrective Action Plan	_____	_____
Corrective Action Plan Budget (High Priority)	_____	_____
Corrective Action Completion Report	_____	_____
Professional Engineer Certification (High Priority)	_____	_____
Other (specify) _____	_____	_____

RECEIVED
FEB 27 2007
IEPA/BOL

RELEASABLE
APR 20 2007
REVIEWER MD

I.E.M.A. INCIDENT NO. H-20050374

SITE INVESTIGATION PLAN
STAGE II AND III

FOR

CROSLOW'S SHELL
1421 LEXINGTON AVENUE
LAWRENCEVILLE, ILLINOIS 62439

February 14, 2007

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FEB 27 2007
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Submitted for:
Dersch Energies, Inc.
Mr. Tom Dersch
P.O. Box 217
Mt. Carmel, Illinois 62863

Submitted by:
Applied Environmental Technologies, Inc.
P.O. Box 303
Carmi, Illinois 62821

Project No. 1,316

LEAKING UNDERGROUND STORAGE TANK PROGRAM
SITE INVESTIGATION COMPLETION REPORT
TABLE OF CONTENTS

Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
Site Investigation Plan

A. Site Identification

IEMA Incident # (6- or 8- digit): 20050374 IEPA LPC # (10- digit): 1010155024

Site Name: Croslow's Shell

Site Address (not a P.O. Box): 1421 Lexington Avenue

City: Lawrenceville County: Lawrence Zip Code: 62439

Leaking UST Technical File

B. Site Information

1. Will the owner or operator seek payment from the Underground Storage Tank Fund? ☉ Yes ☐ No
2. If yes, is the budget attached? ☉ Yes ☐ No

C. Site Investigation

Provide the following:

1. Stage of investigation
   a. Stage 2 ☑
   b. Stage 3 ☑

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2. Summary of Stage 1 ☑ or 2 ☐ site investigation activities;

3. Characterization of site and surrounding area:
   a. Current and projected post-remediation uses;
   b. Physical setting:
      i. Environmental conditions;
      ii. Geologic, hydrogeologic, and hydrologic conditions; and
      iii. Geographic and topographic conditions;

4. Results of Stage 1 or 2 site investigation:
   a. Map(s) showing locations of all borings and groundwater monitoring wells completed to date and groundwater flow direction;
   b. Map(s) showing locations of all samples collected;
   c. Map(s) showing extents of soil and groundwater contamination that exceeds the most stringent Tier 1 remediation objectives;
   d. Cross-section(s) showing the geology and the horizontal and vertical extents of soil and groundwater contamination that exceeds the most stringent Tier 1 remediation objectives;
   e. Analytical results, chain of custody forms, and laboratory certifications;

f. Table(s) comparing analytical results to the most stringent Tier 1 remediation objectives (include sample depth, date collected, and detection limits);

g. Potable water supply well survey (unless provided in previous plan):
   i. Map(s) to scale showing:
      a) Locations of community water supply wells and other potable wells and the setback zone for each well;
      b) Location and extent of regulated recharge areas and wellhead protection areas;
      c) Extent of groundwater contamination exceeding the most stringent Tier 1 remediation objectives; and
      d) Modeled extent of groundwater contamination exceeding the most stringent Tier 1 remediation objectives (if performed as part of site investigation);
   ii. Table(s) listing the setback zones for each community water supply well and other potable water supply wells;
   iii. A narrative identifying each entity contacted to identify potable water supply wells, the name and title of each person contacted, and any field observations associated with any wells identified; and
   iv. A certification from a Licensed Professional Engineer or Licensed Professional Geologist that the survey was conducted in accordance with the requirements and that documentation submitted includes information obtained as a result of the survey;

h. Soil boring logs and monitoring well construction diagrams;

i. Proposal for determining the following parameters:
   i. Hydraulic conductivity (K);
   ii. Soil bulk density (ρ_b);
   iii. Soil particle density (ρ_s);
   iv. Moisture content (w); and
   v. Organic carbon content (f_{oc}); and

j. Site Investigation Summary Form (documenting actual work performed during the previous stage).

5. Stage 2 or 3 sampling plan:
   a. Description of and justification for additional activities proposed as part of the plan;
   b. A map depicting locations of proposed borings and groundwater monitoring wells; and
   c. Depth of borings/wells and construction details of proposed borings and wells; and

6. Site maps meeting the requirements of 35 Ill. Adm. Code 734.440.

Continue onto next page.

D. Signatures

All plans, budgets, and reports must be signed by the owner or operator and list the owner's or operator's full name, address, and telephone number.

UST Owner or Operator

Name: Dersch Energies, Inc.
Contact: Mr. Tom Dersch
Address: P.O. Box 217
City: Mt. Carmel
State: Illinois
Zip Code: 62863
Phone: (618) 262-5181
Signature: [signature]
Date: 2-20-07

Consultant

Company: Applied Environmental Tech., Inc.
Contact: Bryan Williams
Address: P.O. Box 303
City: Carmi
State: Illinois
Zip Code: 62821
Phone: (618) 382-8232
Signature: [signature]
Date: 2/26/07

I certify under penalty of law that all activities that are the subject of this report were conducted under my supervision or were conducted under the supervision of another Licensed Professional Engineer or Licensed Professional Geologist and reviewed by me; that this report and all attachments were prepared under my supervision; that, to the best of my knowledge and belief, the work described in this report has been completed in accordance with the Environmental Protection Act [415 ILCS 5], 35 Ill. Adm. Code 734, and generally accepted standards and practices of my profession; and that the information presented is accurate and complete. I am aware there are significant penalties for submitting false statements or representations to the Illinois EPA, including but not limited to fines, imprisonment, or both as provided in Sections 44 and 57.17 of the Environmental Protection Act [415 ILCS 5/44 and 57.17].

Licensed Professional Engineer or Geologist

Name: Bryan Williams
Company: Applied Environmental Tech., Inc.
Address: P.O. Box 303
City: Carmi
State: Illinois
Zip Code: 62821
Phone: (618) 382-8232
Ill. Registration No.: 196000366
License Expiration Date: 3/31/09
Signature: [signature]
Date: 2/26/07

L.P.E. or L.P.G. Seal

LICENSED PROFESSIONAL GEOLOGIST
BRYAN K. WILLIAMS
196-000366
ILLINOIS

RECEIVED
FEB 27 2007
IEPA/BOL

Site Investigation Summary Form

This form should be used to document actual work performed during the previous stage of investigation—not for proposed work. Attach more pages as necessary.

Soil Boring Investigation Summary

Do not include soil borings that were converted to groundwater monitoring wells in this section.

Boring ID #	Type HSA / PUSH	Total Depth of Boring (ft)	Number of Soil Samples	Depth (ft) of Soil Samples (top of sampled interval)	Type(s) of Soil Analysis	Depth to Groundwater (ft)	Stage (1,2,3)
B-1	PUSH	20'	4	2.5,10,13,19	BTEX, MTBE	9.5	1
B-2	PUSH	18	4	5,7.5,12.5,17.5	BTEX, MTBE	10	1
B-3	PUSH	19	4	5,7.5,12.5,17.5	BTEX, MTBE	10	1
B-4	PUSH	18	4	2.5, 7.5,13,18	BTEX, MTBE	10	1
B-5	PUSH	18	4	5,7.5,12.5,18	BTEX, MTBE	10	1
B-6	PUSH	18	4	5,7.5,15,18	BTEX, MTBE	10	1
B-7	PUSH	18	4	2.5,7.5,12.5,18	BTEX, MTBE	10	1
B-8	PUSH	18	4	5,7.5,12.5,17.5	BTEX, MTBE	10	1
B-9	PUSH	18	4	5,7.5,15,18	BTEX, MTBE	10	1
B-10	PUSH	18	4	5,10,15,18	BTEX, MTBE	10	1

Soil Borings Converted to Groundwater Monitoring Wells Summary

Monitoring Well ID #	Type HSA / PUSH	Total Depth of Well (ft)	Number of Soil Samples	Depth (ft) of Soil Samples (top of sampled interval)	Type(s) of Soil Analysis	Type(s) of Groundwater Analysis	Depth to Groundwater (ft)	Stage (1,2,3)
MW-1	HSA	20	0			BTEX,PNA,MT	9.5	1
MW-2	HSA	20	0			BTEX,PNA,MT	10	1
MW-3	HSA	20	0			BTEX,PNA,MT	10	1
MW-4	HSA	20	0			BTEX,PNA,MT	10	1
MW-5	HSA	20	0			BTEX,PNA,MT	10	1

Disposal of solid waste: At the completion of Stage _____ (1, 2, or 3), _____ 55-gallon drum(s) of solid waste was disposed of by _____ at _____ facility.

Disposal of liquid waste: At the completion of Stage _____ (1, 2, or 3), _____ gallons of liquid waste were disposed of off-site via _____ (vac truck or 55-gallon drum) by _____ at _____ facility.

Site Investigation Plan Stage II & III – Additional Information
Dersch Croslow
Incident No. H-20050374

C. Site Investigation

1. Stage of Investigation

The following is a Stage II-III Site Investigation Plan. One (1) boring is proposed on site for further delineation in the event the soil is removed, or an engineered barrier is required. With only one (1) boring required on site, this should be performed with the off site borings to save time and money.

2. Summary of Stage I Site Investigation

On October 17, 2006, Stage I Site Investigation activities were initiated. Continuous samples were collected with a geo-probe from the surface to a depth of twenty (20) feet, or refusal in bedrock. Five (5) borings were completed as groundwater monitoring wells as required. Following collection of the soil samples from the borings with a geo-probe, auger flights were utilized to complete the drilling of the wells. A total of ten (10) borings were advanced on site, and five (5) borings were completed as groundwater monitoring wells. Soil samples were collected from every five (5) foot interval from the borings and analyzed for BTEX and MTBE. Refer to Exhibit C for the boring logs and FID readings.

Borings No. 1 through No. 4 were advanced at the property lines to determine if indicator contaminant levels are exceeded at the property lines. These borings were completed as groundwater monitoring wells as required under Part 734. Analytical results indicate the soil is above TACO Tier I Residential Objectives in B-1, B-3, and B-4. Analytical results indicate the soil impaction has been defined to the north.

Boring No. 4 was positioned to serve a dual purpose. Considering that a boring had to be advanced on the south side of the tank pit (approximately 5 feet from the excavation), this location was moved another ten (10) feet to the south. Soil samples collected from this boring at depths of 7.5 feet and 13 feet were above objectives. Based on the soil sample results from Early Action, drilling the boring adjacent to the tank pit would not have been beneficial. Surface topography strongly suggests B-4 is located directly down gradient from the tank pit. Three (3) borings were advanced on the remaining sides of the tank pit as required.

B-7 was drilled on the east side of the tank pit, B-8 was advanced on the north side of the tank pit, and B-6 was advanced on the west side of the tank pit. B-8 was advanced adjacent to the water and sewer lines. Three (3) borings were advanced along the piping and dispensers as required. B-5 was drilled along the supply lines. Based on the remaining length of the piping run and the location of the dispensers, B-9 and B-10 were advanced for characterization of the remaining line area and dispensers. All borings were advanced to a depth of twenty (20) feet, or until refusal (bedrock) was encountered.

B-1 through B-5 were completed as groundwater monitoring wells. B-1 through B-4 were positioned at the property lines for delineation purposes. B-4 is directly down gradient from the tank pit. B-5 was completed as a groundwater monitoring well in the area of the lines and dispensers in an effort to determine the maximum concentration level at the site for accurate Tier II Modeling. Analytical results indicate the groundwater in B-4 and B-5 are the highest groundwater levels encountered during Stage I Site Investigation. Refer to Exhibit B for the analytical results.

Results of the Stage I Site Investigation indicate soil and groundwater contamination extends off site to the east, south, and west. Additional delineation of both soil and groundwater will be required in these directions.

3. Characterization of the site and surrounding area.

a. Current and projected post-remediation uses;

The current usage of the property is an automotive repair facility. According to the owner (Mr. Dersch), the property will continue to be utilized as a repair facility. In the event the usage did change the site would still remain as a commercial business.

b. Physical Setting:

i. Environmental Conditions;

Environmental conditions at the site consists of a former service station that has gasoline (BTEX) impacted soil and groundwater, as well as low level PNA Compounds detected in the groundwater. The site is covered with concrete except for the former tank pit. This area is capped with CA-6 limestone material. The site does not pose an ingestion or inhalation risk to employees or the surrounding properties. Based on information obtained in preparation of this report groundwater is not utilized within the impacted area, or the potential area of migration. Therefore, no pathways appear complete that would pose a risk to human health.

ii. Geologic, hydrogeologic, and hydrologic condition;

Geology in the area of the site consists of approximately 15'to 18' of silty sandy clay with discontinuous sandy to clayey sand lenses. Soil samples were continuously collected from the surface to a total depth of twenty (20) feet, or refusal which was encountered in some borings at a depth of approximately eighteen (18) feet in sandstone. A couple of blocks north of this site Applied Environmental Technologies, Inc. performed site closure and did not hit any groundwater and encountered a shale as the first bedrock formation.

According to the Geologic Map of Illinois the first bedrock unit underlying the site is the Bond Formation of the Missouri Series in the Pennsylvanian System. Bedrock formations in the area of the site consist primarily of alternating sequences of sandstone, shale, thin limestone, and coal.

The clay till in this area does not typically contain any major aquifers. Sandstones in the Pennsylvanian System can be developed as aquifers but the water quality is often poor, with low yields. Shallow groundwater flow in this area typically follows the surface topography.

During installation of the monitoring wells at the site a moist sandy unit was encountered from a depth of ten (10) to twelve (12) feet. Groundwater was present in all borings, and five (5) groundwater monitoring wells were set. The wells were completed with ten (10) feet of 0.010 slotted screen, and ten (10) feet of riser. Due to the presence of

obvious soil impaction below the first groundwater unit encountered the borings were advanced until clean soil samples were obtained.

iii. Local geography and topography;

The subject site is located in the approximate center of Lawrenceville, Illinois in an area consisting of commercial and residential properties. The regional area is gently rolling and falls off east of Lawrenceville into the Wabash River flood plain. The Embarrass River flows southward along the north and east side of town and flows into the Wabash River approximately five (5) miles southeast of Lawrenceville. Refer to Exhibit A-1 for a topographic map of the site and surrounding area. Shallow groundwater flow directions will typically follow the topography.

4. Results of Stage I Site Investigation:

a. Map(s) showing locations of all borings and groundwater monitoring wells completed to date and groundwater flow directions;

Refer to Exhibit A-2 for a site map with the locations of the soil borings and monitoring wells. Refer to Exhibit A-5 for groundwater flow direction map.

b. Map(s) showing locations of all samples collected;

Refer to Exhibit A-3 for a Site Map with the soil boring analytical results.

c. Map(s) showing extents of soil and groundwater contamination that exceeds the most stringent Tier I remediation objectives;

Refer to Exhibit A-3 for a Site Map with the soil boring data and plume. Refer to Exhibit A-4 for a Site Map with the groundwater analytical data and

plume. The off site areas of the plumes have been inferred as the area of impaction is not defined in the soil or groundwater to the west, south, and east.

d. Cross-section(s) showing the geology and the horizontal and vertical extents of soil and groundwater contamination that exceeds the most stringent Tier I remediation objectives;

Refer to Exhibit A-6 for a north to south cross section of the site. Refer to Exhibit A-7 for a east to west cross section of the site. Though the vertical extents of soil and groundwater impaction have been defined, the horizontal extents have not been defined. Therefore, it is impossible to accurately map these limits. An accurate map will be presented in the Site Investigation Completion Report.

e. Analytical results, chain of custody forms, and laboratory certifications;

Refer to Exhibit B for a copy of the analytical results, chain of custody forms, and laboratory certifications.

f. Tables comparing analytical results to the most stringent Tier I remediation objectives (including sample depth, date collected, and detection limits);

Refer to Exhibit B for an analytical summary table with the required information.

g. Potable water supply well survey:

i. Map(s) to scale showing:

a) Locations of community water supply wells and other potable wells and the setback zone for each well;

Refer to Exhibit E for the potable water supply well survey. All well records available from the Illinois State Water Survey, Illinois

State Geological Survey, and the Illinois EPA's Division of Public Water Supplies have been utilized in preparation of this exhibit.

b) Location and extent of regulated recharge areas and wellhead protection areas;

No wellhead protection areas or regulated recharge areas are located in close proximity to the site.

c) Extent of groundwater contamination exceeding the most stringent Tier I remediation objectives;

The extent of groundwater impaction has not been defined to the west, south, or east. Additional testing is required.

d) Modeled extent of groundwater contamination exceeding the most stringent Tier I remediation objectives (if performed as part of Site Investigation);

The extent of contamination has not been defined to the west, south, and east. Modeling will be performed following complete delineation of the plume.

ii. Table(s) listing the setback zones for each community water supply well and other potable water supply wells;

Refer to Exhibit E for a table listing all potable water supply wells in the area of the site. No community water supply wells are present in the area of the site.

iii. Provide a narrative identifying each entity contacted to identify potable water supply wells, the name and title of each person contacted, and any field observations associated with any wells identified;

All well records available from the Illinois State Water Survey, Illinois State Geological Survey, and the Illinois EPA's Division of Public Water

Supplies have been utilized in preparation of this Exhibit. Mr. Eric Pouland (618-943-3302) with the Lawrence County Health Department Environmental Division was interviewed on 10/23/06 @ 2:45 P.M. According to Mr. Pouland the closest water supply wells to the site are located 1-11/2 miles south of the site. Mr. Bruce Laslie Lawrenceville Water Superintendent (618-943-2116) was also interviewed on 10/24/06 @ 7:15 P.M. According to Mr. Laslie the closest private water supply well to the site is located in the block east of the subject site. This is over 200 feet from the site. The well is utilized for outside watering only. Refer to the Topographical Map in Exhibit E for the location of this well. No public records were available for this well.

iv. Certification from a Licensed Professional Engineer or Licensed Professional Geologist that the survey was conducted in accordance with the requirements and that documentation submitted includes information obtained as a result of the survey;

Refer to page 3 of 4 in the forms section of this report for a certification by a Professional Geologist that the survey was conducted in accordance with the requirements.

h. Soil boring logs and monitoring well construction diagrams;

Refer to Exhibit C for the soil boring logs and monitoring well construction diagrams.

i. Proposal for determining the following parameters;

i. Hydraulic conductivity (K);

On October 24, 2006 the Hydraulic conductivity was determined from a falling head slug test performed on Monitoring Well No. 1. Using the Bower

and Rice Method the hydraulic conductivity was calculated from the recorded data. The results indicate a hydraulic conductivity of 7.6718E-05. Refer to Exhibit F for the calculations.

ii. Soil bulk density (Pb);

A sample was collected from B-2 at a depth of six (6) feet below ground level and analyzed for Bulk Unit Weight using ASTM Method 2937. The results indicate a soil bulk density of 130.4 pcf. Refer to Exhibit F for the laboratory report.

iii. Soil particle density (Ps);

A sample was collected from B-2 at a depth of six (6) feet below ground level and analyzed for Particle Density using ASTM Method D-854. The results indicate a soil particle density of 2.66. Refer to Exhibit F for the laboratory report.

iv. Moisture content (w);

A sample was collected from B-2 at a depth of six (6) feet below ground level and analyzed for Moisture Content (w) using ASTM Method D 2216; Refer to Exhibit F for the laboratory report.

v. Organic carbon content (foc);

A sample was collected from B-2 at a depth of seven and one-half feet (7.5') below ground level and analyzed for organic carbon content. The results indicate a TOC (Total Organic Carbon) of 3,000 mg/kg. Refer to the laboratory in Exhibit F for the laboratory report. Boring No. 2 was advanced on the north side of the property in an area that was believed to be out of the area of

impaction. During the drilling of this boring no petroleum odors were encountered, no discoloration was encountered, and when the samples were screened with the calibrated FID Meter. No indication of petroleum impaction was detected. However, the laboratory report indicated the presence of petroleum impaction below remediation objectives. Refer to the laboratory report in Exhibit F for analytical results. Should the agency believe that the results of this analysis are not satisfactory for use in modeling, please advise in the agency response and during the next phase of investigation an effort will be made to collect this sample from another on site area if possible.

5. Stage 3 Sampling Plan:

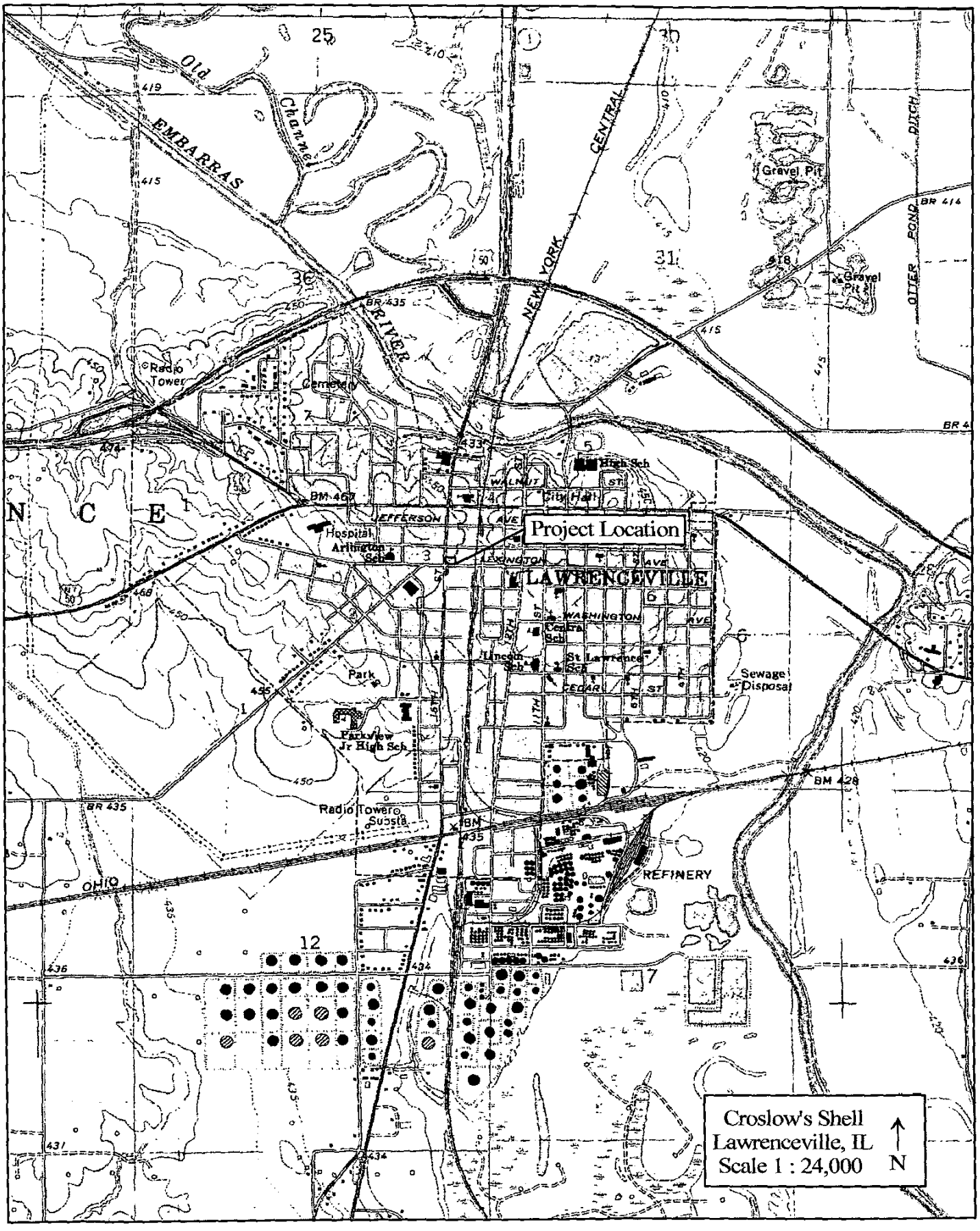
a. Description of and justification for additional activities proposed as part of the plan;

Soil and groundwater analysis performed as part of Stage 1 Site Investigation indicate that impacted soil and groundwater extend off site west, south, and east of the site. Refer to Exhibit A-3 for a site map with the soil boring results. Refer to Exhibit A-4 for a site map with monitoring wells groundwater results. Off site permission to the west has already been obtained. The site is utilized as a branch bank, and the owner did request that the boring be performed in the grass. The location proposed on the site map may have to be modified ten (10) or twenty (20) feet based on the field conditions. Off site permission to the south has already been obtained. However, permission was obtained for the installation of a piezometer (not a dedicated well) that was to be immediately plugged following sampling. The owner requested the boring be advanced in a

grass area and the asphalt parking lot was not to be disturbed. Permission to set a dedicated well will be requested. Assuming permission is granted the well will be installed. Please indicate in the response that a piezometer is acceptable in the event the owner will not allow the installation of a well. The property owner to the east of the site has not been contacted. In addition, one (1) on site boring is proposed for further delineation.

Phase II/III Site Investigation will be performed upon a response from the agency.

Exhibit A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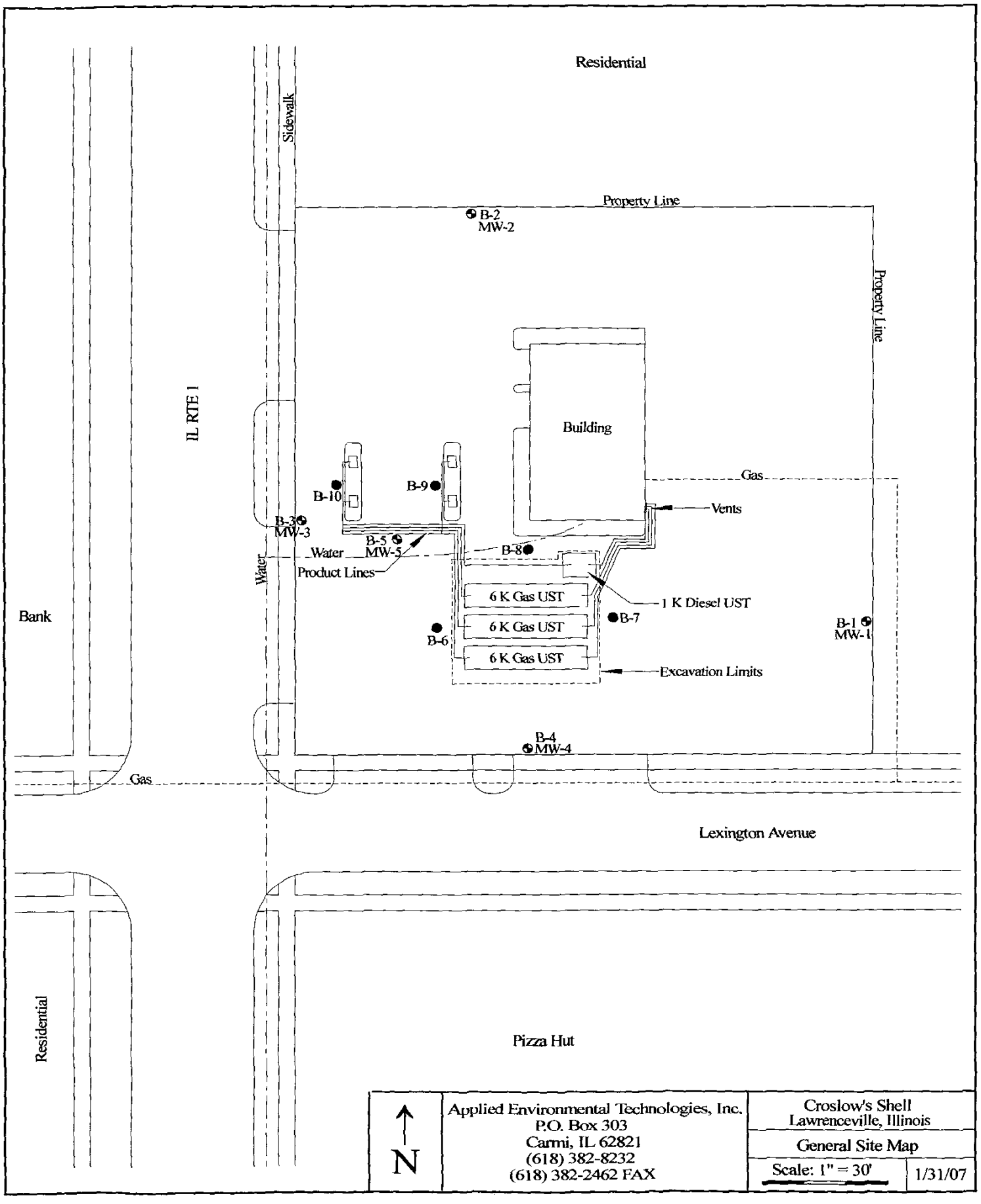
Channel
EMBARRAS
RIVER
NEW YORK CENTRAL
OTTER POND DITCH
Gravel Pit
Gravel Pit
BR 435
BR 416
Radio Tower
Cemetery
High Sch
WALNUT ST
City Hall
BM 467
JEFFERSON AVE
Project Location
Hospital
Arlington Sch
LAWRENCEVILLE
LEXINGTON AVE
WASHINGTON AVE
Central Sch
St. Lawrence Sch
Lincoln Sch
CEDAR ST
Park
Sewage Disposal
Parkview Jr High Sch
11TH ST
BM 428
Radio Tower Substa
BM 435
OHIO
REFINERY
Croslow's Shell
Lawrenceville, IL
Scale 1 : 24,000
N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MW-2
Property Line
IL RTE 1
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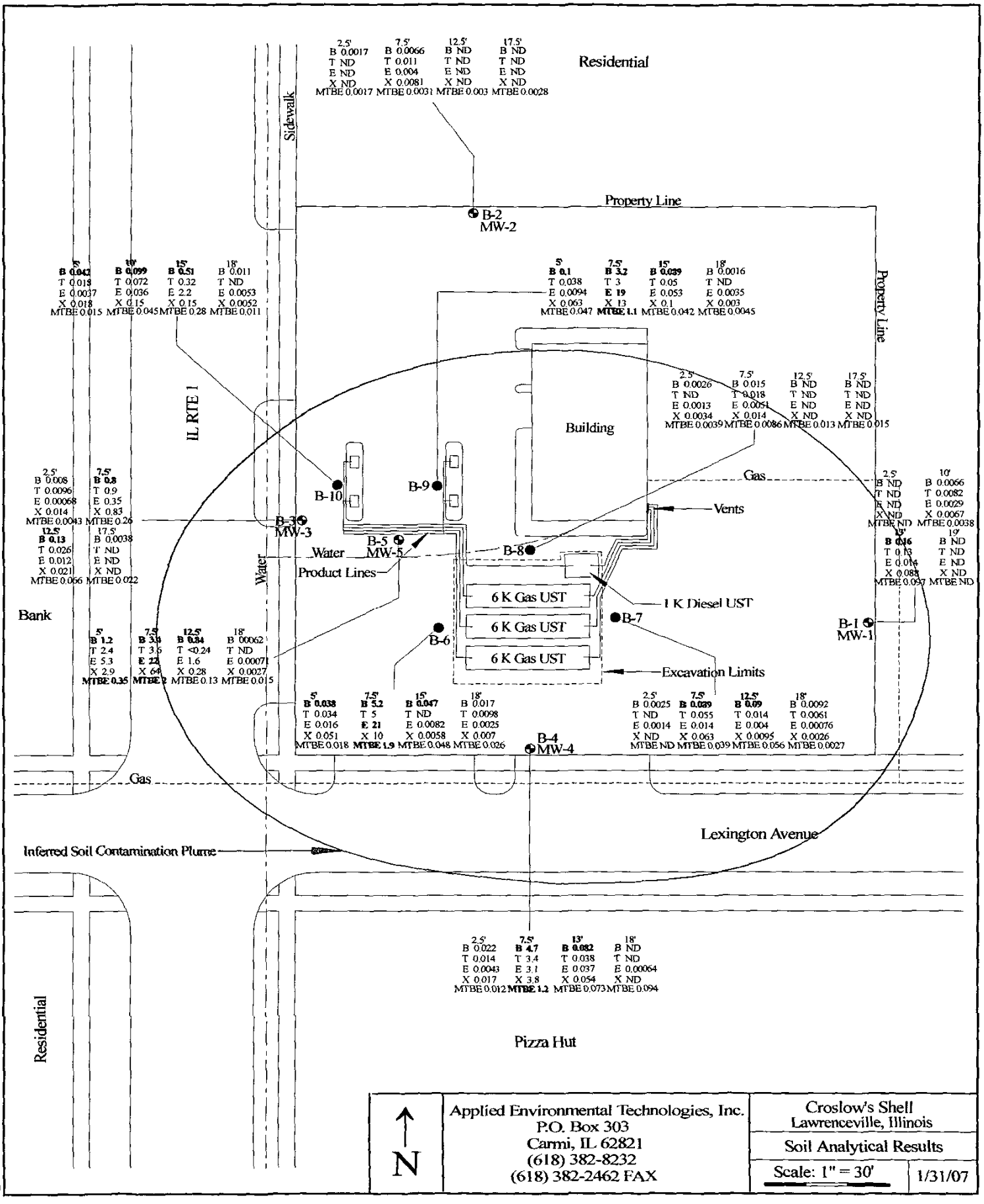
Gas
Vents
B-10
B-9
B-3
MW-3
B-5
MW-5
Water
Product Lines
B-8
Water
6 K Gas UST
6 K Gas UST
6 K Gas UST
1 K Diesel UST
B-7
B-6
Excavation Limits
Bank
B-1
MW-1
B-4
MW-4
Gas
Lexington Avenue
Residential
Pizza Hut
N
Applied Environmental Technologies, Inc.
P.O. Box 303
Carmi, IL 62821
(618) 382-8232
(618) 382-2462 FAX
Croslow's Shell
Lawrenceville, Illinois
General Site Map
Scale: 1" = 30'
1/31/07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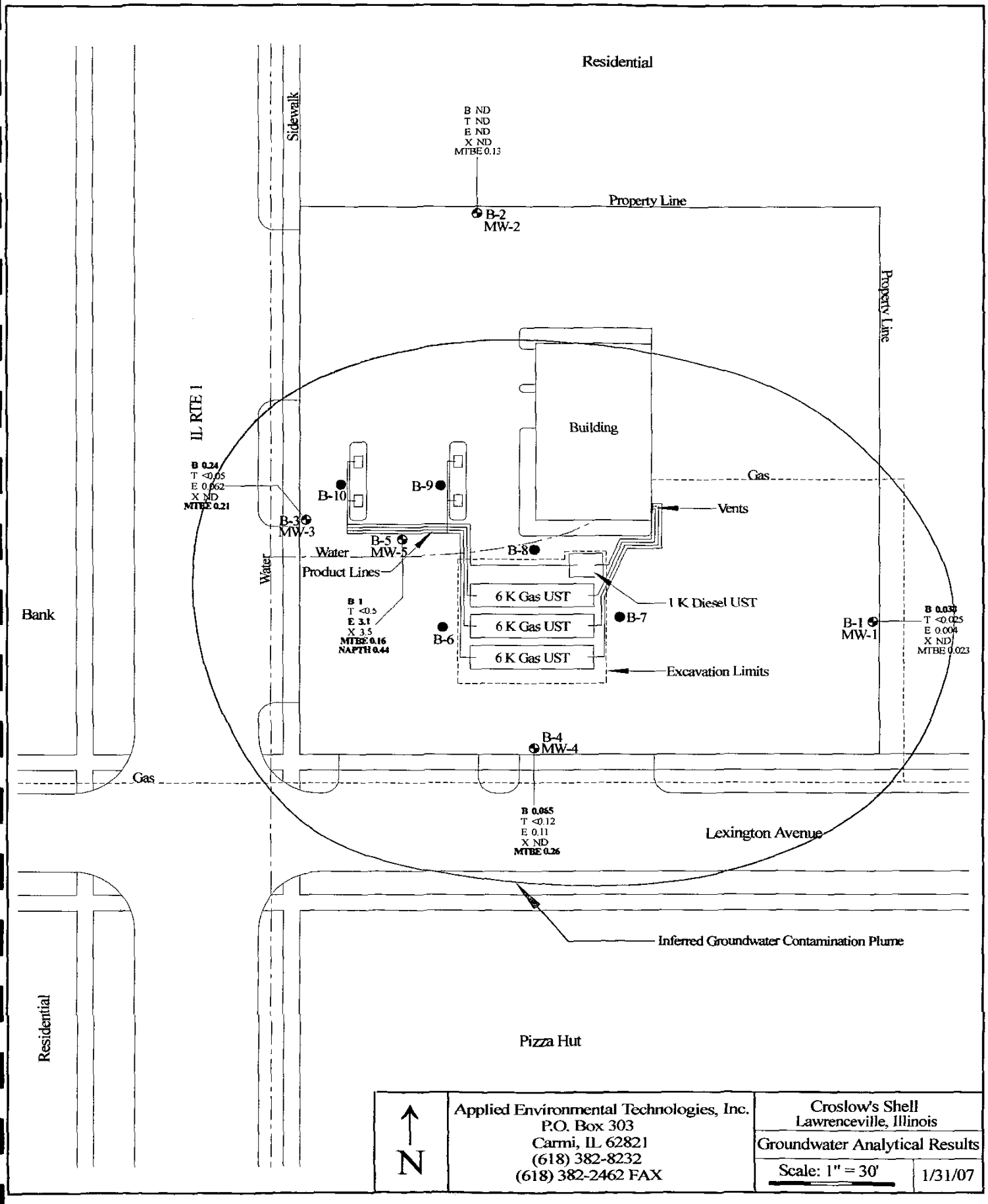
MW-2
Property Line
IL RTE 1
Building
Gas
Vents
B-10
B-9
B-3
MW-3
B-5
MW-5
B-8
Water
Water
Product Lines
6 K Gas UST
6 K Gas UST
6 K Gas UST
1 K Diesel UST
B-7
B-6
B-1
MW-1
Excavation Limits
Bank
B-4
MW-4
Gas
Lexington Avenue
Inferred Soil Contamination Plume
Residential
Pizza Hut
N
Applied Environmental Technologies, Inc.
P.O. Box 303
Carmi, IL 62821
(618) 382-8232
(618) 382-2462 FAX
Croslow's Shell
Lawrenceville, Illinois
Soil Analytical Results
Scale: 1" = 30'
1/31/07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T ND
E ND
X ND
MTBE 0.13
Property Line
B-2
MW-2
Property Line
IL RTE 1
Building
B 0.24
T <0.05
E 0.062
X ND
MTBE 0.21
B-10
B-9
Gas
Vents
B-3
MW-3
B-5
MW-5
Water
B-8
Water
Product Lines
6 K Gas UST
1 K Diesel UST
B 1
T <0.5
E 3.1
X 3.5
MTBE 0.16
NAPTH 0.44
B-7
B-6
6 K Gas UST
B-1
MW-1
B 0.033
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E 0.004
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MTBE 0.023
Bank
6 K Gas UST
Excavation Limits
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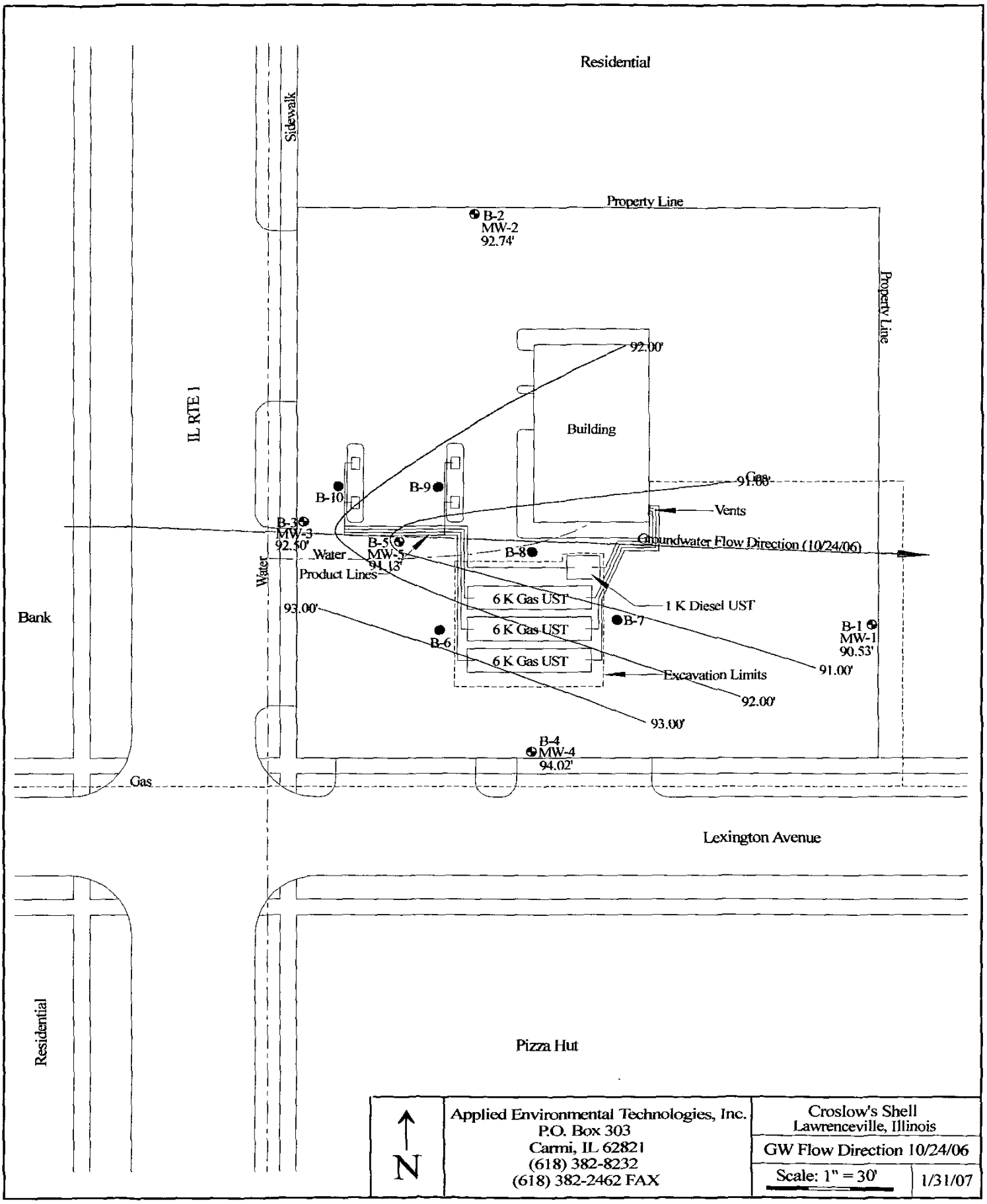
MW-4
Gas
B 0.055
T <0.12
E 0.11
X ND
MTBE 0.26
Lexington Avenue
Inferred Groundwater Contamination Plume
Residential
Pizza Hut
N
Applied Environmental Technologies, Inc.
P.O. Box 303
Carmi, IL 62821
(618) 382-8232
(618) 382-2462 FAX
Croslow's Shell
Lawrenceville, Illinois
Groundwater Analytical Results
Scale: 1" = 30'
1/31/07

A-4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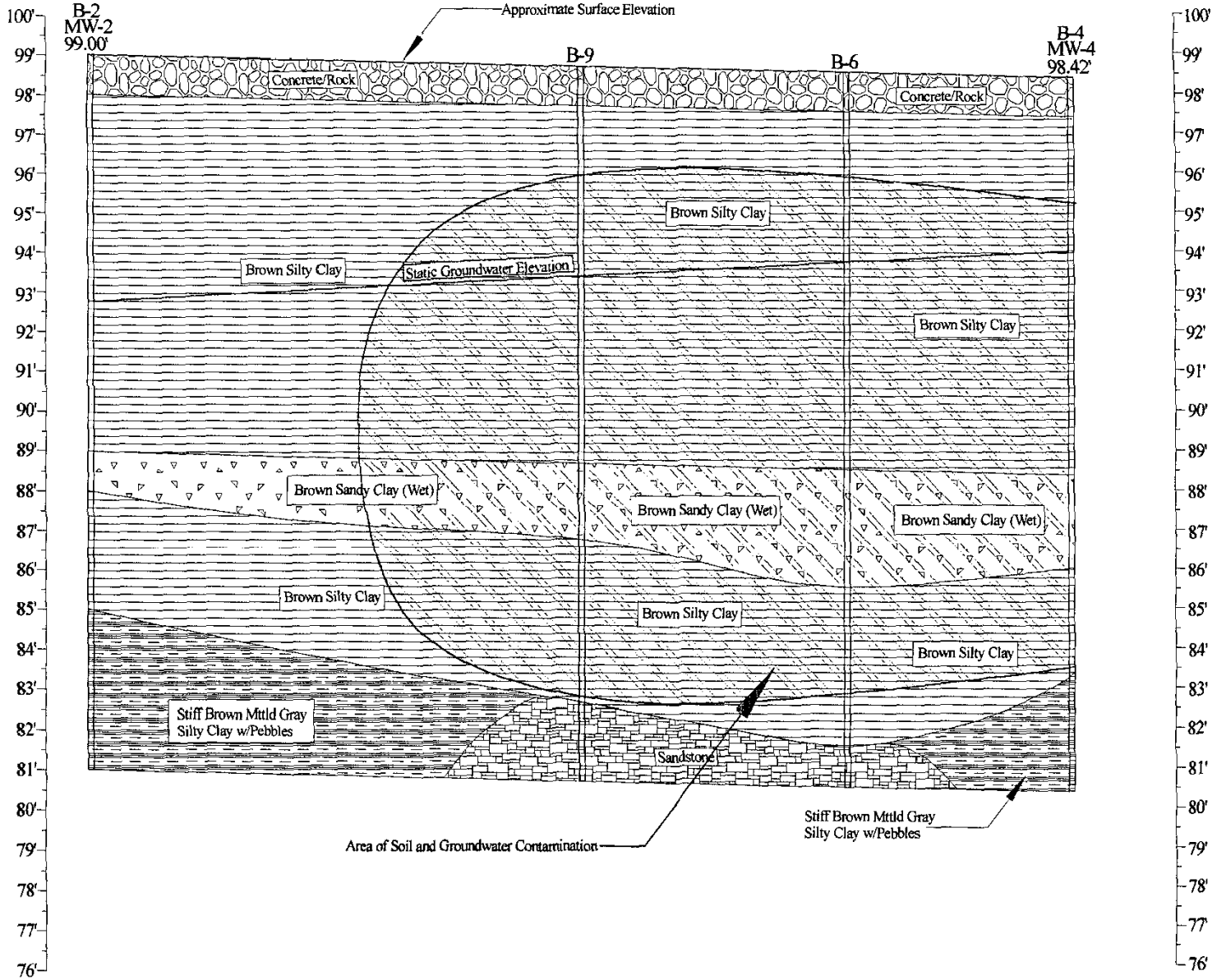
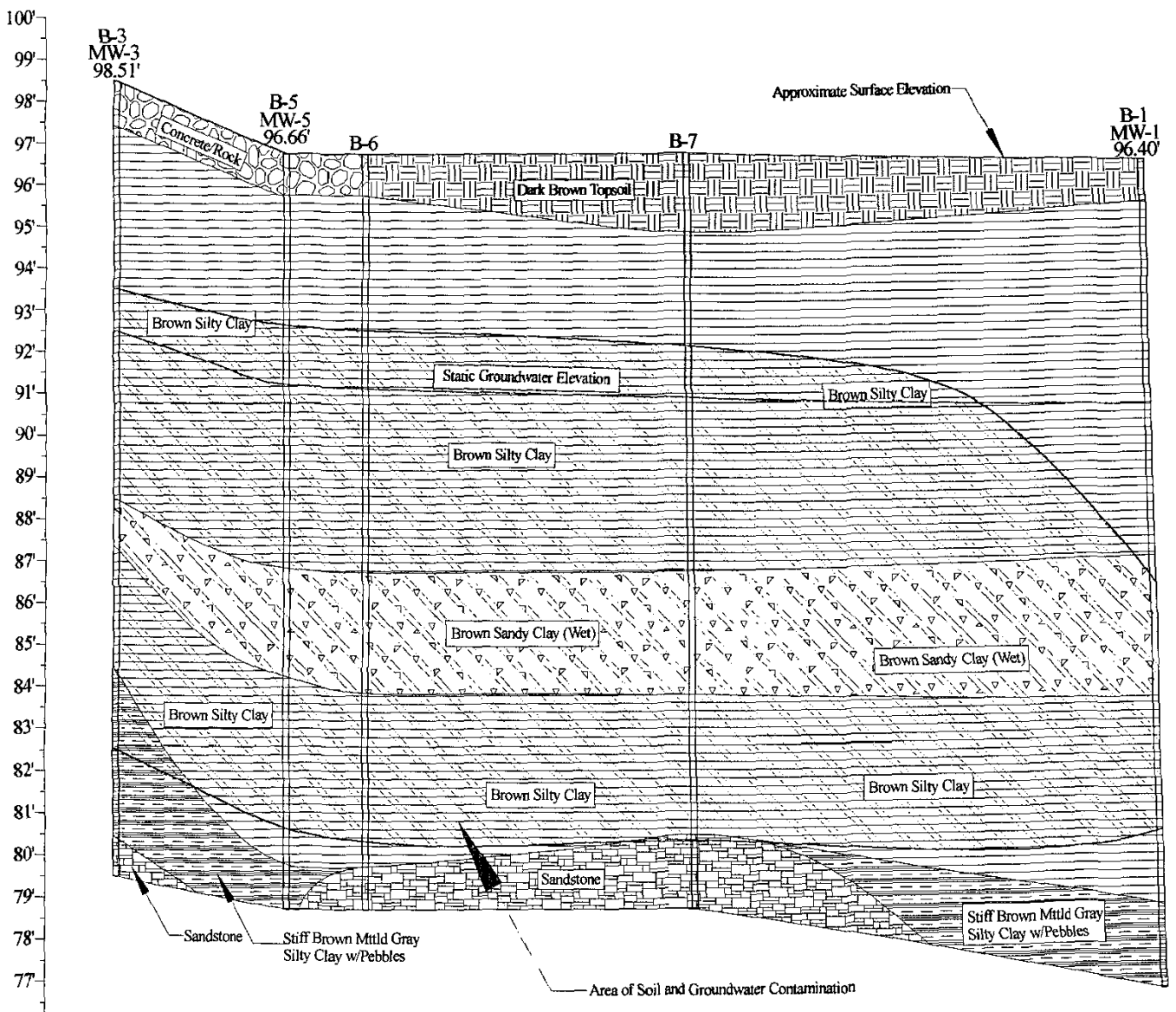
B-2
MW-2
92.74'
Property Line
IL RTE 1
92.00'
Building
B-10
B-9
Gas
91.00'
Vents
B-3
MW-3
92.50'
B-5
MW-5
91.13'
Groundwater Flow Direction (10/24/06)
B-8
Water
Product Lines
Water
6 K Gas UST
1 K Diesel UST
Bank
93.00'
B-7
6 K Gas UST
B-6
B-1
MW-1
90.53'
6 K Gas UST
Excavation Limits
91.00'
92.00'
93.00'
B-4
MW-4
94.02'
Gas
Lexington Avenue
Residential
Pizza Hut
N
Applied Environmental Technologies, Inc.
P.O. Box 303
Carmi, IL 62821
(618) 382-8232
(618) 382-2462 FAX
Croslow's Shell
Lawrenceville, Illinois
GW Flow Direction 10/24/06
Scale: 1" = 30'
1/31/07



Horizontal Scale: 1" = 20' Vertical Scale on Drawing	Applied Environmental Technologies, Inc. P.O. Box 303 Carmi, IL 62821 (618) 382-8232 (618) 382-2462 FAX	Croslow's Shell Lawrenceville, Illinois Geological Cross-Section North to South (B-2 to B-4) 1/29/07

A-6



Horizontal Scale: 1" = 20' Vertical Scale on Drawing	Applied Environmental Technologies, Inc. P.O. Box 303 Carmi, IL 62821 (618) 382-8232 (618) 382-2462 FAX	Croslow's Shell Lawrenceville, Illinois Geological Cross-Section West to East (B-3 to B-1) 1/29/07

A-7

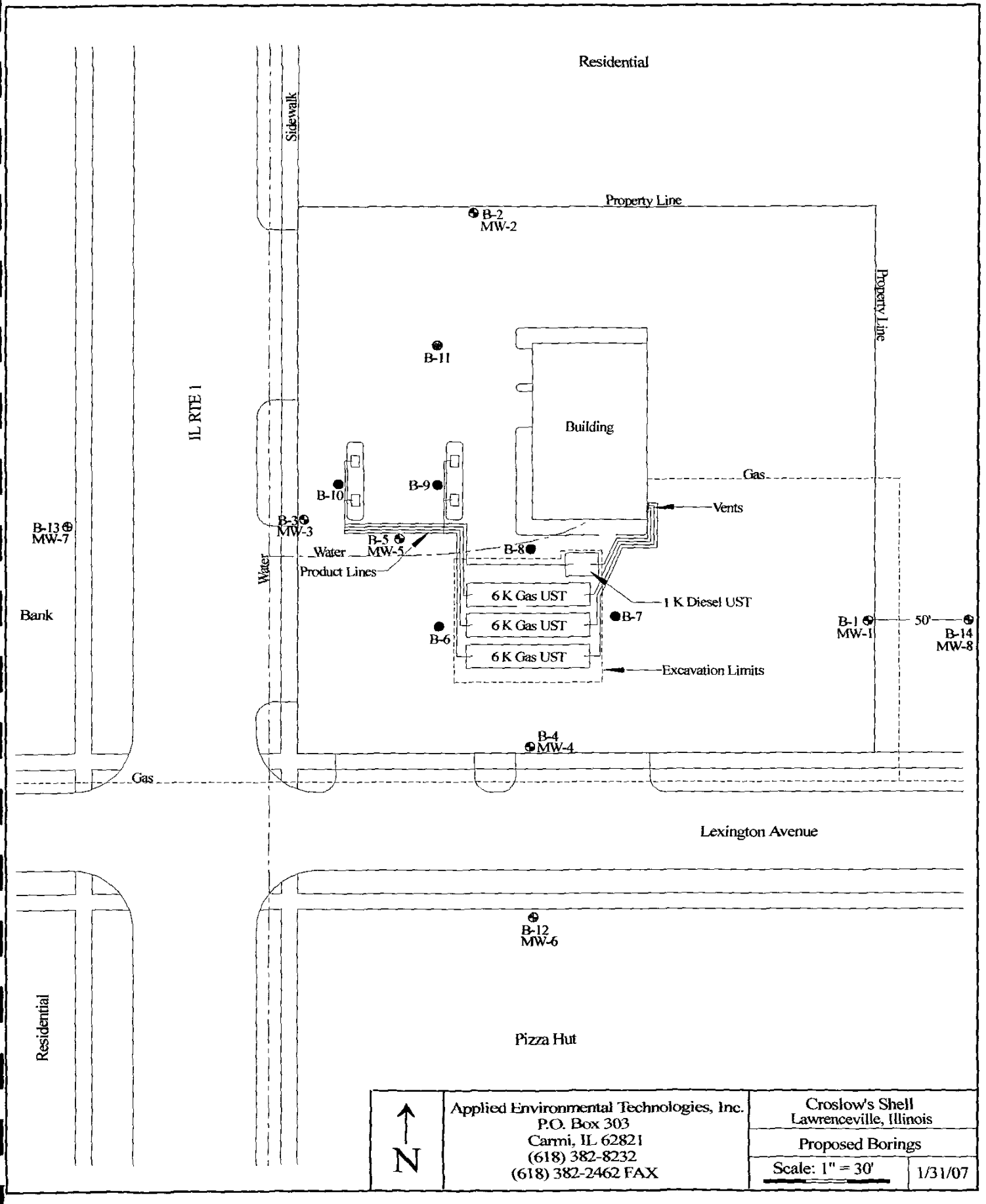

Residential
Sidewalk
Property Line
B-2
MW-2
Property Line
B-11
IL RTE 1
Building
Gas
Vents
B-10
B-9
B-13
MW-7
B-3
MW-3
B-5
MW-5
B-8
Water
Water
Product Lines
6 K Gas UST
1 K Diesel UST
Bank
B-7
B-6
6 K Gas UST
6 K Gas UST
B-1
MW-1
50'
B-14
MW-8
Excavation Limits
B-4
MW-4
Gas
Lexington Avenue
B-12
MW-6
Residential
Pizza Hut
N
Applied Environmental Technologies, Inc.
P.O. Box 303
Carmi, IL 62821
(618) 382-8232
(618) 382-2462 FAX
Croslow's Shell
Lawrenceville, Illinois
Proposed Borings
Scale: 1" = 30'
1/31/07

Exhibit B-1

Analytical Summary
Croslow's Shell
Dersch Energies, Inc.
Lawrenceville, IL

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-1 2.5 Feet	B-1 10 Feet	B-1 13 Feet	B-1 19 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	<0.00063	0.0066	**0.16**	<0.00058	
Toluene	**16000**	**650**	**12**	<0.0063	0.0082	0.13	<0.0058	
Ethylbenzene	**7800**	**400**	**13**	<0.00063	0.0029	0.014	<0.00058	
Xylenes (total)	**160000**	**320**	**150**	<0.0019	0.0067	0.088	<0.0017	
MTBE	**20000**	**8.8**	**0.32**	<0.0012	0.0038	0.097	<0.0012	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-2 2.5 Feet	B-2 7.5 Feet	B-2 12.5 Feet	B-2 17.5 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	0.0017	0.0066	<0.00061	<0.006	
Toluene	**16000**	**650**	**12**	<0.0061	0.011	<0.0061	<0.006	
Ethylbenzene	**7800**	**400**	**13**	<0.00061	0.004	<0.00061	<0.0006	
Xylenes (total)	**160000**	**320**	**150**	<0.0018	0.0081	<0.0018	<0.0018	
MTBE	**20000**	**8.8**	**0.32**	0.0017	0.0031	0.003	0.0028	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-3 2.5 Feet	B-3 7.5 Feet	B-3 12.5 Feet	B-3 17.5 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	0.008	**0.8**	**0.13**	0.0038	
Toluene	**16000**	**650**	**12**	0.0096	0.9	0.026	<0.0062	
Ethylbenzene	**7800**	**400**	**13**	0.00068	0.35	0.012	<0.00062	
Xylenes (total)	**160000**	**320**	**150**	0.014	0.83	0.021	<0.0019	
MTBE	**20000**	**8.8**	**0.32**	0.0043	0.26	0.066	0.022	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Analytical Summary
Croslow's Shell
Dersch Energies, Inc.
Lawrenceville, IL

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-4 2.5 Feet	B-4 7.5 Feet	B-4 13 Feet	B-4 18 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	0.022	**4.7**	**0.082**	<0.00058	
Toluene	**16000**	**650**	**12**	0.014	3.4	0.038	<0.0058	
Ethylbenzene	**7800**	**400**	**13**	0.0043	3.1	0.037	0.00064	
Xylenes (total)	**160000**	**320**	**150**	0.017	3.8	0.054	<0.0018	
MTBE	**20000**	**8.8**	**0.32**	0.012	**1.2**	0.073	0.094	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-5 5 Feet	B-5 7.5 Feet	B-5 12.5 Feet	B-5 18 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	**1.2**	**3.4**	**0.84**	0.00062	
Toluene	**16000**	**650**	**12**	2.4	3.6	<0.24	<0.0062	
Ethylbenzene	**7800**	**400**	**13**	5.3	**22**	1.6	0.00071	
Xylenes (total)	**160000**	**320**	**150**	2.9	64	0.28	0.0027	
MTBE	**20000**	**8.8**	**0.32**	**0.35**	**2**	0.13	0.015	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-6 5 Feet	B-6 7.5 Feet	B-6 15 Feet	B-6 18 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	**0.038**	**5.2**	**0.047**	0.017	
Toluene	**16000**	**650**	**12**	0.034	5	<0.0062	0.0098	
Ethylbenzene	**7800**	**400**	**13**	0.016	**21**	0.0082	0.0025	
Xylenes (total)	**160000**	**320**	**150**	0.051	10	0.0058	0.007	
MTBE	**20000**	**8.8**	**0.32**	0.018	**1.9**	0.048	0.026	
TOC								

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Analytical Summary
Croslow's Shell
Dersch Energies, Inc.
Lawrenceville, IL

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-7 2.5 Feet	B-7 7.5 Feet	B-7 12.5 Feet	B-7 18 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	0.0025	**0.089**	**0.09**	0.0092	
Toluene	**16000**	**650**	**12**	<0.0062	0.055	0.014	0.0061	
Ethylbenzene	**7800**	**400**	**13**	0.0014	0.014	0.004	0.00076	
Xylenes (total)	**160000**	**320**	**150**	<0.0019	0.063	0.0095	0.0026	
MTBE	**20000**	**8.8**	**0.32**	<0.0012	0.039	0.056	0.0027	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-8 2.5 Feet	B-8 7.5 Feet	B-8 12.5 Feet	B-8 17.5 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	0.0026	0.015	<0.0006	<0.00064	
Toluene	**16000**	**650**	**12**	<0.0064	0.018	<0.006	<0.0064	
Ethylbenzene	**7800**	**400**	**13**	0.0013	0.0051	<0.0006	<0.00064	
Xylenes (total)	**160000**	**320**	**150**	0.0034	0.014	<0.0018	<0.0019	
MTBE	**20000**	**8.8**	**0.32**	0.0039	0.0086	0.013	0.015	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-9 5 Feet	B-9 7.5 Feet	B-9 15 Feet	B-9 18 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	**0.1**	**3.2**	**0.089**	0.0016	
Toluene	**16000**	**650**	**12**	0.038	3	0.05	<0.0058	
Ethylbenzene	**7800**	**400**	**13**	0.0094	**19**	0.053	0.0035	
Xylenes (total)	**160000**	**320**	**150**	0.063	13	0.1	0.003	
MTBE	**20000**	**8.8**	**0.32**	0.047	**1.1**	0.042	0.0045	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

Analytical Summary
Croslow's Shell
Dersch Energies, Inc.
Lawrenceville, IL

Results of Soil Sample Analyses for BTEX and MTBE

Analyte	Ingestion Objective	Inhalation Objective	Migration to GW Objective	B-10 5 Feet	B-10 10 Feet	B-10 15 Feet	B-10 18 Feet	
Date Sampled				10/17/06	10/17/06	10/17/06	10/17/06	
BTEX								
Benzene	**12**	**0.8**	**0.03**	**0.042**	**0.099**	**0.51**	0.011	
Toluene	**16000**	**650**	**12**	0.018	0.072	0.32	<0.0058	
Ethylbenzene	**7800**	**400**	**13**	0.0037	0.036	2.2	0.0053	
Xylenes (total)	**160000**	**320**	**150**	0.018	0.15	0.15	0.0052	
MTBE	**20000**	**8.8**	**0.32**	0.015	0.045	0.28	0.011	

All concentrations given in mg/kg. Bold entries exceed IEPA TACO Tier 1 Residential Cleanup Objectives

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Mr. Bryan Williams
Applied Environmental Technologies, Inc.
PO Box 303

Carmi, IL 62821

Report Summary

Monday October 30, 2006

Report Number: L265957
Samples Received: 10/20/06
Client Project: CROSLOW SHELL

Description: Croslows Shell

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Reviewed By:

Craig Cothron, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 09227, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140
NJ - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

October 30,2006

ESC Sample # : L265957-01

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-1 2.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 08:15

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	79.4		%	2540G	10/26/06	1
Benzene	BDL	0.00063	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0063	mg/kg	8021	10/26/06	1
Ethylbenzene	BDL	0.00063	mg/kg	8021	10/26/06	1
Total Xylene	BDL	0.0019	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	BDL	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	108.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

The reported analytical results relate only to the sample submitted
Reported: 10/30/06 08:46 Printed: 10/30/06 09:36

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
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Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

ESC Sample # : L265957-02

Site ID :

Sample ID : B-1 10 FT

Project # : CROSLOW SHELL

Collected By : Bryan Williams
Collection Date : 10/17/06 08:22

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.3		%	2540G	10/26/06	1
Benzene	0.0066	0.00062	mg/kg	8021	10/26/06	1
Toluene	0.0082	0.0062	mg/kg	8021	10/26/06	1
Ethylbenzene	0.0029	0.00062	mg/kg	8021	10/26/06	1
Total Xylene	0.0067	0.0019	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.0038	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	107.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-1 13 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 08:30

ESC Sample # : L265957-03

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	81.0		%	2540G	10/27/06	1
Benzene	0.16	0.00062	mg/kg	8021	10/26/06	1
Toluene	0.13	0.0062	mg/kg	8021	10/26/06	1
Ethylbenzene	0.014	0.00062	mg/kg	8021	10/26/06	1
Total Xylene	0.088	0.0018	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.097	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	94.3		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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REPORT OF ANALYSIS

Mr. Bryan Williams
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October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-1 19 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 08:45

ESC Sample # : L265957-04

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	86.0		%	2540G	10/27/06	1
Benzene	BDL	0.00058	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0058	mg/kg	8021	10/26/06	1
Ethylbenzene	BDL	0.00058	mg/kg	8021	10/26/06	1
Total Xylene	BDL	0.0017	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	BDL	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	107.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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Reported: 10/30/06 08:46 Printed: 10/30/06 09:36

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-2 2.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 09:45

ESC Sample # : L265957-05

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	81.5		%	2540G	10/27/06	1
Benzene	0.0017	0.00061	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0061	mg/kg	8021	10/26/06	1
Ethylbenzene	BDL	0.00061	mg/kg	8021	10/26/06	1
Total Xylene	BDL	0.0018	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.0017	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	106.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

The reported analytical results relate only to the sample submitted
Reported: 10/30/06 08:46 Printed: 10/30/06 09:36

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
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Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-2 7.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 09:52

ESC Sample # : L265957-06

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	79.4		%	2540G	10/27/06	1
Benzene	0.0066	0.00063	mg/kg	8021	10/26/06	1
Toluene	0.011	0.0063	mg/kg	8021	10/26/06	1
Ethylbenzene	0.0040	0.00063	mg/kg	8021	10/26/06	1
Total Xylene	0.0081	0.0019	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.0031	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

The reported analytical results relate only to the sample submitted
Reported: 10/30/06 08:46 Printed: 10/30/06 09:36

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REPORT OF ANALYSIS

Mr. Bryan Williams
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Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-2 12.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 10:00

ESC Sample # : L265957-07

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	82.4		%	2540G	10/27/06	1
Benzene	BDL	0.00061	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0061	mg/kg	8021	10/26/06	1
Ethylbenzene	BDL	0.00061	mg/kg	8021	10/26/06	1
Total Xylene	BDL	0.0018	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.0030	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	106.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

The reported analytical results relate only to the sample submitted
Reported: 10/30/06 08:46 Printed: 10/30/06 09:36

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REPORT OF ANALYSIS

Mr. Bryan Williams
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Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

ESC Sample # : L265957-08

Site ID :

Sample ID : B-2 17.5 FT

Project # : CROSLOW SHELL

Collected By : Bryan Williams
Collection Date : 10/17/06 10:05

Parsmeter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	84.0		%	2540G	10/27/06	1
Benzene	BDL	0.00060	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0060	mg/kg	8021	10/26/06	1
Ethylbenzene	BDL	0.00060	mg/kg	8021	10/26/06	1
Total Xylene	BDL	0.0018	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.0028	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

The reported analytical results relate only to the sample submitted
Reported: 10/30/06 08:46 Printed: 10/30/06 09:36

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

ESC Sample # : L265957-09

Site ID :

Sample ID : B-3 2.5 FT

Project # : CROSLOW SHELL

Collected By : Bryan Williams
Collection Date : 10/17/06 11:05

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	78.5		%	2540G	10/27/06	1
Benzene	0.0080	0.00064	mg/kg	8021	10/26/06	1
Toluene	0.0096	0.0064	mg/kg	8021	10/26/06	1
Ethylbenzene	0.00068	0.00064	mg/kg	8021	10/26/06	1
Total Xylene	0.014	0.0019	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.0043	0.0013	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	109.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

The reported analytical results relate only to the sample submitted
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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-3 7.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 11:10

ESC Sample # : L265957-10

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	79.4		%	2540G	10/27/06	1
Benzene	0.80	0.025	mg/kg	8021	10/26/06	40
Toluene	0.90	0.25	mg/kg	8021	10/26/06	40
Ethylbenzene	0.35	0.025	mg/kg	8021	10/26/06	40
Total Xylene	0.83	0.076	mg/kg	8021	10/26/06	40
Methyl tert-butyl ether	0.26	0.050	mg/kg	8021	10/26/06	40
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	106.		% Rec.	8021	10/26/06	40

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

The reported analytical results relate only to the sample submitted
Reported: 10/30/06 08:46 Printed: 10/30/06 09:36

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REPORT OF ANALYSIS

Mr. Bryan Williams
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PO Box 303
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October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

ESC Sample # : L265957-11

Site ID :

Sample ID : B-3 12.5 FT

Project # : CROSLOW SHELL

Collected By : Bryan Williams
Collection Date : 10/17/06 11:15

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	82.2		%	2540G	10/27/06	1
Benzene	0.13	0.00061	mg/kg	8021	10/26/06	1
Toluene	0.026	0.0061	mg/kg	8021	10/26/06	1
Ethylbenzene	0.012	0.00061	mg/kg	8021	10/26/06	1
Total Xylene	0.021	0.0018	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.066	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	97.1		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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REPORT OF ANALYSIS

Mr. Bryan Williams
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October 30,2006

ESC Sample # : L265957-12

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-3 17.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 11:20

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.3		%	2540G	10/27/06	1
Benzene	0.0038	0.00062	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0062	mg/kg	8021	10/26/06	1
Ethylbenzene	BDL	0.00062	mg/kg	8021	10/26/06	1
Total Xylene	BDL	0.0019	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.022	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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REPORT OF ANALYSIS

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October 30,2006

ESC Sample # : L265957-13

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-4 2.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 13:00

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	81.0		%	2540G	10/27/06	1
Benzene	0.022	0.00062	mg/kg	8021	10/26/06	1
Toluene	0.014	0.0062	mg/kg	8021	10/26/06	1
Ethylbenzene	0.0043	0.00062	mg/kg	8021	10/26/06	1
Total Xylene	0.017	0.0018	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.012	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-4 7.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 13:40

ESC Sample # : L265957-14

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	78.8		%	2540G	10/27/06	1
Benzene	4.7	0.050	mg/kg	8021	10/26/06	79
Toluene	3.4	0.50	mg/kg	8021	10/26/06	79
Ethylbenzene	3.1	0.050	mg/kg	8021	10/26/06	79
Total Xylene	3.8	0.15	mg/kg	8021	10/26/06	79
Methyl tert-butyl ether	1.2	0.10	mg/kg	8021	10/26/06	79
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	107.		% Rec.	8021	10/26/06	79

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
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October 30,2006

ESC Sample # : L265957-15

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-4 13 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 13:45

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	77.8		%	2540G	10/27/06	1
Benzene	0.082	0.00064	mg/kg	8021	10/26/06	1
Toluene	0.038	0.0064	mg/kg	8021	10/26/06	1
Ethylbenzene	0.037	0.00064	mg/kg	8021	10/26/06	1
Total Xylene	0.054	0.0019	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.073	0.0013	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	99.4		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-4 18 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 13:25

ESC Sample # : L265957-16

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	85.5		%	2540G	10/27/06	1
Benzene	BDL	0.00058	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0058	mg/kg	8021	10/26/06	1
Ethylbenzene	0.00064	0.00058	mg/kg	8021	10/26/06	1
Total Xylene	BDL	0.0018	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.094	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-5 5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 14:25

ESC Sample # : L265957-17

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	78.4		%	2540G	10/27/06	1
Benzene	1.2	0.025	mg/kg	8021	10/26/06	39.5
Toluene	2.4	0.25	mg/kg	8021	10/26/06	39.5
Ethylbenzene	5.3	0.025	mg/kg	8021	10/26/06	39.5
Total Xylene	2.9	0.076	mg/kg	8021	10/26/06	39.5
Methyl tert-butyl ether	0.35	0.050	mg/kg	8021	10/26/06	39.5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	109.		% Rec.	8021	10/26/06	39.5

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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REPORT OF ANALYSIS

Mr. Bryan Williams
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October 30,2006

ESC Sample # : L265957-18

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-5 7.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 14:30

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	79.9		%	2540G	10/27/06	1
Benzene	3.4	0.12	mg/kg	8021	10/26/06	200
Toluene	3.6	1.2	mg/kg	8021	10/26/06	200
Ethylbenzene	22.	0.12	mg/kg	8021	10/26/06	200
Total Xylene	64.	0.38	mg/kg	8021	10/26/06	200
Methyl tert-butyl ether	2.0	0.25	mg/kg	8021	10/26/06	200
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	112.		% Rec.	8021	10/26/06	200

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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REPORT OF ANALYSIS

Mr. Bryan Williams
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October 30,2006

ESC Sample # : L265957-19

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-5 12.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 14:40

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	81.0		%	2540G	10/27/06	1
Benzene	0.84	0.024	mg/kg	8021	10/26/06	39
Toluene	BDL	0.24	mg/kg	8021	10/26/06	39
Ethylbenzene	1.6	0.024	mg/kg	8021	10/26/06	39
Total Xylene	0.28	0.072	mg/kg	8021	10/26/06	39
Methyl tert-butyl ether	0.13	0.048	mg/kg	8021	10/26/06	39
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021	10/26/06	39

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
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October 30,2006

ESC Sample # : L265957-20

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-5 18 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 14:50

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	81.2		%	2540G	10/27/06	1
Benzene	0.00062	0.00062	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0062	mg/kg	8021	10/26/06	1
Ethylbenzene	0.00071	0.00062	mg/kg	8021	10/26/06	1
Total Xylene	0.0027	0.0018	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.015	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

ESC Sample # : L265957-21

Sample ID : B-6 5 FT

Site ID :

Project # : CROSLOW SHELL

Collected By : Bryan Williams
Collection Date : 10/17/06 15:30

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	87.8		%	2540G	10/27/06	1
Benzene	0.038	0.00057	mg/kg	8021	10/26/06	1
Toluene	0.034	0.0057	mg/kg	8021	10/26/06	1
Ethylbenzene	0.016	0.00057	mg/kg	8021	10/26/06	1
Total Xylene	0.051	0.0017	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.018	0.0011	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	106.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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REPORT OF ANALYSIS

Mr. Bryan Williams
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October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

ESC Sample # : L265957-22

Sample ID : B-6 7.5 FT

Site ID :

Project # : CROSLOW SHELL

Collected By :
Collection Date : 10/17/06 15:35

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	81.3		%	2540G	10/27/06	1
Benzene	5.2	0.024	mg/kg	8021	10/26/06	39.5
Toluene	5.0	0.24	mg/kg	8021	10/26/06	39.5
Ethylbenzene	21.	0.024	mg/kg	8021	10/26/06	39.5
Total Xylene	10.	0.073	mg/kg	8021	10/26/06	39.5
Methyl tert-butyl ether	1.9	0.048	mg/kg	8021	10/26/06	39.5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	115.		% Rec.	8021	10/26/06	39.5

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

The reported analytical results relate only to the sample submitted
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Mr. Bryan Williams
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October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

ESC Sample # : L265957-23

Site ID :

Sample ID : B-6 15 FT

Project # : CROSLOW SHELL

Collected By : Bryan Williams
Collection Date : 10/17/06 15:40

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	81.1		%	2540G	10/27/06	1
Benzene	0.047	0.00062	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0062	mg/kg	8021	10/26/06	1
Ethylbenzene	0.0082	0.00062	mg/kg	8021	10/26/06	1
Total Xylene	0.0058	0.0018	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.048	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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REPORT OF ANALYSIS

Mr. Bryan Williams
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October 30,2006

ESC Sample # : L265957-24

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-6 18 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 15:45

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	85.6		%	2540G	10/27/06	1
Benzene	0.017	0.00058	mg/kg	8021	10/27/06	1
Toluene	0.0098	0.0058	mg/kg	8021	10/27/06	1
Ethylbenzene	0.0025	0.00058	mg/kg	8021	10/27/06	1
Total Xylene	0.0070	0.0018	mg/kg	8021	10/27/06	1
Methyl tert-butyl ether	0.026	0.0012	mg/kg	8021	10/27/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021	10/27/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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REPORT OF ANALYSIS

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October 30,2006

ESC Sample # : L265957-25

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-7 2.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 16:00

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.5		%	2540G	10/27/06	1
Benzene	0.0025	0.00062	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0062	mg/kg	8021	10/26/06	1
Ethylbenzene	0.0014	0.00062	mg/kg	8021	10/26/06	1
Total Xylene	BDL	0.0019	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	BDL	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-7 7.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 16:10

ESC Sample # : L265957-26

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.6		%	2540G	10/27/06	1
Benzene	0.089	0.00062	mg/kg	8021	10/26/06	1
Toluene	0.055	0.0062	mg/kg	8021	10/26/06	1
Ethylbenzene	0.014	0.00062	mg/kg	8021	10/26/06	1
Total Xylene	0.063	0.0019	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.039	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	110.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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Est. 1970

REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

October 30,2006

ESC Sample # : L265957-27

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-7 12.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 16:15

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.8		%	2540G	10/27/06	1
Benzene	0.090	0.00062	mg/kg	8021	10/26/06	1
Toluene	0.014	0.0062	mg/kg	8021	10/26/06	1
Ethylbenzene	0.0040	0.00062	mg/kg	8021	10/26/06	1
Total Xylene	0.0095	0.0018	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.056	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
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PO Box 303
Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-? 18 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 16:20

ESC Sample # : L265957-28

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	87.6		%	2540G	10/27/06	1
Benzene	0.0092	0.00057	mg/kg	8021	10/26/06	1
Toluene	0.0061	0.0057	mg/kg	8021	10/26/06	1
Ethylbenzene	0.00076	0.00057	mg/kg	8021	10/26/06	1
Total Xylene	0.0026	0.0017	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.0027	0.0011	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
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Det. Limit - Practical Quantitation Limit(PQL)
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Mr. Bryan Williams
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PO Box 303
Carmi, IL 62821

October 30,2006

ESC Sample # : L265957-29

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-8 2.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 16:30

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	77.7		%	2540G	10/27/06	1
Benzene	0.0026	0.00064	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0064	mg/kg	8021	10/26/06	1
Ethylbenzene	0.0013	0.00064	mg/kg	8021	10/26/06	1
Total Xylene	0.0034	0.0019	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.0039	0.0013	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
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Det. Limit - Practical Quantitation Limit(PQL)
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REPORT OF ANALYSIS

Mr. Bryan Williams
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PO Box 303
Carmi, IL 62821

October 30,2006

ESC Sample # : L265957-30

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-8 7.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 16:45

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.2		%	2540G	10/27/06	1
Benzene	0.015	0.00062	mg/kg	8021	10/26/06	1
Toluene	0.018	0.0062	mg/kg	8021	10/26/06	1
Ethylbenzene	0.0051	0.00062	mg/kg	8021	10/26/06	1
Total Xylene	0.014	0.0019	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.0086	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

October 30,2006

ESC Sample # : L265957-31

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-8 12.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 16:55

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	82.9		%	2540G	10/27/06	1
Benzene	BDL	0.00060	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0060	mg/kg	8021	10/26/06	1
Ethylbenzene	BDL	0.00060	mg/kg	8021	10/26/06	1
Total Xylene	BDL	0.0018	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.013	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-8 17.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 17:00

ESC Sample # : L265957-32

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	78.2		%	2540G	10/27/06	1
Benzene	BDL	0.00064	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0064	mg/kg	8021	10/26/06	1
Ethylbenzene	BDL	0.00064	mg/kg	8021	10/26/06	1
Total Xylene	BDL	0.0019	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.015	0.0013	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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REPORT OF ANALYSIS

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PO Box 303
Carmi, IL 62821

October 30,2006

ESC Sample # : L265957-33

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-9 5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 17:02

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.6		%	2540G	10/27/06	1
Benzene	0.10	0.00062	mg/kg	8021	10/26/06	1
Toluene	0.038	0.0062	mg/kg	8021	10/26/06	1
Ethylbenzene	0.0094	0.00062	mg/kg	8021	10/26/06	1
Total Xylene	0.063	0.0019	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.047	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-9 7.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 17:10

ESC Sample # : L265957-34

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.5		%	2540G	10/27/06	1
Benzene	3.2	0.050	mg/kg	8021	10/28/06	80
Toluene	3.0	0.50	mg/kg	8021	10/28/06	80
Ethylbenzene	19.	0.050	mg/kg	8021	10/28/06	80
Total Xylene	13.	0.15	mg/kg	8021	10/28/06	80
Methyl tert-butyl ether	1.1	0.099	mg/kg	8021	10/28/06	80
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021	10/28/06	80

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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Mr. Bryan Williams
Applied Environmental Technologies,
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Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-9 15 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 17:15

ESC Sample # : L265957-35

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	86.1		%	2540G	10/27/06	1
Benzene	0.089	0.00058	mg/kg	8021	10/26/06	1
Toluene	0.050	0.0058	mg/kg	8021	10/26/06	1
Ethylbenzene	0.053	0.00058	mg/kg	8021	10/26/06	1
Total Xylene	0.10	0.0017	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.042	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-9 18 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 17:20

ESC Sample # : L265957-36

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	86.5		%	2540G	10/27/06	1
Benzene	0.0016	0.00058	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0058	mg/kg	8021	10/26/06	1
Ethylbenzene	0.0035	0.00058	mg/kg	8021	10/26/06	1
Total Xylene	0.0030	0.0017	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.0045	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	108.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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October 30,2006

ESC Sample # : L265957-37

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-10 5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 17:40

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	79.6		%	2540G	10/27/06	1
Benzene	0.042	0.00063	mg/kg	8021	10/26/06	1
Toluene	0.018	0.0063	mg/kg	8021	10/26/06	1
Ethylbenzene	0.0037	0.00063	mg/kg	8021	10/26/06	1
Total Xylene	0.018	0.0019	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.015	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	97.4		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:

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PO Box 303
Carmi, IL 62821

October 30,2006

Date Received : October 20, 2006
Description : Croslows Shell

ESC Sample # : L265957-38

Site ID :

Sample ID : B-10 7.5 FT

Project # : CROSLOW SHELL

Collected By : Bryan Williams
Collection Date : 10/17/06 17:45

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.0		%	2540G	10/27/06	1
Benzene	0.099	0.00062	mg/kg	8021	10/26/06	1
Toluene	0.072	0.0062	mg/kg	8021	10/26/06	1
Ethylbenzene	0.036	0.00062	mg/kg	8021	10/26/06	1
Total Xylene	0.15	0.0019	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.045	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	107.		% Rec.	8021	10/26/06	1

Results listed are dry weight basis.
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Det. Limit - Practical Quantitation Limit(PQL)
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REPORT OF ANALYSIS

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October 30,2006

ESC Sample # : L265957-39

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-10 15 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 17:50

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	81.2		%	2540G	10/27/06	1
Benzene	0.51	0.023	mg/kg	8021	10/27/06	37.5
Toluene	0.32	0.23	mg/kg	8021	10/27/06	37.5
Ethylbenzene	2.2	0.023	mg/kg	8021	10/27/06	37.5
Total Xylene	0.45	0.069	mg/kg	8021	10/27/06	37.5
Methyl tert-butyl ether	0.28	0.046	mg/kg	8021	10/27/06	37.5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	106.		% Rec.	8021	10/27/06	37.5

Results listed are dry weight basis.
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Det. Limit - Practical Quantitation Limit(PQL)
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October 30, 2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-10 18 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 18:00

ESC Sample # : L265957-40

Site ID :

Project # : CROSLOW SHELL

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	85.5		%	2540G	10/27/06	1
Benzene	0.011	0.00058	mg/kg	8021	10/26/06	1
Toluene	BDL	0.0058	mg/kg	8021	10/26/06	1
Ethylbenzene	0.0053	0.00058	mg/kg	8021	10/26/06	1
Total Xylene	0.0052	0.0018	mg/kg	8021	10/26/06	1
Methyl tert-butyl ether	0.011	0.0012	mg/kg	8021	10/26/06	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(PID)	95.0		% Rec.	8021	10/26/06	1

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October 30, 2006

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-2 7.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 09:52

ESC Sample # : L265957-41

Site ID :

Project # : CROSLOW SHELL

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TOC (Total Organic Carbon)	3000	1.0	mg/kg	USDA LOI	10/26/06	1

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Attachment A
List of Analytes with QC Qualifiers

Sample #	Analyte	Qualifier
L265957-22	Ethylbenzene	E
L265957-25	Total Xylene	J5

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
E	GTL (EPA) - Greater than upper calibration limit: Actual value is known to be greater than the upper calibration range.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable unless qualified as 'R' (Rejected).

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

	Control Limits			(AQ)	(SS)
2-Fluorophenol	31-119	Nitrobenzene-d5	43-118	Dibromfluoromethane	68-128	64-125
Phenol-d5	12-134	2-Fluorobiphenyl	45-128	Toluene-d8	76-115	69-118
2,4,6-Tribromophenol	51-141	Terphenyl-d14	43-137	4-Bromofluorobenzene	79-127	61-134

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
10/30/06 at 09:37:06

TSR Signing Reports: 034
R5 - Desired TAT

Accounting alert: Contact Deb 6/26/06

Sample: L265957-01 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-02 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-03 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-04 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-05 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-06 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-07 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-08 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-09 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-10 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-11 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-12 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-13 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-14 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-15 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-16 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-17 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-18 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-19 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-20 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-21 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-22 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-23 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-24 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-25 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-26 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-27 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-28 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-29 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-30 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-31 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-32 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-33 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-34 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-35 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-36 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-37 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-38 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-39 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-40 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46
Sample: L265957-41 Account: APPENVCIR Received: 10/20/06 09:00 Due Date: 10/27/06 00:00 RPT Date: 10/30/06 08:46

Company Name/Address:
Applied Environmental Technologies Inc.
PO Box 303
Carmi.IL 62821

Alternate billing information:

Analysis/Container/Preservative

Chain of Custody Page 1 of 5

Prepared by:
ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859

Report to: Bryan Williams
Email to: aet98@midwest.net
Project Description: Croslow's Shell
City/State Collected: Lawrenceville, IL
Phone: (618) 382-8232
FAX: (618) 382-2462
Client Project #: Croslow Shell
ESC Key:
Collected by: Bryan Williams
Site/Facility ID#:
P.O.#:
Collected by (signature): Bryan Williams
Packed on Ice N ___ Y X
Rush? (Lab MUST Be Notified)
___ Same Day.....200%
___ Next Day.....100%
___ Two Day.....50%
___ Three Day.....25%
Date Results Needed: Normal
Email? _No X Yes
FAX? _No _Yes
No. of Cntrs

BTEX / MTBE (EPA 8021)
Total Organic Carbon Content

CoCode: APPENVCIR (lab use only)
Template/Prelogin
Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Remarks/Contaminant	Sample # (lab only)
B-1	Grab	SS	2.5'	10/17/06	8:15 am	4		L258951-01
B-1			10'		8:22 am			02
B-1			13'		8:30 am			03
B-1			19'		8:45 am			04
B-2			2.5'		9:45 am			05
B-2			7.5'		9:52 am	5		06/41
B-2			12.5'		10:00 am			07
B-2			17.5'		10:05 am			08
B-3			2.5'		11:05 am			09

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Remarks: Must reach IEPA TACO Tier I residential objectives.

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐	Condition:	(lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.5°C	Bottles Received: 16	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 10.20.06	Time: 0900	pH Checked: NCF:

Company Name/Address:
Applied Environmental Technologies Inc.
PO Box 303
Carmi.IL 62821

Alternate billing information:

Analysis/Container/Preservative: BTEX (MTBE) - Dry wt

Chain of Custody Page 2 of 3

Prepared by:

ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859

Report to: Bryan Williams

Email to: jet98@midwest.net

Project Description: Croslow's Shell

City/State Collected: Lawrenceville, IL

Phone: (618) 382-8232
FAX: (618) 382-2462

Client Project #: Croslow Shell

ESC Key:

Collected by: Bryan Williams

Site/Facility ID#:

P.O.#:

Collected by (signature): Bryan Williams

Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day.......200%
___ Next Day.......100%
___ Two Day........50%
___ Three Day......25%

Date Results Needed: Normal
Email? __No X Yes
FAX? __No__Yes

CoCode APPENVCIL (lab use only)
Template/Prelogin
Shipped Via

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	BTEX (MTBE) - Dry wt				Remarks/Contaminant	Sample # (lab only)
B-3	Grab	SS	7.5'	10/17/06	11:10am	4	X					L265457-10
B-3	↓	↓	12.5'	↓	11:15am	↓	↓					11
B-3	↓	↓	17.5'	↓	11:20am	↓	↓					12
B-4	↓	↓	2.5'	↓	1:00pm	↓	↓					13
B-4	↓	↓	7.5'	↓	1:10pm	↓	↓					14
B-4	↓	↓	13'	↓	1:15pm	↓	↓					15
B-4	↓	↓	18'	↓	1:25pm	↓	↓					16
B-5	↓	↓	5'	↓	2:25pm	↓	↓					17
B-5	↓	↓	7.5'	↓	2:30pm	↓	↓					18

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other________

pH ________ Temp ________

Remarks: See page #1

Flow ________ Other ________

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐		Condition: (lab use only)	
[signature]	10/19/06	10:00AM					
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.5°C	Bottles Received: 16		
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 10-20-06	Time: 0910	pH Checked:	NCF:

Company Name/Address:
Applied Environmental Technologies Inc.
PO Box 303
Carmi,IL 62821

Alternate billing information:

Analysis/Container/Preservative

Chain of Custody Page 3 of 3

Prepared by:
ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859

Report to: Bryan Williams
Email to: jet98@midwest.net
Project Description: Croslow's Shell
City/State Collected: Lawrenceville, IL
Phone: (618) 382-8232
FAX: (618) 382-2462
Client Project #: Croslow's Shell
ESC Key:
Collected by: Bryan Williams
Site/Facility ID#:
P.O.#:
Collected by (signature): Bya Willm
Packed on Ice N ___ Y X
Rush? (Lab MUST Be Notified)
___ Same Day.....200%
___ Next Day.....100%
___ Two Day.....50%
___ Three Day.....25%
Date Results Needed: Normal
Email? __No X Yes
FAX? __No__Yes
No. of Cntrs
Cocode: APPENVCI (lab use only)
Template/Prelogin:
Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Remarks/Contaminant	Sample # (lab only)
B-5	Grab	SS	12.5'	10/7/10	2:40pm	4		19
B-5			18'		2:50pm			20
B-6			5'		3:30pm			21
B-6			7.5'		3:35pm			22
B-6			15'		3:40pm			23
B-6			18'		3:45pm			24
B-7			2.5'		4:00pm			25
B-7			7.5'		4:10pm			26
B-7			12.5'		4:15pm			27

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Remarks: See page #1 (618) 382 4841

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ _____	Condition	Lab use only
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.9°C	Bottles Received: 16	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 10/20/10	Time: 0900	pH Checked: NCF:

Company Name/Address:

Applied Environmental Technologies Inc.
PO Box 303
Carmi.IL 62821

Alternate billing information:

Analysis/Container/Preservative: BTEX - MTBE (Ampak)

Chain of Custody Page 4 of 5

Prepared by:

ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859

Report to: Bryan Williams
Email to: aet98@midwest.net

Project Description: Croslow's Shell
City/State Collected: Lawrenceville, IL

Phone: (618) 382-8232
FAX: (618) 382-2462
Client Project #: Croslow's Shell
ESC Key:

Collected by: Bryan Williams
Site/Facility ID#:
P.O.#:

Collected by (signature): Bryan Williams
Packed on Ice N___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day.......200%
___ Next Day.......100%
___ Two Day........50%
___ Three Day.......25%

Date Results Needed: Normal
Email? __No X Yes
FAX? __No__Yes

CoCode APPENVCI (lab use only)
Template/Prelogin
Shipped Via

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	BTEX - MTBE (Ampak)	Remarks/Contaminant	Sample # (lab only)
B-7	Grab	SS	18'	10/17/06	4:20pm	4	X		[illegible]-28
B-8	↓	↓	2.5'	↓	4:30pm	↓	↓		29
B-8			7.5'		4:45pm				30
B-8			12.5'		4:55pm				31
B-8			17.5'		5:00pm				32
B-9			5'		5:02pm				33
B-9			7.5'		5:10pm				34
B-9			15'		5:15pm				35
B-9			18'		5:20pm				36

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other________

pH ________ Temp ________

Remarks: See page #1

Flow ________ Other ________

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐	Condition: (lab use only)
[signature]	10/19/06				
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.5°C	Bottles Received: 16
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 10-20-06	Time: 0910
				pH Checked:	NCF:

Company Name/Address:

Applied Environmental Technologies Inc.

PO Box 303
Carmi,IL 62821

Alternate billing information:

Analysis/Container/Preservative: BTEX / MTBE (Dry Wt)

Chain of Custody Page 5 of 5

Prepared by:

ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859

Report to: Bryan Williams | Email to: aet98@midwest.net

Project Description: Croslow's Shell | City/State Collected: Lawrenceville, IL

Phone: (618) 382-8232
FAX: (618) 382-2462

Client Project #: Croslow's Shell | ESC Key:

Collected by: Bryan Williams | Site/Facility ID#: | P.O.#:

Collected by (signature): Bryan Williams

Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day.......200%
___ Next Day.......100%
___ Two Day........50%
___ Three Day......25%

Date Results Needed: Normal
Email? __No X Yes
FAX? __No __Yes

CoCode: APPENVCI (lab use only)
Template/Prelogin
Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	BTEX / MTBE (Dry Wt)	Remarks/Contaminant	Sample # (lab only)
B-10	Grab	SS	5'	10/17/06	5:40pm	4	X		L265957-37
B-10	Grab	SS	7.5'	10/17/06	5:45pm	4	X		38
B-10	Grab	SS	15'	10/17/06	5:50pm	4	X		39
B-10	Grab	SS	18'	10/17/06	6:00pm	4	X		40

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other______

pH ______ Temp ______

Remarks: See page #1

Flow ______ Other ______

8523 8249 4890

Relinquished by: (Signature) [signature]	Date: 10/18/06	Time: 10:00Am	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐	Condition: (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.5°C / Bottles Received: 16	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 10/20/06 / Time: 0900	pH Checked: / NCF:

The Agency is authorized to require this information under Section 4 and Title XVI of the Environmental Protection Act (415 ILCS 5/4, 5/57 - 57.17). Failure to disclose this information may result in a civil penalty of not to exceed $50,000.00 for the violation and an additional civil penalty of not to exceed $10,000.00 for each day during which the violation continues (415 ILCS 5/42). Any person who knowingly makes a false material statement or representation in any label, manifest, record, report, permit, or license, or other document filed, maintained or used for the purpose of compliance with Title XVI commits a Class 4 felony. Any second or subsequent offense after conviction hereunder is a Class 3 felony (415 ILCS 5/57.17). This form has been approved by the Forms Management Center.

Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
Laboratory Certification for Chemical Analysis

A. Site Identification

IEMA Incident # (6 digit): H-20050374 IEPA Generator # (10 digit): 1010155024

Site Name: Croslow Shell

Site Address (Not a P.O. Box): 1421 Lexington Avenue

City: Lawrenceville County: Lawrence Zip Code: 62439

B. Sample Collector

I certify that:

1. Appropriate sampling equipment/methods were utilized to obtain representative sample. (initial)
2. Chain of custody procedures were followed in the field. (initial)
3. Sample integrity was maintained by proper preservation. (initial)
4. All samples were properly labeled. (initial)

C. Laboratory Representative

I certify that:

1. Proper chain of custody procedures were followed as documented on the chain of custody forms. (initial)
2. Sample integrity was maintained by proper preservation. (initial)
3. All samples were properly labeled. (initial)

4. Quality assurance/quality control procedures were established and carried out. CC (initial)

5. Sample holding times were not exceeded. CC (initial)

6. SW-846 Analytical Laboratory Procedure (USEPA) methods were used for the analyses. CC (initial)

7. An accredited lab performed quantitative analysis using test methods identified in 35 IAC 186.180 (for samples collected on or after January 1, 2003). CC (initial)

D. Signatures

I hereby affirm that all information contained in this form is true and accurate to the best of my knowledge and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sample Collector

Name: Bryan Williams
Title: Professional Geologist
Company: Applied Environmental Technologies, Inc.
Address: P.O. Box 303
City, State, ZIP: Carmi, IL 62821
Phone: 618-382-8232
Signature: Bryan Williams
Date: 11/6/07

Laboratory Representative

Name: Craig Cothron
Title: Laboratory Project Manager
Company: Environmental Science Corp.
Address: 12065 Lebanon Road
City, State, ZIP: Mt. Juliet, TN 37122
Phone: 1-800-767-5859
Signature:
Date: 10/30/07

Exhibit B-2

Analytical Summary Table
Dersch Energies, Inc.
Croslow Shell
Lawrenceville, IL

Analyte	Class 1 GW Objectives	MW-1	MW-2	MW-3	MW-4	MW-5
Date Sampled		10/24/2006	10/24/2006	10/24/2006	10/24/2006	10/24/2006
BTEX						
Benzene	**0.005**	**0.038**	<0.0005	**0.24**	**0.065**	**1**
Toluene	**1.0**	<0.025	<0.005	<0.05	<0.12	<0.5
Ethylbenzene	**0.7**	0.004	<0.0005	0.062	0.11	**3.1**
Total Xylene	**10.0**	<0.0075	<0.0015	<0.015	<0.038	3.5
MTBE	**0.07**	0.023	0.013	**0.21**	**0.26**	**0.16**
PNA's						
Anthracene	**2.1**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Acenaphthene	**0.42**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Acenaphthylene		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (a) anthracene	**0.00013**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (a) pyrene	**0.0002**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (b) fluoranthene	**0.00018**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (g,h,i) perylene		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo (k) fluoranthene	**0.00017**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chrysene	**0.0015**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dibenzo (a,h) anthracene	**0.0003**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoranthene	**0.28**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluorene	**0.28**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Indeno (1,2,3,-cd) pyrene	**0.00043**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
1-Methylnaphthalene		0.017	<0.0001	0.076	0.076	0.23
2-Methylnaphthalene		0.014	<0.0001	0.12	0.072	0.29
Naphthalene	**0.14**	0.0055	<0.0001	0.046	0.078	**0.44**
Phenanthrene		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Pyrene	**0.21**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Petroleum Cleanup Objectives for Groundwater (TACO Tier 1 Class 1).
All results given in mg/l. Bold entries exceed cleanup objectives.

ENVIRONMENTAL
SCIENCE CORP.

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Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Mr. Bryan Williams
Applied Environmental Technologies, Inc.
PO Box 303

Carmi, IL 62821

Report Summary

Wednesday November 01, 2006

Report Number: L266677
Samples Received: 10/26/06
Client Project: CROSLOWS SHELL

Description: Croslows Shell

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Reviewed By: Craig Cothron, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 09227, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140
NJ - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, WA - C1915

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

November 01, 2006

ESC Sample # : L266677-01

Site ID :

Project # : CROSLOWS SHELL

Date Received : October 26, 2006
Description : Croslows Shell

Sample ID : MW-1

Collected By : Bryan Williams
Collection Date : 10/24/06 12:45

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.038	0.0025	mg/l	8021	10/31/06	5
Toluene	BDL	0.025	mg/l	8021	10/31/06	5
Ethylbenzene	0.0040	0.0025	mg/l	8021	10/31/06	5
Total Xylene	BDL	0.0075	mg/l	8021	10/31/06	5
Methyl tert-butyl ether	0.023	0.0050	mg/l	8021	10/31/06	5
Surrogate Recovery (77-118)						
a,a,a-Trifluorotoluene(PID)	106.		% Rec.	8021	10/31/06	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Acenaphthene	BDL	0.00010	mg/l	8310	10/31/06	1
Acenaphthylene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(a)anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(a)pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(b)fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(g,h,i)perylene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(k)fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Chrysene	BDL	0.00010	mg/l	8310	10/31/06	1
Dibenz(a,h)anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Fluorene	BDL	0.00010	mg/l	8310	10/31/06	1
Indeno(1,2,3-cd)pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
1-Methylnaphthalene	0.017	0.00010	mg/l	8310	10/31/06	1
2-Methylnaphthalene	0.014	0.00010	mg/l	8310	10/31/06	1
Naphthalene	0.0055	0.00010	mg/l	8310	10/31/06	1
Phenanthrene	BDL	0.00010	mg/l	8310	10/31/06	1
Pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
Surrogate						
p-Terphenyl-d14	90.9		% Rec.	8310	10/31/06	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

Reported: 11/01/06 15:40 Printed: 11/01/06 15:41

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

November 01, 2006

ESC Sample # : L266677-02

Site ID :

Project # : CROSLOWS SHELL

Date Received : October 26, 2006
Description : Croslows Shell

Sample ID : MW-2

Collected By : Bryan Williams
Collection Date : 10/24/06 13:30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021	10/31/06	1
Toluene	BDL	0.0050	mg/l	8021	10/31/06	1
Ethylbenzene	BDL	0.00050	mg/l	8021	10/31/06	1
Total Xylene	BDL	0.0015	mg/l	8021	10/31/06	1
Methyl tert-butyl ether	0.013	0.0010	mg/l	8021	10/31/06	1
Surrogate Recovery (77-118)						
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021	10/31/06	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Acenaphthene	BDL	0.00010	mg/l	8310	10/31/06	1
Acenaphthylene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(a)anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(a)pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(b)fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(g,h,i)perylene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(k)fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Chrysene	BDL	0.00010	mg/l	8310	10/31/06	1
Dibenz(a,h)anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Fluorene	BDL	0.00010	mg/l	8310	10/31/06	1
Indeno(1,2,3-cd)pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
1-Methylnaphthalene	BDL	0.00010	mg/l	8310	10/31/06	1
2-Methylnaphthalene	BDL	0.00010	mg/l	8310	10/31/06	1
Naphthalene	BDL	0.00010	mg/l	8310	10/31/06	1
Phenanthrene	BDL	0.00010	mg/l	8310	10/31/06	1
Pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
Surrogate						
p-Terphenyl-d14	89.8		% Rec.	8310	10/31/06	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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Reported: 11/01/06 15:40 Printed: 11/01/06 15:41

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

November 01, 2006

Date Received : October 26, 2006
Description : Croslows Shell

Sample ID : MW-3

Collected By : Bryan Williams
Collection Date : 10/24/06 14:10

ESC Sample # : L266677-03

Site ID :

Project # : CROSLOWS SHELL

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.24	0.0050	mg/l	8021	10/31/06	10
Toluene	BDL	0.050	mg/l	8021	10/31/06	10
Ethylbenzene	0.062	0.0050	mg/l	8021	10/31/06	10
Total Xylene	BDL	0.015	mg/l	8021	10/31/06	10
Methyl tert-butyl ether	0.21	0.010	mg/l	8021	10/31/06	10
Surrogate Recovery (77-118)						
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021	10/31/06	10
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Acenaphthene	BDL	0.00010	mg/l	8310	10/31/06	1
Acenaphthylene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(a)anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(a)pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(b)fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(g,h,i)perylene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(k)fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Chrysene	BDL	0.00010	mg/l	8310	10/31/06	1
Dibenz(a,h)anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Fluorene	BDL	0.00010	mg/l	8310	10/31/06	1
Indeno(1,2,3-cd)pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
1-Methylnaphthalene	0.076	0.010	mg/l	8310	11/01/06	100
2-Methylnaphthalene	0.12	0.010	mg/l	8310	11/01/06	100
Naphthalene	0.046	0.010	mg/l	8310	11/01/06	100
Phenanthrene	BDL	0.00010	mg/l	8310	10/31/06	1
Pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
Surrogate						
p-Terphenyl-d14	77.9		% Rec.	8310	10/31/06	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 11/01/06 15:40 Printed: 11/01/06 15:41

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

November 01, 2006

ESC Sample # : L266677-04

Site ID :

Project # : CROSLOWS SHELL

Date Received : October 26, 2006
Description : Croslows Shell

Sample ID : MW-4

Collected By : Bryan Williams
Collection Date : 10/24/06 14:45

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.065	0.012	mg/l	8021	10/31/06	25
Toluene	BDL	0.12	mg/l	8021	10/31/06	25
Ethylbenzene	0.11	0.012	mg/l	8021	10/31/06	25
Total Xylene	BDL	0.038	mg/l	8021	10/31/06	25
Methyl tert-butyl ether	0.26	0.025	mg/l	8021	10/31/06	25
Surrogate Recovery (77-118)						
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021	10/31/06	25
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Acenaphthene	BDL	0.00010	mg/l	8310	10/31/06	1
Acenaphthylene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(a)anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(a)pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(b)fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(g,h,i)perylene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(k)fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Chrysene	BDL	0.00010	mg/l	8310	10/31/06	1
Dibenz(a,h)anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Fluorene	BDL	0.00010	mg/l	8310	10/31/06	1
Indeno(1,2,3-cd)pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
1-Methylnaphthalene	0.076	0.010	mg/l	8310	11/01/06	100
2-Methylnaphthalene	0.072	0.010	mg/l	8310	11/01/06	100
Naphthalene	0.078	0.010	mg/l	8310	11/01/06	100
Phenanthrene	BDL	0.00010	mg/l	8310	10/31/06	1
Pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
Surrogate						
p-Terphenyl-d14	90.0		% Rec.	8310	10/31/06	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

Reported: 11/01/06 15:40 Printed: 11/01/06 15:41

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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

November 01, 2006

ESC Sample # : L266677-05

Site ID :

Project # : CROSLOWS SHELL

Date Received : October 26, 2006
Description : Croslows Shell

Sample ID : MW-5

Collected By : Bryan Williams
Collection Date : 10/24/06 15:15

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	1.0	0.050	mg/l	8021	10/31/06	100
Toluene	BDL	0.50	mg/l	8021	10/31/06	100
Ethylbenzene	3.1	0.050	mg/l	8021	10/31/06	100
Total Xylene	3.5	0.15	mg/l	8021	10/31/06	100
Methyl tert-butyl ether	0.16	0.10	mg/l	8021	10/31/06	100
Surrogate Recovery (77-118)						
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021	10/31/06	100
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Acenaphthene	BDL	0.00010	mg/l	8310	10/31/06	1
Acenaphthylene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(a)anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(a)pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(b)fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(g,h,i)perylene	BDL	0.00010	mg/l	8310	10/31/06	1
Benzo(k)fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Chrysene	BDL	0.00010	mg/l	8310	10/31/06	1
Dibenz(a,h)anthracene	BDL	0.00010	mg/l	8310	10/31/06	1
Fluoranthene	BDL	0.00010	mg/l	8310	10/31/06	1
Fluorene	BDL	0.00010	mg/l	8310	10/31/06	1
Indeno(1,2,3-cd)pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
1-Methylnaphthalene	0.23	0.010	mg/l	8310	11/01/06	100
2-Methylnaphthalene	0.29	0.010	mg/l	8310	11/01/06	100
Naphthalene	0.44	0.010	mg/l	8310	11/01/06	100
Phenanthrene	BDL	0.00010	mg/l	8310	10/31/06	1
Pyrene	BDL	0.00010	mg/l	8310	10/31/06	1
Surrogate						
p-Terphenyl-d14	65.6		% Rec.	8310	10/31/06	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

Reported: 11/01/06 15:40 Printed: 11/01/06 15:41

Company Name/Address:
Applied Environmental Technologies Inc.
PO Box 303
Carmi,IL 62821

Alternate billing information:

Analysis/Container/Preservative

Chain of Custody Page 1 of 1

Prepared by:
ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859

Report to: Bryan Williams
Email to: def98@midwest.net

Project Description: Croslow's Shell
City/State Collected: Lawrenceville, IL

Phone: (618) 382-8232
FAX: (618) 382-2462
Client Project #: Croslow's Shell
ESC Key:

Collected by: Bryan Williams
Site/Facility ID#:
P.O.#:

Collected by (signature): Bryan Williams
Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day.....200%
___ Next Day.....100%
___ Two Day.....50%
Three Day.....25%

Date Results Needed: Normal
Email? __No X Yes
FAX? __No __Yes

CoCode: APPENVCIR (lab use only)
Template/Prelogin:
Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	BTEX / MTBE	PNA's	Remarks/Contaminant	Sample # (lab only)
MW-1	Grab	GW		10/24/06	12:45pm	4	X	X		L166677-01
MW-2					1:30pm					-02
MW-3					2:10pm					-03
MW-4					2:45pm					-04
MW-5					3:15pm					-05

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Remarks: Must reach IEPA TACO Tier 1 - Class 1 Groundwater Objectives
852382994705

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Jay L	10/25/06	10:00am	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____

Condition: (lab use only) OK

Temp: 3.1c | Bottles Received: 20

Date: 10/26/06 | Time: 9:00 | pH Checked: | NCF:

Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
Laboratory Certification for Chemical Analysis

(266677

A. Site Identification

IEMA Incident # (6 digit): H-20050374 IEPA Generator # (10 digit): 1010155024

Site Name: Croslow Shell

Site Address (Not a P.O. Box): 1421 Lexington Avenue

City: Lawrenceville County: Lawrence Zip Code: 62439

B. Sample Collector

I certify that:

1. Appropriate sampling equipment/methods were utilized to obtain representative sample. BW (initial)
2. Chain of custody procedures were followed in the field. BW (initial)
3. Sample integrity was maintained by proper preservation. BW (initial)
4. All samples were properly labeled. BW (initial)

C. Laboratory Representative

I certify that:

1. Proper chain of custody procedures were followed as documented on the chain of custody forms. JL (initial)
2. Sample integrity was maintained by proper preservation. JL (initial)
3. All samples were properly labeled. JL (initial)

26667

4. Quality assurance/quality control procedures were established and carried out. CC (initial)

5. Sample holding times were not exceeded. CC (initial)

6. SW-846 Analytical Laboratory Procedure (USEPA) methods were used for the analyses. CC (initial)

7. An accredited lab performed quantitative analysis using test methods identified in 35 IAC 186.180 (for samples collected on or after January 1, 2003). CC (initial)

D. Signatures

I hereby affirm that all information contained in this form is true and accurate to the best of my knowledge and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sample Collector

Name: Bryan Williams
Title: Professional Geologist
Company: Applied Environmental Technologies, Inc.
Address: P.O. Box 303
City, State, ZIP: Carmi, IL 62821
Phone: 618-382-8232
Signature: Bryan Williams
Date: 10/26/06

Laboratory Representative

Name: Craig Cothron
Title: Laboratory Project Manager
Company: Environmental Science Corp.
Address: 12065 Lebanon Road
City, State, ZIP: Mt. Juliet, TN 37122
Phone: 1-800-767-5859
Signature:
Date: 11/2/06

Exhibit B-3

Croslow's Shell
UST Removal Samples
Collected May 5, 2005

Analyte	Ingestion Obj.	Inhalation Obj.	Migration to GW Obj.	No. 1 W Wall S 8ft	No. 2 W Wall N 8ft	No. 3 N Wall W 7ft	No. 4 N Wall E 7ft	No. 5 E Wall N 8ft	No. 6 E Wall S 8ft	No. 7 S Wall E 6ft	No. 8 S Wall W 8ft	No. 9 SW Floor 12ft	No. 10 NW Floor 11ft
Date Sampled				5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005
BTEX													
Benzene	**12**	**0.8**	**0.03**	0.012	0.0087	0.0056	0.0028	0.013	**0.15**	**0.1**	**0.031**	**0.08**	**0.48**
Toluene	**16,000**	**650**	**12**	0.0078	0.011	0.019	0.007	<0.0063	0.62	<0.51	<0.24	<0.0062	<1.2
Ethylbenzene	**7,800**	**400**	**13**	0.002	0.0031	0.0078	0.0028	0.0022	0.7	<0.051	<0.024	0.0044	3.2
Total Xylene	**160,000**	**320**	**190**	0.019	0.012	0.04	0.0055	0.0098	3	0.44	0.09	0.012	7.9
MTBE	**20,000**	**8.8**	**0.32**	0.039	0.035	0.017	0.0013	0.005	<0.10	<0.10	0.079	0.075	<0.24
PNA's													
Anthracene	**23,000**		**12,000**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Acenaphthene	**4,700**		**570**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Acenaphthylene	**2,300**		**24**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (a) anthracene	**0.9**		**2**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (a) pyrene	**0.09**		**8**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (b) fluoranthene	**0.9**		**5**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (g,h,i) perylene	**2,300**		**9**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Benzo (k) fluoranthene	**9**		**49**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Chrysene	**88**		**160**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Dibenzo (a,h) anthracene	**0.09**		**2**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Fluoranthene	**3,100**		**4,300**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Fluorene	**3,100**		**560**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Indeno (1,2,3,-cd) pyrene	**0.9**		**14**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Napthalene	**1,600**	**170**	**12**	<0.041	<0.041	<0.041	<0.041	<0.041	0.35	0.044	<0.041	<0.041	1.1
Phenanthrene	**2,300**		**280**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040
Pyrene	**2,300**		**4,200**	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.041	<0.040

Tier I Soil Remediation Objectives for Residential Property
All results given in mg/kg. Bold entries exceed cleanup objectives.

Croslow's Shell
UST Removal Samples
Collected May 5, 2005

Analyte	Ingestion Obj.	Inhalation Obj.	Migration to GW Obj.	No. 11 SE Floor 11.5ft	No. 12 NE Floor 11.5ft	No. 13 Diesel Fill 11ft	No. 14 Dispenser 1 2ft	No. 15 Dispenser 2 2ft	No. 16 Dispenser 3 2ft	No.17 Dispenser 4 2ft			
Date Sampled				5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005			
BTEX													
Benzene	**12**	**0.8**	**0.03**	**0.12**	0.16	**1.5**	**0.065**	0.024	**0.073**	**0.062**			
Toluene	**16,000**	**650**	**12**	<0.24	<0.26	<2.4	<0.56	<0.0063	<0.29	0.021			
Ethylbenzene	**7,800**	**400**	**13**	0.058	0.062	<0.24	<0.056	0.0024	<0.029	0.0014			
Total Xylene	**160,000**	**320**	**150**	0.15	0.16	<0.72	<0.17	<0.0019	<0.088	0.0065			
MTBE	**20,000**	**8.8**	**0.32**	0.068	<0.052	**<0.48**	<0.11	0.014	<0.058	0.015			
PNA's													
Anthracene	**23,000**		**12,000**	<0.042	<0.042	<0.041		<0.042					
Acenaphthene	**4,700**		**570**	<0.042	<0.042	<0.041		<0.042					
Acenaphthylene	**2,300**		**30**	<0.042	<0.042	<0.041		<0.042					
Benzo (a) anthracene	**0.9**		**2**	<0.042	<0.042	<0.041		<0.042					
Benzo (a) pyrene	**0.09**		**0.8**	<0.042	<0.042	<0.041		<0.042					
Benzo (b) fluoranthene	**0.9**		**5**	<0.042	<0.042	<0.041		<0.042					
Benzo (g,h,i) perylene	**2,300**		**2,300**	<0.042	<0.042	<0.041		<0.042					
Benzo (k) fluoranthene	**9**		**49**	<0.042	<0.042	<0.041		<0.042					
Chrysene	**88**		**160**	<0.042	<0.042	<0.041		<0.042					
Dibenzo (a,h) anthracene	**0.09**		**0.8**	<0.042	<0.042	<0.041		<0.042					
Fluoranthene	**3,100**		**4,300**	<0.042	<0.042	<0.041		<0.042					
Fluorene	**3,100**		**560**	<0.042	<0.042	<0.041		<0.042					
Indeno (1,2,3,-cd) pyrene	**0.9**		**8**	<0.042	<0.042	<0.041		<0.042					
Napthalene	**1,600**	**170**	**12**	<0.042	0.076	<0.041		<0.042					
Phenanthrene	**2,300**			<0.042	<0.042	<0.041		<0.042					
Pyrene	**2,300**		**4,200**	<0.042	<0.042	<0.041		<0.042					

Tier I Soil Remediation Objectives for Residential Property
All results given in mg/kg. Bold entries exceed cleanup objectives.

ENVIRONMENTAL SCIENCE CORP.

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
Carmi, IL 62821

May 16,2005

ESC Sample # : L198369-01

Site ID :

Project # : DERSCH C-LOW

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO1 W WALL S 8FT

Collected By : Bryan Williams
Collection Date : 05/05/05 14:45

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	81.0		%	2540G	05/13/05	1
Benzene	0.012	0.00062	mg/kg	8021	05/11/05	1
Toluene	0.0078	0.0062	mg/kg	8021	05/11/05	1
Ethylbenzene	0.0020	0.00062	mg/kg	8021	05/11/05	1
Total Xylene	0.019	0.0018	mg/kg	8021	05/11/05	1
Methyl tert-butyl ether	0.039	0.0012	mg/kg	8021	05/11/05	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	85.		% Rec.	8021	05/11/05	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(b)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(g,h,i)perylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(k)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Chrysene	BDL	0.041	mg/kg	8270C	05/10/05	1
Dibenz(a,h)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluorene	BDL	0.041	mg/kg	8270C	05/10/05	1
Indeno(1,2,3-cd)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Naphthalene	BDL	0.041	mg/kg	8270C	05/10/05	1
Phenanthrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Surrogate Recovery						
Nitrobenzene-d5	96.		% Rec.	8270C	05/10/05	1
2-Fluorobiphenyl	110		% Rec.	8270C	05/10/05	1
p-Terphenyl-d14	87.		% Rec.	8270C	05/10/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - 81002, WI - 998093910

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
Carmi, IL 62821

May 16,2005

ESC Sample # : L198369-02

Site ID :

Project # : DERSCH C-LOW

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO2 W WALL N 8FT

Collected By :
Collection Date : 05/05/05 14:52

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.3		%	2540G	05/13/05	1
Benzene	0.0087	0.00062	mg/kg	8021	05/11/05	1
Toluene	0.011	0.0062	mg/kg	8021	05/11/05	1
Ethylbenzene	0.0031	0.00062	mg/kg	8021	05/11/05	1
Total Xylene	0.012	0.0019	mg/kg	8021	05/11/05	1
Methyl tert-butyl ether	0.035	0.0012	mg/kg	8021	05/11/05	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	84.		% Rec.	8021	05/11/05	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(b)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(g,h,i)perylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(k)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Chrysene	BDL	0.041	mg/kg	8270C	05/10/05	1
Dibenz(a,h)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluorene	BDL	0.041	mg/kg	8270C	05/10/05	1
Indeno(1,2,3-cd)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Naphthalene	BDL	0.041	mg/kg	8270C	05/10/05	1
Phenanthrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Surrogate Recovery						
Nitrobenzene-d5	70.		% Rec.	8270C	05/10/05	1
2-Fluorobiphenyl	90.		% Rec.	8270C	05/10/05	1
p-Terphenyl-d14	82.		% Rec.	8270C	05/10/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
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KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - 81002, WI - 998093910

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
Carmi, IL 62821

May 16,2005

ESC Sample # : L198369-03

Site ID :

Project # : DERSCH C-LOW

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO3 N WALL W 7FT

Collected By : Bryan Williams
Collection Date : 05/05/05 15:00

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.4		%	2540G	05/13/05	1
Benzene	0.0056	0.00062	mg/kg	8021	05/11/05	1
Toluene	0.019	0.0062	mg/kg	8021	05/11/05	1
Ethylbenzene	0.0078	0.00062	mg/kg	8021	05/11/05	1
Total Xylene	0.040	0.0019	mg/kg	8021	05/11/05	1
Methyl tert-butyl ether	0.017	0.0012	mg/kg	8021	05/11/05	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	84.		% Rec.	8021	05/11/05	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(b)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(g,h,i)perylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(k)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Chrysene	BDL	0.041	mg/kg	8270C	05/10/05	1
Dibenz(a,h)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluorene	BDL	0.041	mg/kg	8270C	05/10/05	1
Indeno(1,2,3-cd)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Naphthalene	BDL	0.041	mg/kg	8270C	05/10/05	1
Phenanthrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Surrogate Recovery						
Nitrobenzene-d5	80.		% Rec.	8270C	05/10/05	1
2-Fluorobiphenyl	85.		% Rec.	8270C	05/10/05	1
p-Terphenyl-d14	88.		% Rec.	8270C	05/10/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
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AZ -0612, MN - 047-999-395, NY - 11742, NJ - 81002, WI - 998093910

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
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May 16,2005

ESC Sample # : L198369-04

Site ID :

Project # : DERSCH C-LOW

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO4 N WALL E 7FT

Collected By : Bryan Williams
Collection Date : 05/05/05 15:10

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.1		%	2540G	05/13/05	1
Benzene	0.0028	0.00062	mg/kg	8021	05/12/05	1
Toluene	0.0070	0.0062	mg/kg	8021	05/12/05	1
Ethylbenzene	0.0028	0.00062	mg/kg	8021	05/12/05	1
Total Xylene	0.0055	0.0019	mg/kg	8021	05/12/05	1
Methyl tert-butyl ether	0.0013	0.0012	mg/kg	8021	05/12/05	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	93.		% Rec.	8021	05/12/05	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(b)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(g,h,i)perylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(k)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Chrysene	BDL	0.041	mg/kg	8270C	05/10/05	1
Dibenz(a,h)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluorene	BDL	0.041	mg/kg	8270C	05/10/05	1
Indeno(1,2,3-cd)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Naphthalene	BDL	0.041	mg/kg	8270C	05/10/05	1
Phenanthrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Surrogate Recovery						
Nitrobenzene-d5	84.		% Rec.	8270C	05/10/05	1
2-Fluorobiphenyl	87.		% Rec.	8270C	05/10/05	1
p-Terphenyl-d14	89.		% Rec.	8270C	05/10/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
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KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
Carmi, IL 62821

May 16,2005

ESC Sample # : L198369-05

Site ID :

Project # : DERSCH C-LOW

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO5 E WALL N 8FT

Collected By :
Collection Date : 05/05/05 15:15

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	79.7		%	2540G	05/13/05	1
Benzene	0.013	0.00063	mg/kg	8021	05/12/05	1
Toluene	BDL	0.0063	mg/kg	8021	05/12/05	1
Ethylbenzene	0.0022	0.00063	mg/kg	8021	05/12/05	1
Total Xylene	0.0098	0.0019	mg/kg	8021	05/12/05	1
Methyl tert-butyl ether	0.0050	0.0012	mg/kg	8021	05/12/05	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	93.		% Rec.	8021	05/12/05	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(b)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(g,h,i)perylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(k)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Chrysene	BDL	0.041	mg/kg	8270C	05/10/05	1
Dibenz(a,h)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluorene	BDL	0.041	mg/kg	8270C	05/10/05	1
Indeno(1,2,3-cd)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Naphthalene	BDL	0.041	mg/kg	8270C	05/10/05	1
Phenanthrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Surrogate Recovery						
Nitrobenzene-d5	54.		% Rec.	8270C	05/10/05	1
2-Fluorobiphenyl	58.		% Rec.	8270C	05/10/05	1
p-Terphenyl-d14	82.		% Rec.	8270C	05/10/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - 81002, WI - 998093910

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
Carmi, IL 62821

May 16,2005

ESC Sample # : L198369-06

Site ID :

Project # : DERSCH C-LOW

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO6 E WALL S 8FT

Collected By : Bryan Williams
Collection Date : 05/05/05 15:22

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.4		%	2540G	05/13/05	1
Benzene	0.15	0.053	mg/kg	8021	05/11/05	85
Toluene	0.62	0.53	mg/kg	8021	05/11/05	85
Ethylbenzene	0.70	0.053	mg/kg	8021	05/11/05	85
Total Xylene	3.0	0.16	mg/kg	8021	05/11/05	85
Methyl tert-butyl ether	BDL	0.10	mg/kg	8021	05/11/05	85
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	98.		% Rec.	8021	05/11/05	85
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(b)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(g,h,i)perylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(k)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Chrysene	BDL	0.041	mg/kg	8270C	05/10/05	1
Dibenz(a,h)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluorene	BDL	0.041	mg/kg	8270C	05/10/05	1
Indeno(1,2,3-cd)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Naphthalene	0.35	0.041	mg/kg	8270C	05/10/05	1
Phenanthrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Surrogate Recovery						
Nitrobenzene-d5	83.		% Rec.	8270C	05/10/05	1
2-Fluorobiphenyl	92.		% Rec.	8270C	05/10/05	1
p-Terphenyl-d14	96.		% Rec.	8270C	05/10/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
Carmi, IL 62821

May 16,2005

ESC Sample # : L198369-07

Site ID :

Project # : DERSCH C-LOW

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO7 S WALL E 6FT

Collected By :
Collection Date : 05/05/05 15:30

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.8		%	2540G	05/13/05	1
Benzene	0.10	0.051	mg/kg	8021	05/11/05	82
Toluene	BDL	0.51	mg/kg	8021	05/11/05	82
Ethylbenzene	BDL	0.051	mg/kg	8021	05/11/05	82
Total Xylene	0.44	0.15	mg/kg	8021	05/11/05	82
Methyl tert-butyl ether	BDL	0.10	mg/kg	8021	05/11/05	82
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	98.		% Rec.	8021	05/11/05	82
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(b)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(g,h,i)perylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(k)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Chrysene	BDL	0.041	mg/kg	8270C	05/10/05	1
Dibenz(a,h)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluorene	BDL	0.041	mg/kg	8270C	05/10/05	1
Indeno(1,2,3-cd)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Naphthalene	0.044	0.041	mg/kg	8270C	05/10/05	1
Phenanthrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Surrogate Recovery						
Nitrobenzene-d5	75.		% Rec.	8270C	05/10/05	1
2-Fluorobiphenyl	82.		% Rec.	8270C	05/10/05	1
p-Terphenyl-d14	90.		% Rec.	8270C	05/10/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Bryan Williams
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May 16,2005

ESC Sample # : L198369-08

Site ID :

Project # : DERSCH C-LOW

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO8 S WALL W 8FT

Collected By :
Collection Date : 05/05/05 15:36

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	79.7		%	2540G	05/13/05	1
Benzene	0.031	0.024	mg/kg	8021	05/11/05	38.5
Toluene	BDL	0.24	mg/kg	8021	05/11/05	38.5
Ethylbenzene	BDL	0.024	mg/kg	8021	05/11/05	38.5
Total Xylene	0.090	0.072	mg/kg	8021	05/11/05	38.5
Methyl tert-butyl ether	0.079	0.048	mg/kg	8021	05/11/05	38.5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	99.		% Rec.	8021	05/11/05	38.5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Acenaphthylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(a)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(b)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(g,h,i)perylene	BDL	0.041	mg/kg	8270C	05/10/05	1
Benzo(k)fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Chrysene	BDL	0.041	mg/kg	8270C	05/10/05	1
Dibenz(a,h)anthracene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluoranthene	BDL	0.041	mg/kg	8270C	05/10/05	1
Fluorene	BDL	0.041	mg/kg	8270C	05/10/05	1
Indeno(1,2,3-cd)pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Naphthalene	BDL	0.041	mg/kg	8270C	05/10/05	1
Phenanthrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Pyrene	BDL	0.041	mg/kg	8270C	05/10/05	1
Surrogate Recovery						
Nitrobenzene-d5	85.		% Rec.	8270C	05/10/05	1
2-Fluorobiphenyl	88.		% Rec.	8270C	05/10/05	1
p-Terphenyl-d14	98.		% Rec.	8270C	05/10/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
Carmi, IL 62821

May 16,2005

ESC Sample # : L198369-09

Date Received : May 07, 2005
Description : Dersch C-Low

Site ID :

Sample ID : NO9 FLOOR SW-C 12FT

Project # : DERSCH C-LOW

Collected By : Bryan Williams
Collection Date : 05/05/05 15:45

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	80.0		%	2540G	05/13/05	1
Benzene	0.080	0.00062	mg/kg	8021	05/11/05	1
Toluene	BDL	0.0062	mg/kg	8021	05/11/05	1
Ethylbenzene	0.0044	0.00062	mg/kg	8021	05/11/05	1
Total Xylene	0.012	0.0019	mg/kg	8021	05/11/05	1
Methyl tert-butyl ether	0.075	0.0012	mg/kg	8021	05/11/05	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	98.		% Rec.	8021	05/11/05	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.041	mg/kg	8270C	05/11/05	1
Acenaphthene	BDL	0.041	mg/kg	8270C	05/11/05	1
Acenaphthylene	BDL	0.041	mg/kg	8270C	05/11/05	1
Benzo(a)anthracene	BDL	0.041	mg/kg	8270C	05/11/05	1
Benzo(a)pyrene	BDL	0.041	mg/kg	8270C	05/11/05	1
Benzo(b)fluoranthene	BDL	0.041	mg/kg	8270C	05/11/05	1
Benzo(g,h,i)perylene	BDL	0.041	mg/kg	8270C	05/11/05	1
Benzo(k)fluoranthene	BDL	0.041	mg/kg	8270C	05/11/05	1
Chrysene	BDL	0.041	mg/kg	8270C	05/11/05	1
Dibenz(a,h)anthracene	BDL	0.041	mg/kg	8270C	05/11/05	1
Fluoranthene	BDL	0.041	mg/kg	8270C	05/11/05	1
Fluorene	BDL	0.041	mg/kg	8270C	05/11/05	1
Indeno(1,2,3-cd)pyrene	BDL	0.041	mg/kg	8270C	05/11/05	1
Naphthalene	BDL	0.041	mg/kg	8270C	05/11/05	1
Phenanthrene	BDL	0.041	mg/kg	8270C	05/11/05	1
Pyrene	BDL	0.041	mg/kg	8270C	05/11/05	1
Surrogate Recovery						
Nitrobenzene-d5	64.		% Rec.	8270C	05/11/05	1
2-Fluorobiphenyl	78.		% Rec.	8270C	05/11/05	1
p-Terphenyl-d14	96.		% Rec.	8270C	05/11/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
Carmi, IL 62821

May 16,2005

ESC Sample # : L198369-10

Site ID :

Project # : DERSCH C-LOW

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO10 FLOOR NW-C 11FT

Collected By : Bryan Williams
Collection Date : 05/05/05 16:00

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	82.4		%	2540G	05/13/05	1
Benzene	0.48	0.12	mg/kg	8021	05/11/05	202.5
Toluene	BDL	1.2	mg/kg	8021	05/11/05	202.5
Ethylbenzene	3.2	0.12	mg/kg	8021	05/11/05	202.5
Total Xylene	7.9	0.37	mg/kg	8021	05/11/05	202.5
Methyl tert-butyl ether	BDL	0.24	mg/kg	8021	05/11/05	202.5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	98.		% Rec.	8021	05/11/05	202.5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.040	mg/kg	8270C	05/11/05	1
Acenaphthene	BDL	0.040	mg/kg	8270C	05/11/05	1
Acenaphthylene	BDL	0.040	mg/kg	8270C	05/11/05	1
Benzo(a)anthracene	BDL	0.040	mg/kg	8270C	05/11/05	1
Benzo(a)pyrene	BDL	0.040	mg/kg	8270C	05/11/05	1
Benzo(b)fluoranthene	BDL	0.040	mg/kg	8270C	05/11/05	1
Benzo(g,h,i)perylene	BDL	0.040	mg/kg	8270C	05/11/05	1
Benzo(k)fluoranthene	BDL	0.040	mg/kg	8270C	05/11/05	1
Chrysene	BDL	0.040	mg/kg	8270C	05/11/05	1
Dibenz(a,h)anthracene	BDL	0.040	mg/kg	8270C	05/11/05	1
Fluoranthene	BDL	0.040	mg/kg	8270C	05/11/05	1
Fluorene	BDL	0.040	mg/kg	8270C	05/11/05	1
Indeno(1,2,3-cd)pyrene	BDL	0.040	mg/kg	8270C	05/11/05	1
Naphthalene	1.1	0.040	mg/kg	8270C	05/11/05	1
Phenanthrene	BDL	0.040	mg/kg	8270C	05/11/05	1
Pyrene	BDL	0.040	mg/kg	8270C	05/11/05	1
Surrogate Recovery						
Nitrobenzene-d5	61.		% Rec.	8270C	05/11/05	1
2-Fluorobiphenyl	79.		% Rec.	8270C	05/11/05	1
p-Terphenyl-d14	92.		% Rec.	8270C	05/11/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Bryan Williams
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PO Box 303
Carmi, IL 62821

May 16,2005

ESC Sample # : L198369-11

Site ID :

Project # : DERSCH C-LOW

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO11 FLOOR SE-C 11.5

Collected By : Bryan Williams
Collection Date : 05/05/05 16:15

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	78.8		%	2540G	05/13/05	1
Benzene	0.12	0.024	mg/kg	8021	05/11/05	37.5
Toluene	BDL	0.24	mg/kg	8021	05/11/05	37.5
Ethylbenzene	0.058	0.024	mg/kg	8021	05/11/05	37.5
Total Xylene	0.15	0.071	mg/kg	8021	05/11/05	37.5
Methyl tert-butyl ether	0.068	0.048	mg/kg	8021	05/11/05	37.5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	98.		% Rec.	8021	05/11/05	37.5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.042	mg/kg	8270C	05/11/05	1
Acenaphthene	BDL	0.042	mg/kg	8270C	05/11/05	1
Acenaphthylene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(a)anthracene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(a)pyrene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(b)fluoranthene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(g,h,i)perylene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(k)fluoranthene	BDL	0.042	mg/kg	8270C	05/11/05	1
Chrysene	BDL	0.042	mg/kg	8270C	05/11/05	1
Dibenz(a,h)anthracene	BDL	0.042	mg/kg	8270C	05/11/05	1
Fluoranthene	BDL	0.042	mg/kg	8270C	05/11/05	1
Fluorene	BDL	0.042	mg/kg	8270C	05/11/05	1
Indeno(1,2,3-cd)pyrene	BDL	0.042	mg/kg	8270C	05/11/05	1
Naphthalene	BDL	0.042	mg/kg	8270C	05/11/05	1
Phenanthrene	BDL	0.042	mg/kg	8270C	05/11/05	1
Pyrene	BDL	0.042	mg/kg	8270C	05/11/05	1
Surrogate Recovery						
Nitrobenzene-d5	83.		% Rec.	8270C	05/11/05	1
2-Fluorobiphenyl	83.		% Rec.	8270C	05/11/05	1
p-Terphenyl-d14	86.		% Rec.	8270C	05/11/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
Carmi, IL 62821

May 16,2005

ESC Sample # : L198369-12

Site ID :

Project # : DERSCH C-LOW

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO12 FLOOR NE-C 11.5

Collected By : Bryan Williams
Collection Date : 05/05/05 16:22

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	79.1		%	2540G	05/13/05	1
Benzene	0.16	0.026	mg/kg	8021	05/11/05	41.5
Toluene	BDL	0.26	mg/kg	8021	05/11/05	41.5
Ethylbenzene	0.062	0.026	mg/kg	8021	05/11/05	41.5
Total Xylene	0.16	0.079	mg/kg	8021	05/11/05	41.5
Methyl tert-butyl ether	BDL	0.052	mg/kg	8021	05/11/05	41.5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	98.		% Rec.	8021	05/11/05	41.5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.042	mg/kg	8270C	05/11/05	1
Acenaphthene	BDL	0.042	mg/kg	8270C	05/11/05	1
Acenaphthylene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(a)anthracene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(a)pyrene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(b)fluoranthene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(g,h,i)perylene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(k)fluoranthene	BDL	0.042	mg/kg	8270C	05/11/05	1
Chrysene	BDL	0.042	mg/kg	8270C	05/11/05	1
Dibenz(a,h)anthracene	BDL	0.042	mg/kg	8270C	05/11/05	1
Fluoranthene	BDL	0.042	mg/kg	8270C	05/11/05	1
Fluorene	BDL	0.042	mg/kg	8270C	05/11/05	1
Indeno(1,2,3-cd)pyrene	BDL	0.042	mg/kg	8270C	05/11/05	1
Naphthalene	0.076	0.042	mg/kg	8270C	05/11/05	1
Phenanthrene	BDL	0.042	mg/kg	8270C	05/11/05	1
Pyrene	BDL	0.042	mg/kg	8270C	05/11/05	1
Surrogate Recovery						
Nitrobenzene-d5	85.		% Rec.	8270C	05/11/05	1
2-Fluorobiphenyl	85.		% Rec.	8270C	05/11/05	1
p-Terphenyl-d14	89.		% Rec.	8270C	05/11/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - 81002, WI - 998093910

Note:
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ENVIRONMENTAL SCIENCE CORP.

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
Carmi, IL 62821

May 16,2005

ESC Sample # : L198369-13

Site ID :

Project # : DERSCH C-LOW

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO13 DIESEL FILL 11F

Collected By : Bryan Williams
Collection Date : 05/05/05 16:30

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	79.6		%	2540G	05/13/05	1
Benzene	1.5	0.24	mg/kg	8021	05/11/05	385
Toluene	BDL	2.4	mg/kg	8021	05/11/05	385
Ethylbenzene	BDL	0.24	mg/kg	8021	05/11/05	385
Total Xylene	BDL	0.72	mg/kg	8021	05/11/05	385
Methyl tert-butyl ether	BDL	0.48	mg/kg	8021	05/11/05	385
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	97.		% Rec.	8021	05/11/05	385
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.041	mg/kg	8270C	05/11/05	1
Acenaphthene	BDL	0.041	mg/kg	8270C	05/11/05	1
Acenaphthylene	BDL	0.041	mg/kg	8270C	05/11/05	1
Benzo(a)anthracene	BDL	0.041	mg/kg	8270C	05/11/05	1
Benzo(a)pyrene	BDL	0.041	mg/kg	8270C	05/11/05	1
Benzo(b)fluoranthene	BDL	0.041	mg/kg	8270C	05/11/05	1
Benzo(g,h,i)perylene	BDL	0.041	mg/kg	8270C	05/11/05	1
Benzo(k)fluoranthene	BDL	0.041	mg/kg	8270C	05/11/05	1
Chrysene	BDL	0.041	mg/kg	8270C	05/11/05	1
Dibenz(a,h)anthracene	BDL	0.041	mg/kg	8270C	05/11/05	1
Fluoranthene	BDL	0.041	mg/kg	8270C	05/11/05	1
Fluorene	BDL	0.041	mg/kg	8270C	05/11/05	1
Indeno(1,2,3-cd)pyrene	BDL	0.041	mg/kg	8270C	05/11/05	1
Naphthalene	BDL	0.041	mg/kg	8270C	05/11/05	1
Phenanthrene	BDL	0.041	mg/kg	8270C	05/11/05	1
Pyrene	BDL	0.041	mg/kg	8270C	05/11/05	1
Surrogate Recovery						
Nitrobenzene-d5	81.		% Rec.	8270C	05/11/05	1
2-Fluorobiphenyl	85.		% Rec.	8270C	05/11/05	1
p-Terphenyl-d14	86.		% Rec.	8270C	05/11/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - 81002, WI - 998093910

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
Carmi, IL 62821

May 16,2005

ESC Sample # : L198369-14

Site ID :

Project # : DERSCH C-LOW

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO14 DISPENSER 1 2FT

Collected By : Bryan Williams
Collection Date : 05/05/05 16:37

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	76.9		%	2540G	05/13/05	1
Benzene	0.065	0.056	mg/kg	8021	05/11/05	87
Toluene	BDL	0.56	mg/kg	8021	05/11/05	87
Ethylbenzene	BDL	0.056	mg/kg	8021	05/11/05	87
Total Xylene	BDL	0.17	mg/kg	8021	05/11/05	87
Methyl tert-butyl ether	BDL	0.11	mg/kg	8021	05/11/05	87
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	98.		% Rec.	8021	05/11/05	87

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
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Reported: 05/13/05 17:03 Printed: 05/16/05 08:31

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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
Carmi, IL 62821

May 16,2005

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO15 DISPENSER 2 2FT

Collected By : Bryan Williams
Collection Date : 05/05/05 16:45

ESC Sample # : L198369-15

Site ID :

Project # : DERSCH C-LOW

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	78.9		%	2540G	05/13/05	1
Benzene	0.024	0.00063	mg/kg	8021	05/13/05	1
Toluene	BDL	0.0063	mg/kg	8021	05/13/05	1
Ethylbenzene	0.0024	0.00063	mg/kg	8021	05/13/05	1
Total Xylene	BDL	0.0019	mg/kg	8021	05/13/05	1
Methyl tert-butyl ether	0.014	0.0013	mg/kg	8021	05/13/05	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	92.		% Rec.	8021	05/13/05	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.042	mg/kg	8270C	05/11/05	1
Acenaphthene	BDL	0.042	mg/kg	8270C	05/11/05	1
Acenaphthylene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(a)anthracene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(a)pyrene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(b)fluoranthene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(g,h,i)perylene	BDL	0.042	mg/kg	8270C	05/11/05	1
Benzo(k)fluoranthene	BDL	0.042	mg/kg	8270C	05/11/05	1
Chrysene	BDL	0.042	mg/kg	8270C	05/11/05	1
Dibenz(a,h)anthracene	BDL	0.042	mg/kg	8270C	05/11/05	1
Fluoranthene	BDL	0.042	mg/kg	8270C	05/11/05	1
Fluorene	BDL	0.042	mg/kg	8270C	05/11/05	1
Indeno(1,2,3-cd)pyrene	BDL	0.042	mg/kg	8270C	05/11/05	1
Naphthalene	BDL	0.042	mg/kg	8270C	05/11/05	1
Phenanthrene	BDL	0.042	mg/kg	8270C	05/11/05	1
Pyrene	BDL	0.042	mg/kg	8270C	05/11/05	1
Surrogate Recovery						
Nitrobenzene-d5	80.		% Rec.	8270C	05/11/05	1
2-Fluorobiphenyl	81.		% Rec.	8270C	05/11/05	1
p-Terphenyl-d14	83.		% Rec.	8270C	05/11/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
Carmi, IL 62821

May 16,2005

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO16 DISPENSER 3 2FT

Collected By : Bryan Williams
Collection Date : 05/05/05 17:00

ESC Sample # : L198369-16

Site ID :

Project # : DERSCH C-LOW

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	76.8		%	2540G	05/13/05	1
Benzene	0.073	0.029	mg/kg	8021	05/11/05	45
Toluene	BDL	0.29	mg/kg	8021	05/11/05	45
Ethylbenzene	BDL	0.029	mg/kg	8021	05/11/05	45
Total Xylene	BDL	0.088	mg/kg	8021	05/11/05	45
Methyl tert-butyl ether	BDL	0.058	mg/kg	8021	05/11/05	45
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	99.		% Rec.	8021	05/11/05	45

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - 81002, WI - 998093910

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies
PO Box 303
Carmi, IL 62821

May 16,2005

ESC Sample # : L198369-17

Site ID :

Project # : DERSCH C-LOW

Date Received : May 07, 2005
Description : Dersch C-Low

Sample ID : NO17 DISPENSER 4 2FT

Collected By : Bryan Williams
Collection Date : 05/05/05 17:10

Parameter	Dry Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	77.0		%	2540G	05/13/05	1
Benzene	0.062	0.00065	mg/kg	8021	05/11/05	1
Toluene	0.021	0.0065	mg/kg	8021	05/11/05	1
Ethylbenzene	0.0014	0.00065	mg/kg	8021	05/11/05	1
Total Xylene	0.0065	0.0019	mg/kg	8021	05/11/05	1
Methyl tert-butyl ether	0.015	0.0013	mg/kg	8021	05/11/05	1
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene	92.		% Rec.	8021	05/11/05	1

Craig Cothron, ESC Representative

Results listed are dry weight basis.
BDL - Below Detection Limit
Det. Limit - Estimated Quantitation Limit(EQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - 81002, WI - 998093910

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Company Name/Address:
Applied Environmental Technologies, Inc.
PO Box 303
Carmi, IL 62821

Alternate billing information:

Analysis/Container/Preservative

Chain of Custody Page 1 of 2

Prepared by:
ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859

Report to: Bryan Williams
Email to:
Project Description: Dersch C-Low
City/State Collected: Lawrenceville IL
Phone: (618) 382-8232
FAX: (618) 382-2462
Client Project #: Dersch C-Low
ESC Key:
Collected by: Bryan Williams
Site/Facility ID#:
P.O.#:
Collected by (signature): Bryan Williams
Packed on Ice N Y X

Rush? (Lab MUST Be Notified)
____ Same Day.....200%
____ Next Day.....100%
____ Two Day.....50%

Date Results Needed:
Email? __No __Yes
FAX? __No __Yes

CoCode: APPENVCI (lab use only)
Template/Prelogin:
Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	BTEX	PNA	MTBE	Remarks/Contaminant	Sample # (lab only)
No1 W WALL S	Grab	SS	8'	5/5/05	2:45	5	X	X	X		L198369-01
No.2 W WALL N	Grab	SS	8'	5/5/05	2:52	5	X	X	X		02
No.3 N WALL W	Grab	SS	7'	5/5/05	3:00	5	X	X	X		03
No.4 N WALL E	Grab	SS	7'	5/5/05	3:10	5	X	X	X		04
No.5 E WALL N	Grab	SS	8'	5/5/05	3:15	5	X	X	X		05
No.6 E. WALL S	Grab	SS	8'	5/5/05	3:22	5	X	X	X		06
No. 7 S. WALL E	Grab	SS	6'	5/5/05	3:30	5	X	X	X		07
No. 8 S WALL W	Grab	SS	8'	5/5/05	3:36	5	X	X	X		08
No. 9 Floor SW/C	Grab	SS	12'	5/5/05	3:45	5	X	X	X		09

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Remarks: Meet IEPA Tier I Residential TACO

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____	Condition: (lab use only)
Bryan Williams	5/6/05	10:30	8423 8472 2035		
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.8°C	Bottles Received: 85
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/9/05	Time: 9:30

pH Checked: NCF:

Company Name/Address:
Applied Environmental Technologies, Inc.
PO Box 303
Carmi, IL 62821

Alternate billing information:

Analysis/Container/Preservative

Chain of Custody Page 2 of 2

Prepared by:
ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859

Report to: Bryan Williams
Email to:
Project Description: Dersch C-Low
City/State Collected: Lawrenceville IL
Phone: (618) 382-8232
FAX: (618) 382-2462
Client Project #: Dersch C-Low
ESC Key:
Collected by: Bryan Williams
Site/Facility ID#:
P.O.#:
Collected by (signature): Bryan Williams
Packed on Ice N Y X

Rush? (Lab MUST Be Notified)
____ Same Day.....200%
____ Next Day.....100%
____ Two Day.....50%

Date Results Needed:
Email? __No __Yes
FAX? __No __Yes

CoCode: APPENVCI (lab use only)
Template/Prelogin:
Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	BTEX	MTBE	PNA	Remarks/Contaminant	Sample # (lab only)
No. 10 Floor NW/C	Grab	SS	11'	5/5/05	4:00	5	X	X	X	L19836	10
No. 11 Floor SE/C	Grab	SS	11.5'	5/5/05	4:15	5	X	X	X		11
No. 12 Floor NE/C	Grab	SS	11.5'	5/5/05	4:22	5	X	X	X		12
No. 13 Diesel Fill	Grab	SS	11'	5/5/05	4:30	5	X	X	X	Below diesel Tank Fill	13
No. 14 Dispenser #1	Grab	SS	2'	5/5/05	4:37	5	X	X			14
No. 15 Dispenser #2	Grab	SS	2'	5/5/05	4:45	5	X	X	X		15
No. 16 Dispenser #3	Grab	SS	2'	5/5/05	5:00	5	X	X			16
No. 17 Dispenser #4	Grab	SS	2'	5/5/05	5:10	5	X	X			17
											~~18~~

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Remarks: Meet IEPA Tier I Res. TACO

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____	Condition (lab use only)
Bryan Williams	5/6/05	10:30			(N)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp 2.8°C / Bottles Received: 85	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/4/05 / Time: 9:30	pH Checked: / NCF:

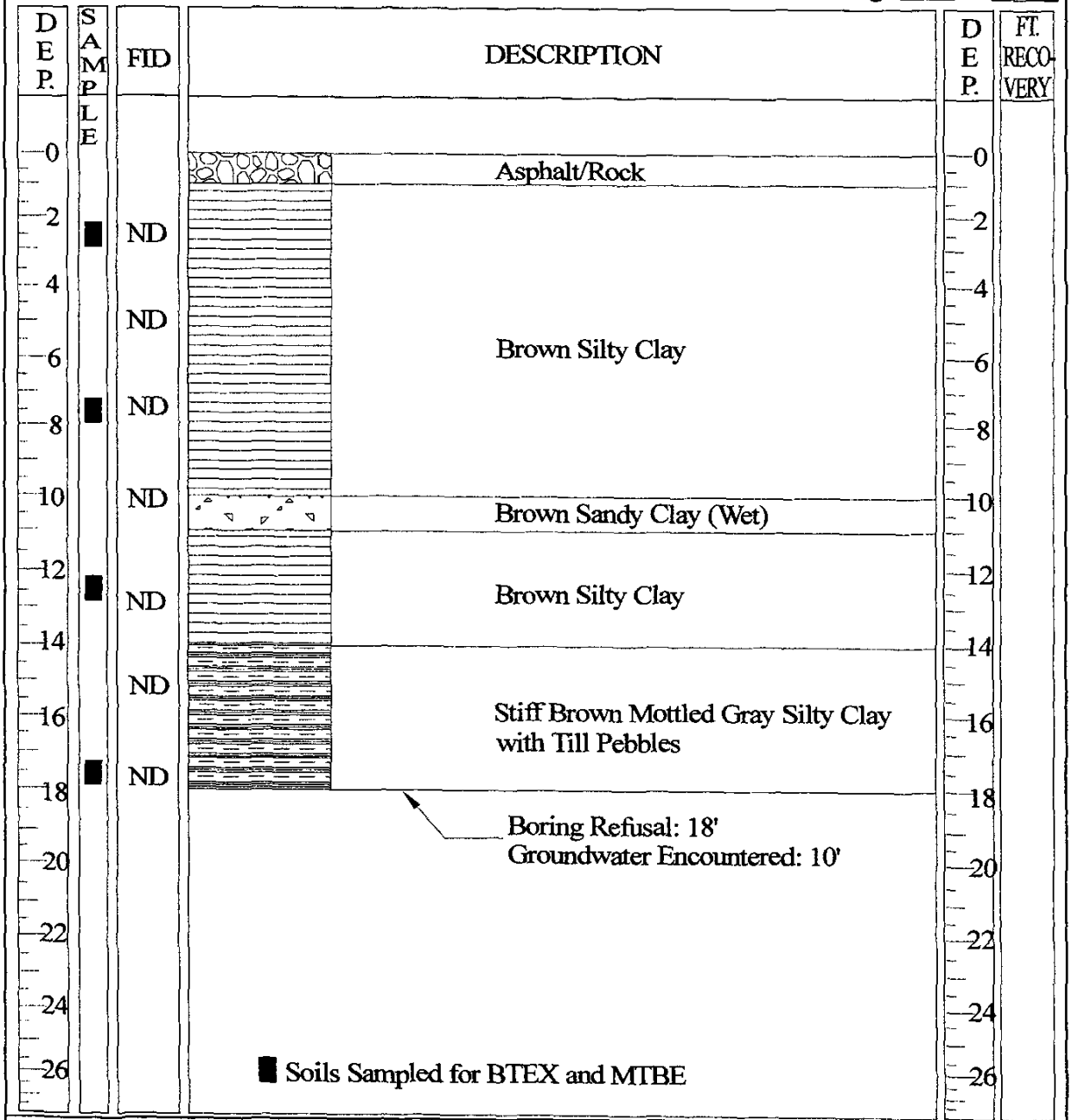
Exhibit C

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-1 MW-1
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 20'
WATER INDICATION: 9.5'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1

DEP.	SAMPLE	FID	DESCRIPTION	DEP.	FT. RECOVERY
0			Dark Brown Topsoil	0	
2	■	ND	Brown Silty Clay	2	
4		ND		4	
6		ND		6	
8				8	
10	■	35	Brown Sandy Clay (Wet)	10	
12		149		12	
14			Brown Silty Clay	14	
16		ND		16	
18		ND	Stiff Brown Mottled Gray Silty Clay with Till Pebbles	18	
20	■	ND	Bottom of Boring: 20' Groundwater Encountered: 9.5'	20	
22				22	
24				24	
26			■ Soils Sampled for BTEX and MTBE	26	

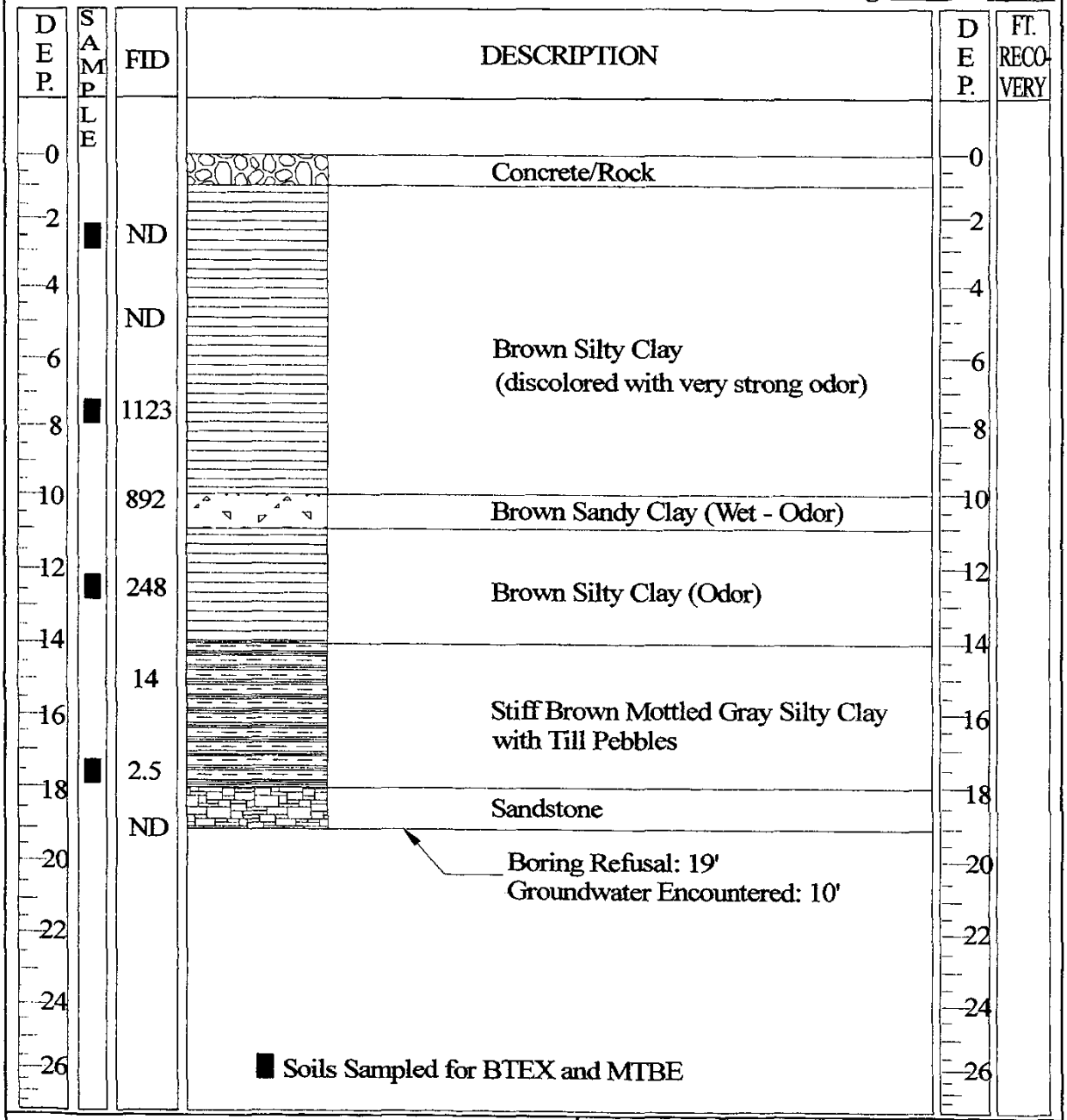
BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-2 MW-2
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-3 MW-3
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 19'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-4 MW-4
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1

DEP.	SAMPLE	FID	DESCRIPTION	DEP.	FT. RECOVERY
0			Concrete/Rock	0	
2	■	67	Brown Silty Clay (discolored with very strong odor)	2	
4		1123		4	
6				6	
8	■	1123		8	
10		1123	Brown Sandy Clay (Wet - Odor)	10	
12	■	314		12	
14			Brown Silty Clay (Odor)	14	
16		24	Stiff Brown Mottled Gray Silty Clay with Till Pebbles	16	
18	■	ND	Boring Refusal: 18' Groundwater Encountered: 10'	18	
20				20	
22				22	
24				24	
26				26	

■ Soils Sampled for BTEX and MTBE

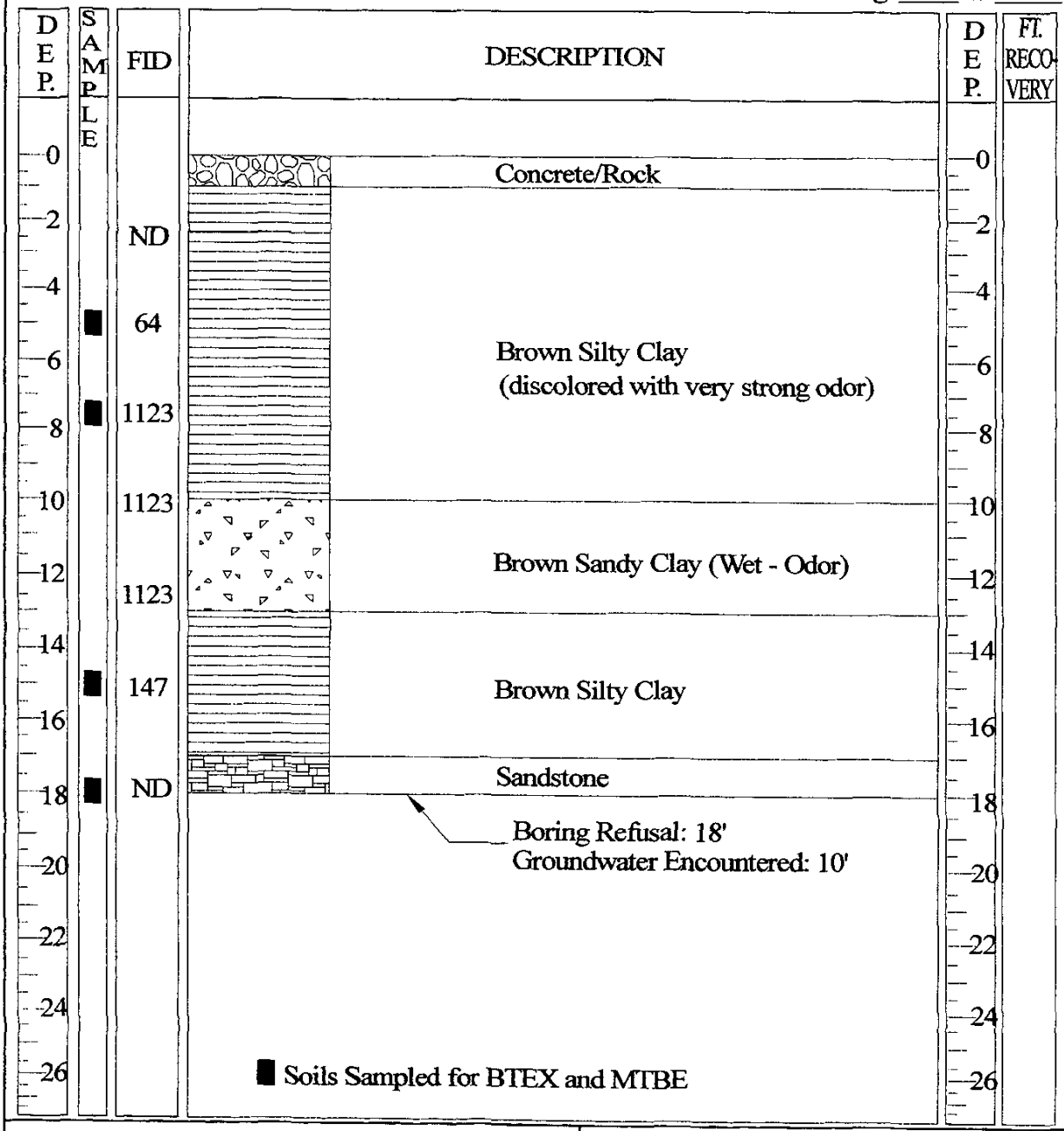
BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-5 MW-5
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1

DEP.	SAMPLE	FID	DESCRIPTION	DEP.	FT. RECOVERY
0			Concrete/Rock	0	
2		342		2	
4				4	
6	■	1123	Brown Silty Clay (discolored with very strong odor)	6	
8	■	1123		8	
10		1123		10	
12	■	1123	Brown Sandy Clay (Wet - Odor)	12	
14				14	
16		21	Brown Silty Clay	16	
18	■	25	Stiff Brown Mottled Gray Silty Clay with Till Pebbles	18	
20			Boring Refusal: 18' Groundwater Encountered: 10'	20	
22				22	
24				24	
26			■ Soils Sampled for BTEX and MTBE	26	

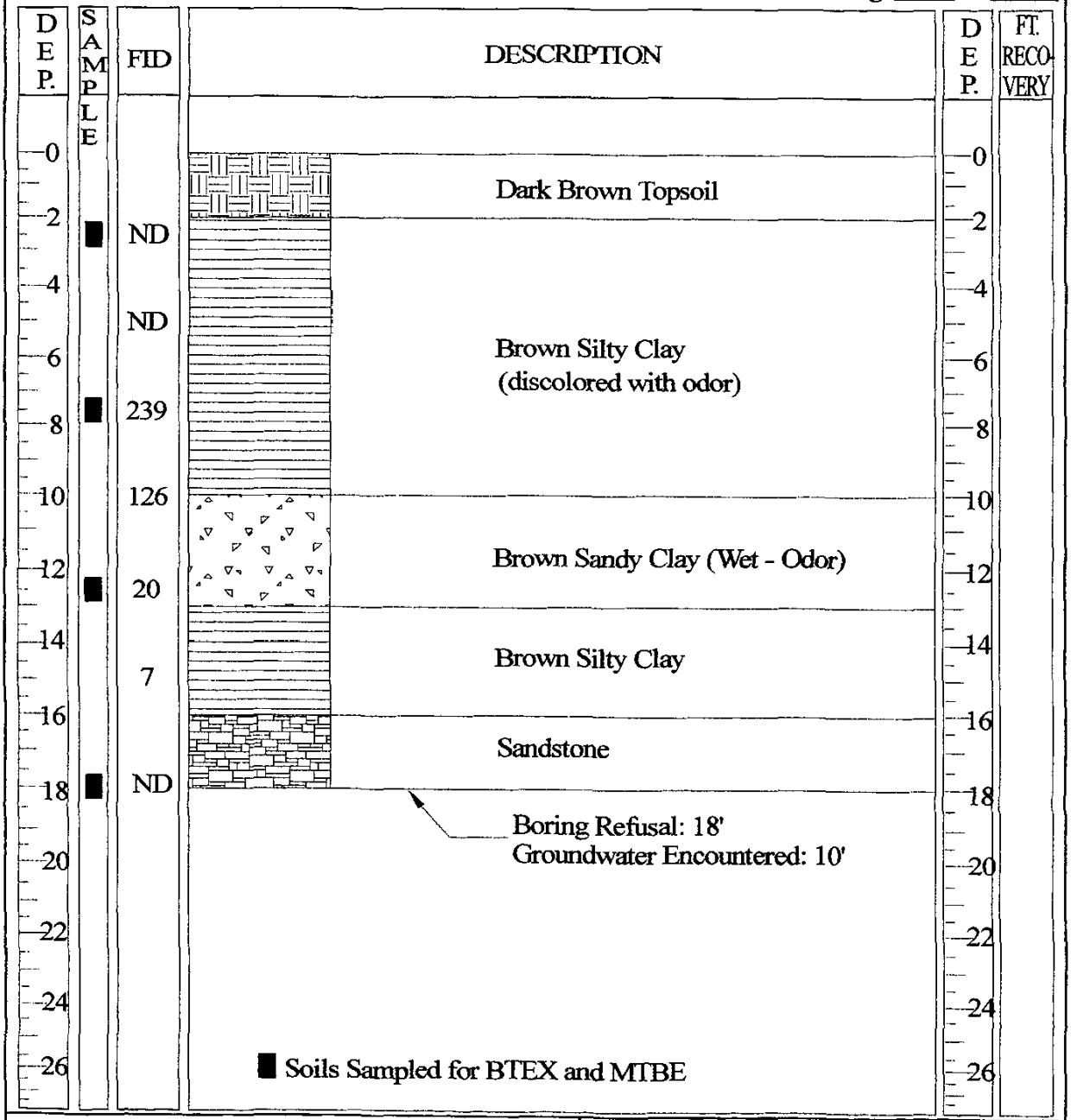
BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-6
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



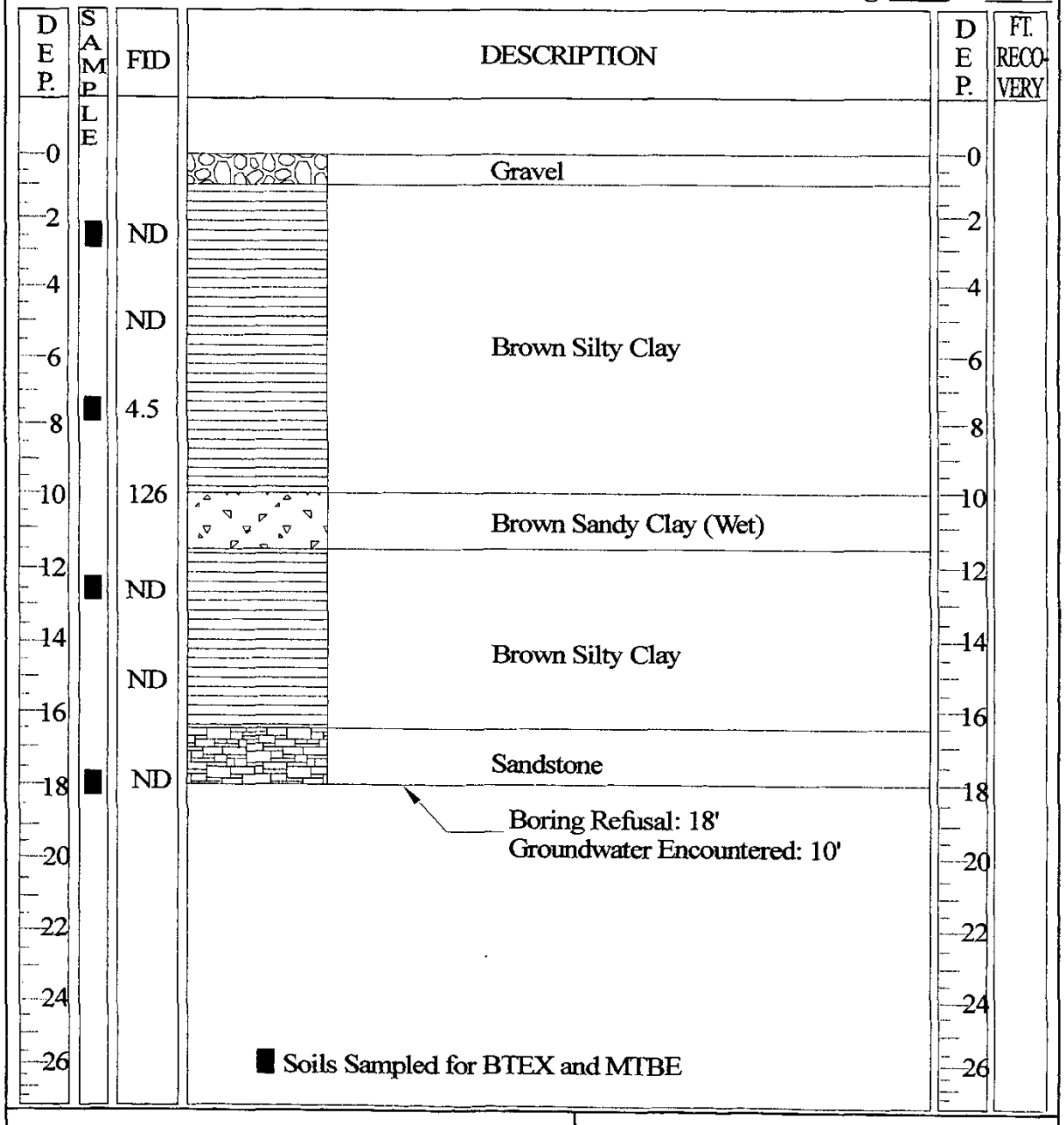
BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-7
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



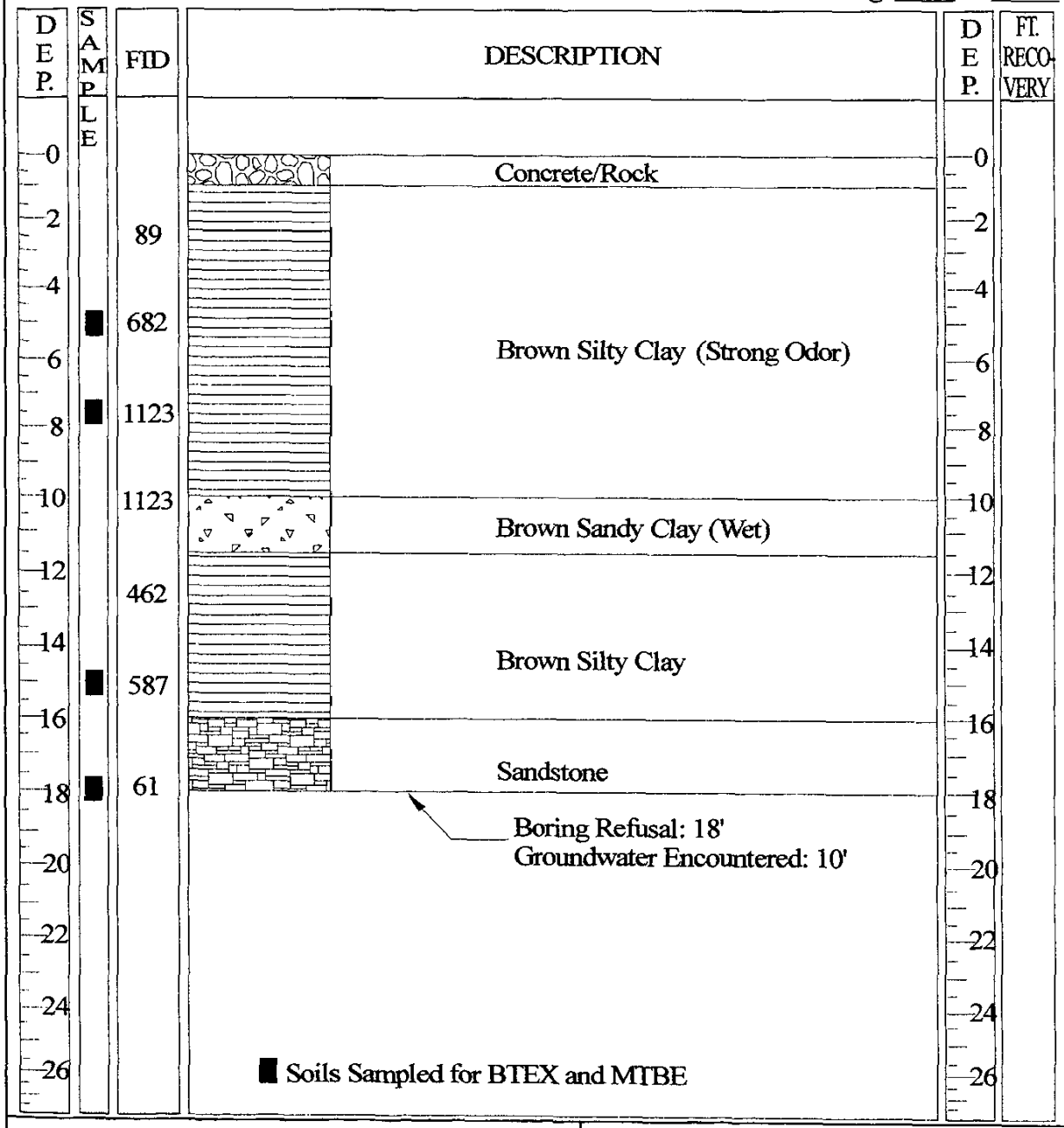
BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-8
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



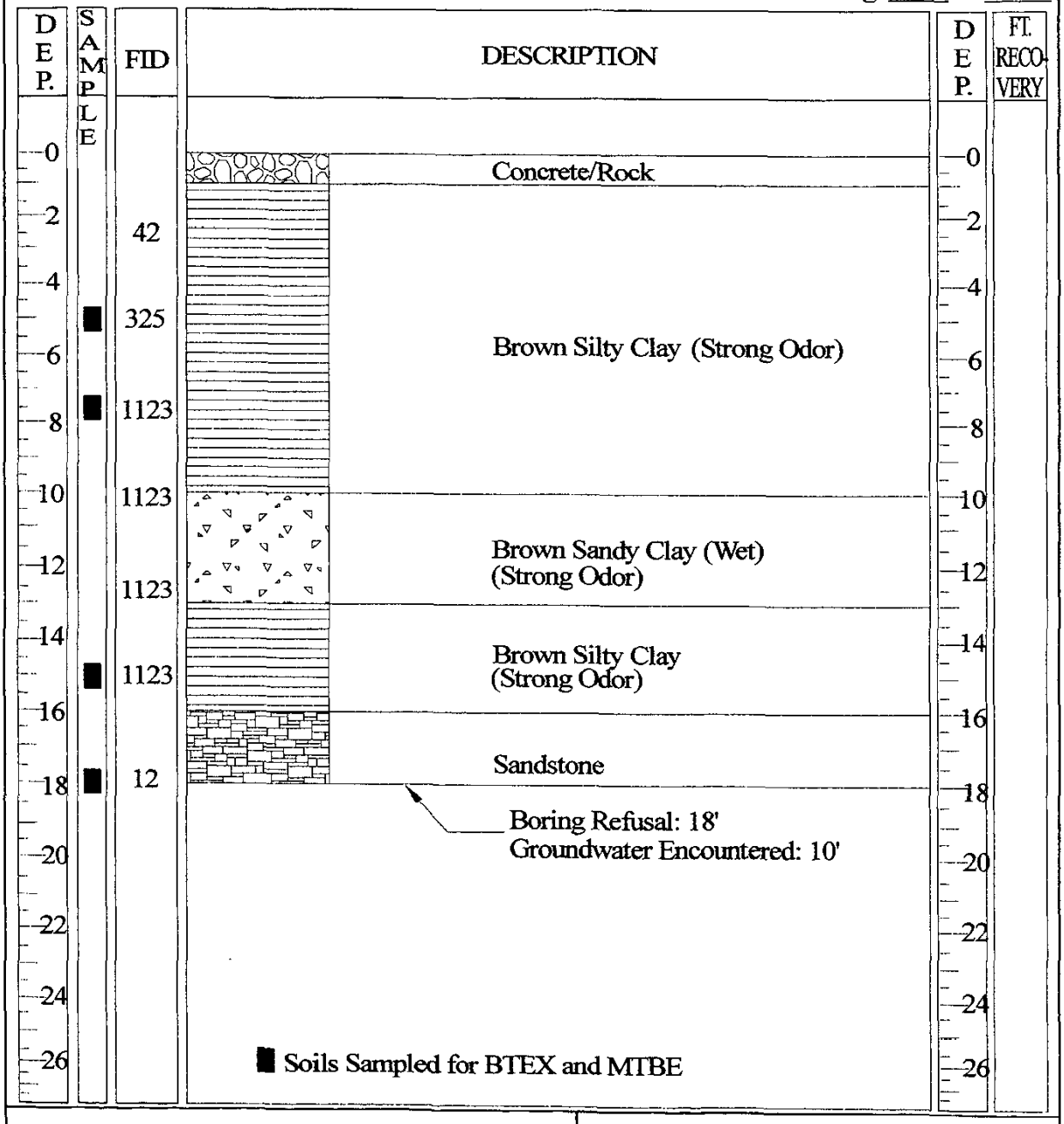
BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-9
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



BORING LOG | Applied Environmental Technologies, Inc.

PROJECT: Croslow's Shell - Dersch Energies, Inc. BORING NO.: B-10
LOCATION: Lawrenceville, IL
DATE DRILLED: 10/17/06
DEPTH OF BORING: 18'
WATER INDICATION: 10'
WATER SAMPLE: PRODUCT LAYER:
METHODS: DRILLING: Geoprobe SAMPLING: 2" Continuous
DRILLING CO.: Advanced Environmental Drilling, Inc.
OBSERVATIONS BY: Bryan Williams Page 1 of 1



BORING LOG | Applied Environmental Technologies, Inc.

Exhibit D

Applied Environmental Technologies

Well Completion Report

Incident No.: H-20050374
Site Name: Croslow's Shell - Dersch Energies, Inc.
Drilling Contractor: Advanced Environmental Drilling
Driller: Greg Courson
Drilling Method: Hollow Stem Augers

Well No.: MW - 1
Date Drilled Start: 10/17/06
Date Completed: 10/17/06
Geologist: Bryan Williams
Drilling Fluids (type): N/A

Annular Space Details

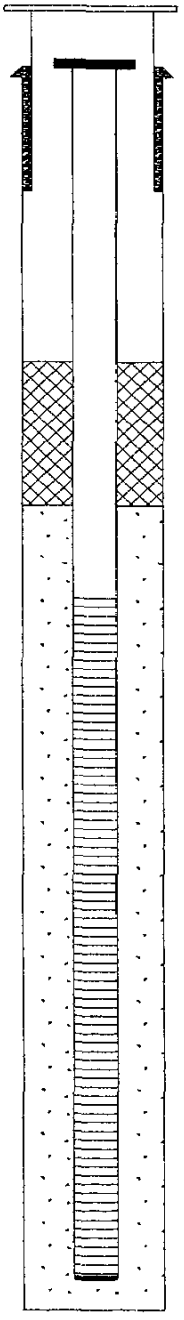
Type of Surface Seal: Concrete
Type of Annular Sealant: Bentonite
Type of Bentonite Seal (Granular, Pellet): Granular
Type of Sand Pack: Silica Sand

Well Construction Materials

	Stainless Steel Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint		Screw	
Riser Pipe Above w.t.		Sched 40 - 2"	
Riser Pipe Below w.t.		Sched 40 - 2"	
Screen		Sched 40 - 2"	
Coupling Joint Screen to Riser		Screw	
Protective Casing			Steel

Measurements

Riser Pipe Length	9.60'
Screen Length	10'
Screen Slot Size	0.010"
Protective Casing Length	1'
Depth to Water	5.47'
Elevation of Water	90.53'
Free Product Thickness	N/A
Gallons Removed (develop)	N/A
Gallons Removed (purge)	8 Gallons
Other	



Elevations - .01 ft.

96.40' Top of Protective Casing
96.00' Top of Riser Pipe
96.40' Ground Surface
95.40' Top of Annular Sealant
N/A Casing Stickup
95.40' Top of Seal
5' Total Seal Interval
90.40' Top of Sand
86.40' Top of Screen
10' Total Screen Interval
76.40' Bottom of Screen
76.40' Bottom of Borehole

Completed By: Jay Emery

Applied Environmental Technologies

Well Completion Report

Incident No.: H-20050374
Site Name: Croslow's Shell - Dersch Energies, Inc.
Drilling Contractor: Advanced Environmental Drilling
Driller: Greg Courson
Drilling Method: Hollow Stem Augers

Well No.: MW - 2
Date Drilled Start: 10/17/06
Date Completed: 10/17/06
Geologist: Bryan Williams
Drilling Fluids (type): N/A

Annular Space Details

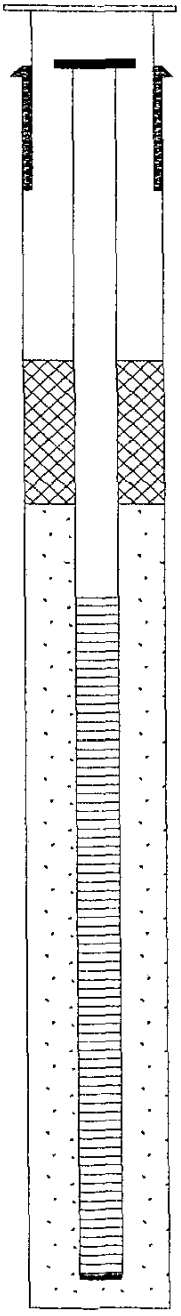
Type of Surface Seal: Concrete
Type of Annular Sealant: Bentonite
Type of Bentonite Seal (Granular, Pellet): Granular
Type of Sand Pack: Silica Sand

Well Construction Materials

	Stainless Steel Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint		Screw	
Riser Pipe Above w.t.		Sched 40 - 2"	
Riser Pipe Below w.t.		Sched 40 - 2"	
Screen		Sched 40 - 2"	
Coupling Joint Screen to Riser		Screw	
Protective Casing			Steel

Measurements

Riser Pipe Length	9.70'
Screen Length	10'
Screen Slot Size	0.010"
Protective Casing Length	1'
Depth to Water	5.96'
Elevation of Water	92.74'
Free Product Thickness	N/A
Gallons Removed (develop)	N/A
Gallons Removed (purge)	8 Gallons
Other	



Elevations - .01 ft.

99.00' Top of Protective Casing
98.70' Top of Riser Pipe
99.00' Ground Surface
98.00' Top of Annular Sealant
N/A Casing Stickup
98.00' Top of Seal
5' Total Seal Interval
93.00' Top of Sand
89.00' Top of Screen
10' Total Screen Interval
79.00' Bottom of Screen
79.00' Bottom of Borehole

Completed By: Jay Emery

Applied Environmental Technologies

Well Completion Report

Incident No.: H-20050374
Site Name: Croslow's Shell - Dersch Energies, Inc.
Drilling Contractor: Advanced Environmental Drilling
Driller: Greg Courson
Drilling Method: Hollow Stem Augers

Well No.: MW - 3
Date Drilled Start: 10/17/06
Date Completed: 10/17/06
Geologist: Bryan Williams
Drilling Fluids (type): N/A

Annular Space Details

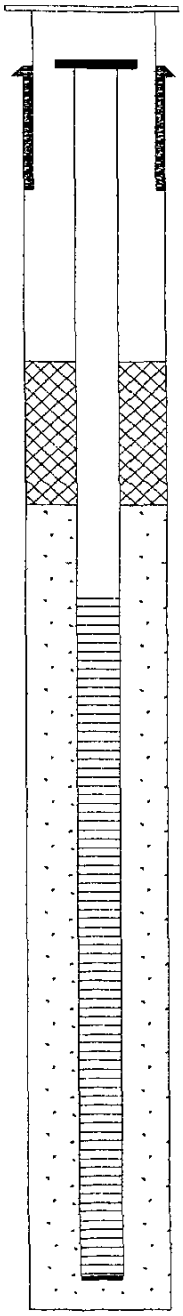
Type of Surface Seal: Concrete
Type of Annular Sealant: Bentonite
Type of Bentonite Seal (Granular, Pellet): Granular
Type of Sand Pack: Silica Sand

Well Construction Materials

	Stainless Steel Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint		Screw	
Riser Pipe Above w.t.		Sched 40 - 2"	
Riser Pipe Below w.t.		Sched 40 - 2"	
Screen		Sched 40 - 2"	
Coupling Joint Screen to Riser		Screw	
Protective Casing			Steel

Measurements

Riser Pipe Length	9.67'
Screen Length	10'
Screen Slot Size	0.010"
Protective Casing Length	1'
Depth to Water	5.68'
Elevation of Water	92.50'
Free Product Thickness	N/A
Gallons Removed (develop)	N/A
Gallons Removed (purge)	8 Gallons
Other	



Elevations - .01 ft.

98.51' Top of Protective Casing
98.18' Top of Riser Pipe
98.51' Ground Surface
97.51' Top of Annular Sealant
N/A Casing Stickup
97.51' Top of Seal
5' Total Seal Interval
92.51' Top of Sand
88.51' Top of Screen
10' Total Screen Interval
78.51' Bottom of Screen
78.51' Bottom of Borehole

Completed By: Jay Emery

Applied Environmental Technologies

Well Completion Report

Incident No.: H-20050374
Site Name: Croslow's Shell - Dersch Energies, Inc.
Drilling Contractor: Advanced Environmental Drilling
Driller: Greg Courson
Drilling Method: Hollow Stem Augers

Well No.: MW - 4
Date Drilled Start: 10/17/06
Date Completed: 10/17/06
Geologist: Bryan Williams
Drilling Fluids (type): N/A

Annular Space Details

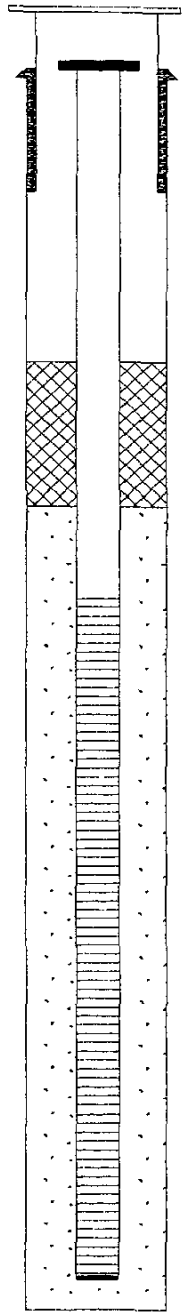
Type of Surface Seal: Concrete
Type of Annular Sealant: Bentonite
Type of Bentonite Seal (Granular, Pellet): Granular
Type of Sand Pack: Silica Sand

Well Construction Materials

	Stainless Steel Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint		Screw	
Riser Pipe Above w.t.		Sched 40 - 2"	
Riser Pipe Below w.t.		Sched 40 - 2"	
Screen		Sched 40 - 2"	
Coupling Joint Screen to Riser		Screw	
Protective Casing			Steel

Measurements

Riser Pipe Length	9.62'
Screen Length	10'
Screen Slot Size	0.010"
Protective Casing Length	1'
Depth to Water	4.02'
Elevation of Water	94.02'
Free Product Thickness	N/A
Gallons Removed (develop)	N/A
Gallons Removed (purge)	8 Gallons
Other	



Elevations - .01 ft.

98.42' Top of Protective Casing
98.04' Top of Riser Pipe
98.42' Ground Surface
97.42' Top of Annular Sealant
N/A Casing Stickup
97.42' Top of Seal
5' Total Seal Interval
92.42' Top of Sand
88.42' Top of Screen
10' Total Screen Interval
78.42' Bottom of Screen
78.42' Bottom of Borehole

Completed By: Jay Emery

Applied Environmental Technologies

Well Completion Report

Incident No.: H-20050374
Site Name: Croslow's Shell - Dersch Energies, Inc.
Drilling Contractor: Advanced Environmental Drilling
Driller: Greg Courson
Drilling Method: Hollow Stem Augers

Well No.: MW - 5
Date Drilled Start: 10/17/06
Date Completed: 10/17/06
Geologist: Bryan Williams
Drilling Fluids (type): N/A

Annular Space Details

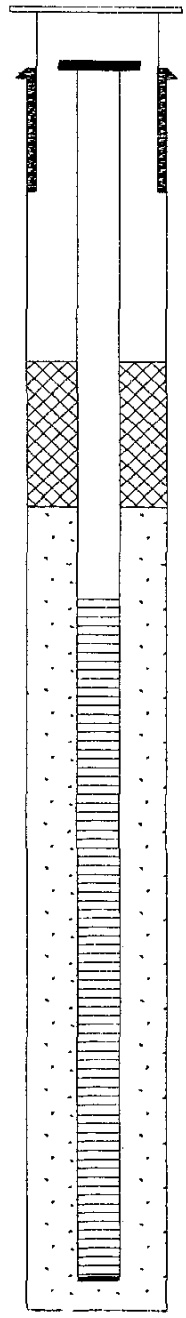
Type of Surface Seal: Concrete
Type of Annular Sealant: Bentonite
Type of Bentonite Seal (Granular, Pellet): Granular
Type of Sand Pack: Silica Sand

Well Construction Materials

	Stainless Steel Specify Type	PVC Specify Type	Other Specify Type
Riser Coupling Joint		Screw	
Riser Pipe Above w.t.		Sched 40 - 2"	
Riser Pipe Below w.t.		Sched 40 - 2"	
Screen		Sched 40 - 2"	
Coupling Joint Screen to Riser		Screw	
Protective Casing			Steel

Measurements

Riser Pipe Length	9.60'
Screen Length	10'
Screen Slot Size	0.010"
Protective Casing Length	1'
Depth to Water	5.13'
Elevation of Water	91.13'
Free Product Thickness	N/A
Gallons Removed (develop)	N/A
Gallons Removed (purge)	8 Gallons
Other	

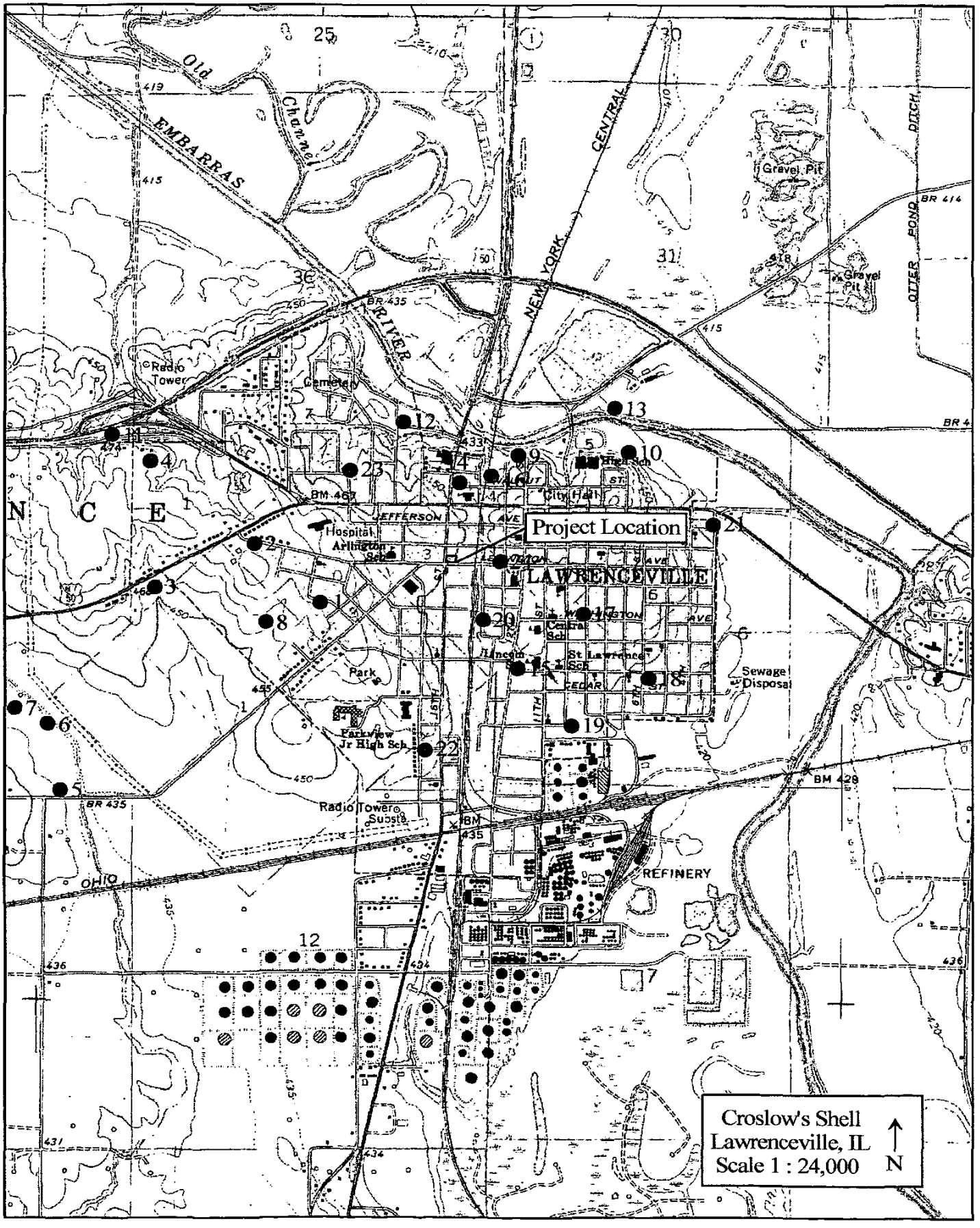


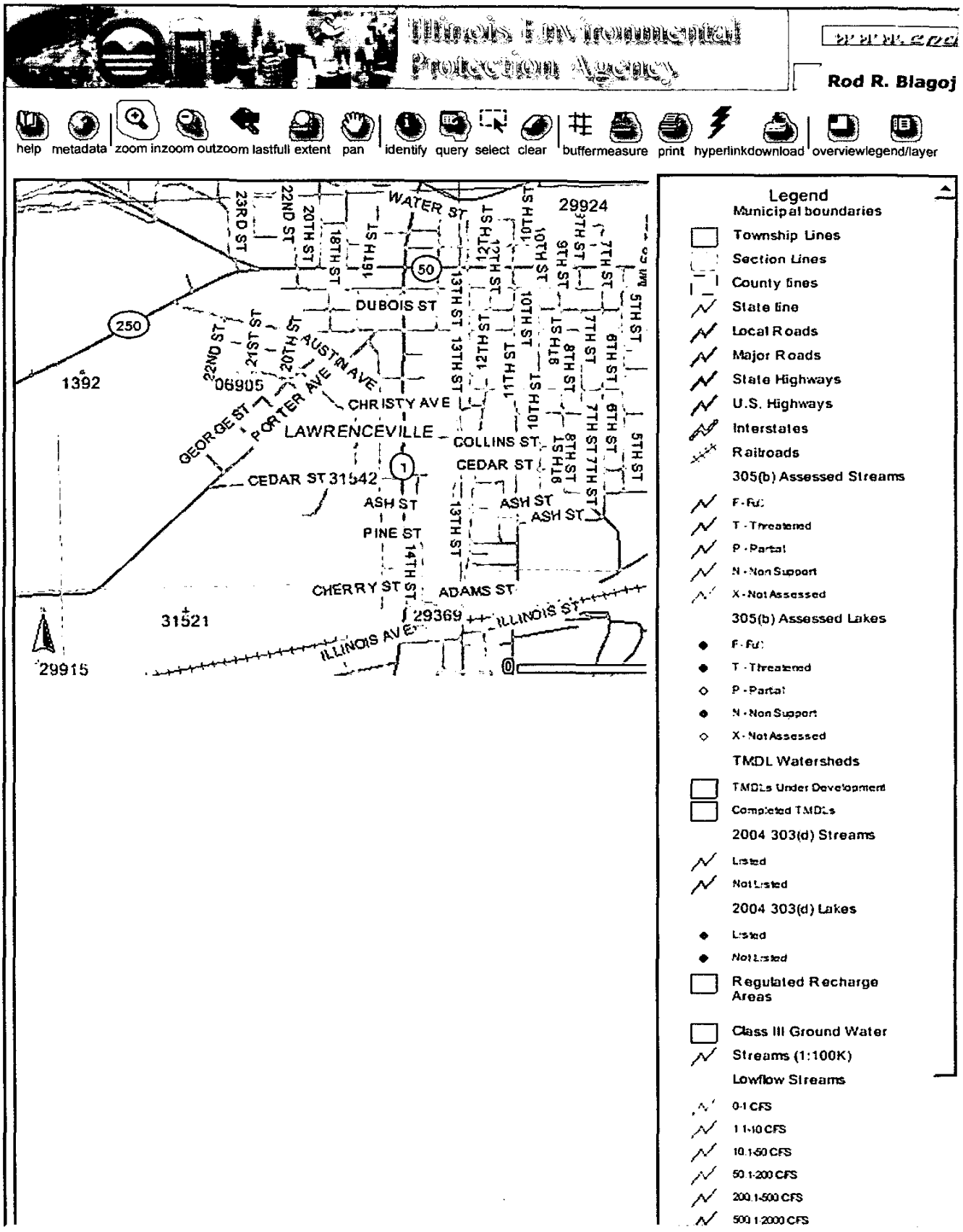
Elevations - .01 ft.

96.66' Top of Protective Casing
96.26' Top of Riser Pipe
96.66' Ground Surface
95.66' Top of Annular Sealant
N/A Casing Stickup
95.66' Top of Seal
5' Total Seal Interval
90.66' Top of Sand
86.66' Top of Screen
10' Total Screen Interval
76.66' Bottom of Screen
76.66' Bottom of Borehole

Completed By: Jay Emery

Exhibit E


Project Location
LAWRENCEVILLE
Croslow's Shell
Lawrenceville, IL
Scale 1 : 24,000
N
Old Channel
EMBARRAS RIVER
NEW YORK CENTRAL
OTTER POND DITCH
Gravel Pit
Radio Tower
Cemetery
City Hall
Hospital
Arlington Sch
Central Sch
St Lawrence Sch
Park
Parkview Jr High Sch
Radio Tower Substa
Sewage Disposal
REFINERY
OHIO
JEFFERSON AVE
LAFAYETTE AVE
WASHINGTON AVE
CEDAR ST
11TH ST
BR 435
BR 414
BM 428
BM 435


Illinois Environmental Protection Agency
Rod R. Blagoj
help
metadata
zoom in
zoom out
zoom last
full extent
pan
identify
query
select
clear
buffer
measure
print
hyperlink
download
overview
legend/layer
WATER ST
DUBOIS ST
CHRISTY AVE
LAWRENCEVILLE
COLLINS ST
CEDAR ST
ASH ST
PINE ST
CHERRY ST
ADAMS ST
ILLINOIS AVE
ILLINOIS ST
AUSTIN AVE
PORTER AVE
GEORGE ST
1392
06905
31542
31521
29915
29369
29924
250
50
1
Legend
Municipal boundaries
Township Lines
Section Lines
County lines
State line
Local Roads
Major Roads
State Highways
U.S. Highways
Interstates
Railroads
305(b) Assessed Streams
F - Full
T - Threatened
P - Partial
N - Non Support
X - Not Assessed
305(b) Assessed Lakes
F - Full
T - Threatened
P - Partial
N - Non Support
X - Not Assessed
TMDL Watersheds
TMDLs Under Development
Completed TMDLs
2004 303(d) Streams
Listed
Not Listed
2004 303(d) Lakes
Listed
Not Listed
Regulated Recharge Areas
Class III Ground Water
Streams (1:100K)
Lowflow Streams
0-1 CFS
1.1-10 CFS
10.1-50 CFS
50.1-200 CFS
200.1-500 CFS
500.1-2000 CFS

ISGS/ISWS Water Well Table
Croslow's Shell
Lawrenceville, IL

Map ID#	Location	Owner	Use	Depth (ft)	Section	Permit #	Date Com.	Setback
1	SW, NE	Mary Null	Domestic	140	1	115390	10/17/1984	400'
2	1881 E, 1500 S of NW Corner	J. N. Stansfield	Domestic	225	1	504	2/1/1934	400'
3	2088 S, 357 E of NW Corner	L. W. Gregory	Domestic	18	1	506	2/8/1934	400'
4	NW, NW, NW	Dan Sherer	Domestic	29	1	101-24-94	6/14/1994	400'
5	SE ,SE ,NE	Wilbur Ewing	Domestic	218	2	20533	6/29/1991	400'
6	1102 W, 1005 N of SE Corner	Glen Kirkwood	Domestic	150	2	P-83574	1916	400'
7	SW, NW, SE	Jerry Kirkwood	Domestic	178	2	17607	4/20/1990	400'
8	1905 E, 2620 S of NW Corner	Ohio Oil Co.	Commercial	190	1	505	1912	400'
9	NW, NW, NW	Lawrenceville Ready Mix Co.	Industrial	30	6	83282	12/21/1978	400'
10	NE, NE, NW	Emulsions, Inc.	Industrial	255	6	5307	9/16/1988	400'
11	90 N, 65 W of SE Corner	Dan Whittaker	Domestic	24	35	P-83876	1910	400'
12	610 N, 1380 W of SW Corner	M. J. Lewis	Domestic	63	36	P-83880	Unknown	400'
13	2934 W, 690 N of SE Corner	Otto Barnes	Domestic	13	31	P-83819	1934	400'
14	50 E, 150 N of Walnut & 7th	H. W. Mills	Domestic	36	6	P-83507	1900	400'
15	72 N, 105 E of 12th and Collins	Tyler L. Andrews	Domestic	91	6	P-83514	1910	400'
16	60 W, 345 N of 13th and Walnut	Otto Barnes	Domestic	29.5	6	P-83519	1933	400'
17	105 E, 72 N of 10th and Washington	S. C. Alexander	Domestic	97	6	P-83513	1921	400'
18	63 E, 45 S of 6th and Collins	W. M. Rushing	Domestic	12	6	P-83515	1924	400'
19	108 E, 258 S of 11th and Cedar	Willard Lewis	Domestic	16	6	P-83516	1933	400'
20	78 S, 87 E of 4th and Locust	Geo. Petty	Domestic	13	6	P-83506	1924	400'
21	100 E, 75 S of State and 4th	L. M. Taylor	Domestic	12	6	P-83511	1912	400'
22	240 S, 87 E of 15th and Ash	Oscar Broadstone	Domestic	25	1	P-83566	Unknown	400'
23	81 W, 30 S of 20th and Charles	Sumner Building and Loan	Domestic	17.5	1	P-83567	Unknown	400'
24	SW, NW	Unknown (Water Supt. notified AET of well)	Domestic	Unknown	6	Unknown	Unknown	400'

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO DRILLERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam.____in. Depth 140 ft.
   Curb material____. Buried Slab: Yes____No____
   b. Driven____. Drive Pipe Diam.____in. Depth____ft.
   c. Drilled ✓. Finished in Drift____. In Rock ✓.
   Tubular____. Gravel Packed____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Bennight & top soil		0-90

2. Distance to Nearest: 200
   Building 90 Ft. — Seepage Tile Field____
   Cess Pool____ — Sewer (non Cast iron)____
   Privy____ — Sewer (Cast iron)____
   Septic Tank 80 — Barnyard____
   Leaching Pit____ — Manure Pile____
3. Well furnishes water for human consumption? Yes____No ✓
4. Date well completed OCT. 24, 1984
5. Permanent Pump Installed? Yes ✓ Date____No ✓
   Manufacturer FBW Type Sub Location____
   Capacity 10 gpm. Depth of Setting 120 Ft.
6. Well Top Sealed? Yes ✓ No____Type Bennight & top soil
7. Pitless Adapter Installed? Yes ✓ No____
   Manufacturer Dickens Model Number LDS107
   How attached to casing?____
8. Well Disinfected? Yes____No ✓
9. Pump and Equipment Disinfected? Yes____No ✓
10. Pressure Tank Size 42 gal. Type WX-202
    Location building
11. Water Sample Submitted? Yes____No ✓

REMARKS:

IDPH 4.065
1/74 -- KN

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Mary Null Well No.____
    Address R#2 Lawrenceville IL 62439
    Driller Delbert Hacker License No. 052002003
11. Permit No. 45390 Date 10-17-84
12. Water from Sand stone (Formation) 13. County Lawrence
    at depth 115 to 130 ft. Sec. 1
    14. Screen: Diam. 4½ in. Twp. 3N
    Length: 50 ft. Slot .020 Rge. 12W
    Elev.____

SHOW LOCATION IN SECTION PLAT

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
6	Plastic	0	90
4½	Plastic	80	140

16. Size Hole below casing: 6 in.
17. Static level____ft. below casing top which is____ft. above ground level. Pumping level____ft. when pumping at____gpm for____hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Surface	0	15
top soil clay	15	35
Sanded clay	35	42
~~sand~~ muck	42	66
soft shale	66	88
Sandy shale	88	115
soft sandstone	115	130
shale	130	140

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [signature] DATE 10-24-84

Typical Well

City Lawrenceville, Ill. R.F.D. #4 County Lawrence

Section 15 Lawrence Twp. No. 3N Range 12W

Location (in feet from section corner) 1881' E. and 1500' S. of NW Cor. Section #1

Owner J.N.Stansfield Authority J.N.Stansfield

Contractor E.M.Holmes Address Deceased

Date drilled About 1904 Elev. above sea level top of well 480'

Depth 225'

Log 15' Dirt, 90' soapstone, incomplete to water sand, about 35' water sa

Were drill cuttings saved No Where filed Not filed

Size hole 2½" If reduced, where and how much Not reduced

Casing record 190' galvanized 2" iron pipe

Distance to water when not pumping about 110' Distance to water is does not pump off

~~feet~~ after pumping ~~XIX~~ about ~~30~~ 2, 3 G. P. M. for 3 hours.

Reference point for above measurements Ground level.

Type of pump DeLaval Electric.Pump jack Distance to cylinder 120'

Length of cylinder 16" x [illegible] 1¾" Length of suction pipe below cylinder none

Length stroke 8" Speed 38 strokes per minute.

Hours used per day about 8 Type of power Electric

Rating of motor ½ H.P. Rating of pump in G. P. M. Could not learn.

Can following be measured: (1) Static water level Not without removing rods.

(2) Pumping level Not without removing rods. (3) Discharge Yes.

(4) Influence on other wells None

Temperature of water 60°F. Was water sample collected Yes

Date February 6th. 1934 Effect of water on meters, hot water

coils, etc. Soft water. No effect on pipes. Clogs coils in about 3 years.Leaves deposit (aparently lime) on kettles.

Date of Analysis _____ Analysis No. 20436

Recorder [signature]

Date February 1st. 1934

2807-18313 12

Well #504

#2

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following this page is due to

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and not the scanning or filming processes.

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LAW 3N/12W-1.64

February 26,1934

BOILER WATER ANALYSIS
(C.W.A.)

Sample of water collected February 6,1934 by Mr.J.Lancaster from a well owned by Mr.J.M.Stansfield and located 1881'E. and 1500'S. of the N.W. corner of Sec.1-T.3N-R.12W., R.F.D.No.4, Lawrenceville, Lawrence County, Illinois. Depth of well 325'.

LABORATORY NO. 80436

Determinations made

		Pts.per million
Iron	Fe	0.2
Manganese	Mn	trace
Silica	SiO_2	12.0
Turbidity		2.0
Calcium	Ca	39.5
Magnesium	Mg	14.1
Ammonium	NH_4	0.2
Sodium	Na	114.3
Sulfate	SO_4	0.0
Nitrate	NO_3	1.5
Chloride	Cl	13.0
Alkalinity as $CaCO_3$		
Phenolphthalein		0.0
Methyl Orange		386.0
Residue		425.0
Total Hardness		158.5

Hypothetical Combinations

		Pts.per million	Grs.per gallon
Sodium Nitrate	$NaNO_3$	1.7	0.10
Sodium Chloride	NaCl	21.6	1.26
Sodium Carbonate	Na_2CO_3	242.7	14.15
Ammon'm Carbonate	$(NH_4)_2CO_3$	0.5	0.03
Magnes'm Carbonate	$MgCO_3$	48.3	3.85
Calcium Carbonate	$CaCO_3$	98.6	5.75
Iron Oxide	Fe_2O_3	0.3	0.02
Silica	SiO_2	12.0	0.69
Totals.		426.3	24.85

SOFTENING REQUIREMENTS

Lime = 3.31 lbs. per 1,000 Gals,
Soda Ash = 0.

STATE WATER SURVEY DIVISION

C.S.Boruff, Chemist

CSB/CH

Non-Typical Well ~~(Duplicate Sheet #)~~

City Lawrenceville, Ill. Route #4 County Lawrence

Section 1 Lawrence 9e Twp. No. 3N Range 12W

Location (in feet from section corner) 2088' S and 357' E of N.W. Cor. of Section #1

Owner L.W.Gregory Authority Owners wife

Contractor Bored by owner Address Route #4 Lawrenceville, Ill.

Date ~~drilled~~ bored 1930 (Auger Well) Elev. above sea level top of well about 470'

Depth 18'

Log Sandy clay

Were drill cuttings saved No Where filed Not filed

Size hole 6" If reduced, where and how much Not reduced

Casing record 18' 6" tile

Distance to water when not pumping about 9' Distance to water is Pumps off

~~After~~ after pumping at 5 G. P. M. for 1 hours.

Reference point for above measurements Ground level

Type of pump Pitcher Distance to cylinder at top

Length of cylinder 6" Length of suction pipe below cylinder 17'

Length stroke about 5" Speed Varies

Hours used per day Not used regularly Type of power Hand

Rating of motor None Rating of pump in G. P. M. None

Can following be measured: (1) Static water level Yes, by removing pump

(2) Pumping level Yes, by removing pump (3) Discharge Yes

(4) Influence on other wells None

Temperature of water 60°F Air 44°F Was water sample collected Yes

Date February 8th. 1934 Effect of water on meters, hot water coils, etc. Semi soft. Good drinking water. Used only in Summer for drinking purposes.

Date of Analysis _____ Analysis No. 80484

Recorder Joseph McLaughlin

Date February 5th. 1934

2807-18313 12

Well #506

3

P-83572

March 3,1934 LAW 3N 12W-1.8e

BOILER WATER ANALYSIS
(C.W.A.)

Sample of water collected February 8,1934 by Mr.Joseph W.Lancaster from a well in Lawrence county owned by Mr.L.W.Gregory and located 2088'S. and 357'E. of the N.W. corner of Sec.1-T.3N-R.12W., R.F.D.No.4, Lawrenceville, Illinois. Depth of well 18'.

LABORATORY NO. 80484

Determinations made

		Pts.per million
Iron	Fe	
(filtered)		0.0
(unfiltered)		0.8
Manganese	Mn	0.0
Silica	SiO_2	13.0
Turbidity		6.0
Calcium	Ca	54.7
Magnesium	Mg	26.1
Ammonium	NH_4	—
Sodium	Na	7.1
Sulfate	SO_4	28.2
Nitrate	NO_3	42.5
Chloride	Cl	13.0
Alkalinity as	$CaCO_3$	
Phenolphthalein		0.0
Methyl Orange		178.0
Residue		282.0
Total Hardness		244.5

Hypothetical Combinations

		Pts.per million	Grs.per gallon
Sodium Nitrate	$NaNO_3$	26.4	1.54
Magnesium Nitrate	$Mg(NO_3)_2$	37.4	1.60
Magnesium Chloride	$MgCl_2$	17.6	1.03
Magnesium Sulfate	$MgSO_4$	35.6	2.08
Magnesium Carbonate	$MgCO_3$	34.6	2.02
Calcium Carbonate	$CaCO_3$	137.1	8.00
Silica	SiO_2	13.0	0.76
Totals.		291.7	17.03

SOFTENING REQUIREMENTS

Lime = 1.48 lbs. per 1,000 Gals.
Soda Ash = 0.62 lb. per 1,000 Gals.

STATE WATER SURVEY DIVISION

C.S.Boruff, Chemist

CSB/CH

3

P-83572

White - Pink Copies: Ill. Dept. of Public Health
Yellow Copy: Well Contractor
Golden Copy: Well Owner

Well Construction Report

THIS FORM MUST BE COMPLETED WITHIN 30 DAYS
OF WELL COMPLETION AND SENT TO
THE ILLINOIS DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
525 WEST JEFFERSON STREET
SPRINGFIELD, ILLINOIS 62761

DRY HOLE
PLUGGED

GEOLOGICAL AND WATER SURVEYS WELL RECORD

1. Type of Well
   a. Bored____ Hole Diam. 6 in. Depth ~~210~~ 27 ft. 300'
   Buried Slab: Yes___ No___
   b. Driven____ Drive Pipe Diam.____in. Depth____ft
   c. Drilled ✓ Finished in Drift____ In Rock ✓

d. Grout:	(KIND)	FROM (Ft.)	TO (Ft.)
	BENTONITE	0	210

2. Well furnishes water for human consumption? Yes ~~✓~~ No ✓
3. Date well drilled 6-14-94
4. Permanent pump installed? Yes ___ Date_____ No ✓
   Manufacturer_____ Type_____
   Location_____
   Capacity _____gpm. Depth of setting_____ft.
5. Well top sealed? Yes ✓ No____ Type Airtight Cap
6. Pitless adapter installed? Yes____ No____
   Manufacturer_____ Model No._____
   How attached to casing?_____
7. Well disinfected? Yes ✓ No____
8. Pump and equipment disinfected Yes____ No____

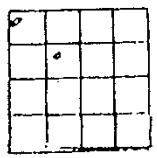
IMPORTANT NOTICE

This State Agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act 85-0863. Disclosiure of this information is mandatory. This form has been approved by the Forms Management Center.

PRESS FIRMLY WITH BLACK PEN OR TYPE
Do Not Use Felt Pen

IL 26

9. Driller Tim Hacker License No. 092-006177
10. Well Site Address Rt #3 Box 335, Sumner IL 62466
11. Property Owner Dan Sherer Well No. 1
12. Permit No. 101-24-94 Date Issued 6-9-94
13. Location: NW¼ of NW¼ of NW¼ County Lawrence
    Sec. 18
    Twp. 3N
    Rge. 12W
    1/2 6 P.M.



Show location in section plat

14. Water from Hard Gr. Sandstone at depth 65 ft to 78 ft

15. Casing and Liner Pipe

Diam.(in)	Kind and Weight	From (ft)	To (ft)
6"	PVC SDR 21	0	39
	PULLED		

pvc

16. Screen: Diam.___in, Length___in, Slot Size___
17. Size hole below casing____in. 18. Ground Elev._____ ft msl.
19. Static level___ft below casing top which is 2 ft. above ground level. Pumping level ___ft, pumping ___gpm for ___ hours.

20. Earth Materials Passed Through	Depth of Top	Depth of Bottom
Topsl	0	3
Silty Clay	3	16
Firm Sticky Gr. Clay	16	19
Sandy Red Clay	19	26
Hard Gr. Sandstone	26	39

Continue on separate sheet if necessary.

Signed T. Hacker Date 9-26-94

Ill. De of Public Health
Yellow Co. : Well Contractor
Golden Copy: Well Owner

Well Construction Report

THIS FORM MUST BE COMPLETED WITHIN 30 DAYS
OF WELL COMPLETION AND SENT TO
THE ILLINOIS DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
525 WEST JEFFERSON STREET
SPRINGFIELD, ILLINOIS 62761

1. Type of Well
   a. Bored____ Hole Diam.____in. Depth 218 ft
   Buried Slab: Yes___ No___
   b. Driven____ Drive Pipe Diam.____in. Depth____ft
   c. Drilled X Finished in Drift____ In Rock____

   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
cement	150	20

Pressure cemented

2. Well furnishes water for human consumption? Yes___ No X
3. Date well drilled 6-29-91
4. Permanent pump installed? Yes X Date 7-9-91 No___
   Manufacturer Flint & Walling Type submersible
   Location in well
   Capacity 19 gpm. Depth of setting 147 ft.
5. Well top sealed? Yes X No___ Type____
6. Pitless adapter installed? Yes X No___
   Manufacturer Williams Products Model No. B50ACV
   How attached to casing? drilled
7. Well disinfected? Yes X No___
8. Pump and equipment disinfected Yes X No___

IMPORTANT NOTICE

This State Agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act 85-0863. Disclosiure of this information is mandatory. This form has been approved by the Forms Management Center.

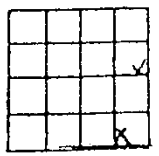
PRESS FIRMLY WITH BLACK PEN OR TYPE
Do Not Use Felt Pen

IL482-0

#5

GEOLOGICAL AND WATER SURVEYS WELL RECORD

9. Driller James A. Speth License No. 102-002672
10. Well Site Address Lawrenceville, Il. 62439
11. Property Owner Wilbur Ewing Well No.____
12. Permit No. 020533 Date Issued 6-18-91
13. Location: County Lawrence
    Sec. 2.1E
    Twp. 3 N
    Rge. 12 W



Show location in section plat

SE, SE, NE

14. Water from sand at depth 150 ft to 218 ft

15. Casing and Liner Pipe

Diam.(in)	Kind and Weight	From (ft)	To (ft)
5" I D	SDR21 PVC plastic	+ 1	150

16. Screen: Diam.___in, Length___in, Slot Size___
17. Size hole below casing 4 3/4 in. 18. Ground Elev.____ ft msl.
19. Static level 85 ft below casing top which is 1 ft. above ground level. Pumping level 218 ft, pumping gpm 30

20. Earth Materials Passed Through	Depth of Top	Depth of Bottom
Clay	0	18
Gray shale	18	27
Coal wet	27	29
Hard sand	29	38
Sandy shale	38	43

Continue on separate sheet if necessary.

Signed James A. Speth Date 7-11-91

Typical Well

10

City Lawrenceville, Ill.R.R. #1 County Lawrence

Section 2 Lawrence Twp. No. 3N Range 12W

Location (in feet from section corner) 1102' W and 1005'N of S.E. Corner of Section #2

Owner Glen Kirkwood Authority Owner

Contractor Charles Guthrie Address Deceased

Date drilled 1916 Elev. above sea level top of well 430'

Depth About 150'

Log Unknown

Were drill cutting saved No Where filed Not filed

Size hole 6" If reduced, where and how much Not reduced

Casing record Not available

Distance to water when not pumping about 40' Distance to water is about 40'

feet after pumping at ~~10~~ 47 G. P. M. for 1 hours.

Reference point for above measurements Ground level

Type of pump Jack Distance to cylinder 100'

Length of cylinder 6' x 2" Length of suction pipe below cylinder Not known

Length stroke 12" Speed 50 strokes per Min. on tractor
30 " " " " Gas Motor

Hours used per ~~day~~ week about 1½ Type of power Gasoline motor

Rating of motor 14H.P. Rating of pump in G. P. M. Not rated

Can following be measured: (1) Static water level Yes

(2) Pumping level Yes (3) Discharge Yes

(4) Influence on other wells None

Temperature of water 54°F Was water sample collected No

Date Effect of water on meters, hot water

coils, etc. Hard water. No taste or odor. Does not clog coils. Leaves mineral deposit on kettles.

Date of Analysis Analysis No.

Recorder Joseph M. Lancaster

2807-10300 12

Date February 12th. 1934

Well # 512

#6

P-83574

Ill. Dept. of Public Health
Yellow Copy: Well Contractor
Golden Copy: Well Owner

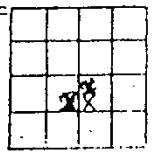
Well Construction Report

RECEIVED
MAY 14 19
DIVISION OF ENVIRONMENTAL HEALTH

THIS FORM MUST BE COMPLETED WITHIN 30 DAYS OF WELL COMPLETION AND SENT TO THE ILLINOIS DEPARTMENT OF PUBLIC HEALTH DIVISION OF ENVIRONMENTAL HEALTH 525 WEST JEFFERSON STREET SPRINGFIELD, ILLINOIS 62761

GEOLOGICAL AND WATER SURVEYS WELL RECORD

9. Driller James A. Speth License No. 102-002672
10. Well Site Address R. R. 1 Lawrenceville, Il. 62439
11. Property Owner Jerry Kirkwood Well No.
12. Permit No. 017607 Date Issued 4-19-90
13. Location: County Lawrence
Sec. 2, SW 4c
Twp. 3 N
Rge. 12 W



Show location in section plat
SW, NW, SE

1. Type of Well
   a. Bored____ Hole Diam.____in. Depth____ft.
   Buried Slab: Yes___ No___
   b. Driven____ Drive Pipe Diam.____in. Depth____ft
   c. Drilled X Finished in Drift____ In Rock____

d. Grout:	(KIND)	FROM (Ft.)	TO (Ft.)
	cement	140	20

Pressure cemented

2. Well furnishes water for human consumption? Yes X No___
3. Date well drilled 4-20-90
4. Permanent pump installed? Yes X Date 5-9-90 No___
   Manufacturer Flint & Walling Type submersible
   Location in well
   Capacity 10 gpm. Depth of setting 147 ft.
5. Well top sealed? Yes X No___ Type____
6. Pitless adapter installed? Yes X No___
   Manufacturer William Products Model No. B50ACV
   How attached to casing? drilled
7. Well disinfected? Yes X No___
8. Pump and equipment disinfected Yes X No___

14. Water from water sand at depth 140 ft to 178 ft

15. Casing and Liner Pipe			
Diam.(in)	Kind and Weight	From (ft)	To (ft)
5" I D	SDR21 PVC plastic	+ 1	140

16. Screen: Diam.___in, Length___in, Slot Size___
17. Size hole below casing 4 3/4 in. 18. Ground Elev.____ ft msl.
19. Static level 67 ft below casing top which is 1 ft. above ground level. Pumping level 178 ft, pumping gpm 17

20. Earth Materials Passed Through	Depth of Top	Depth of Bottom
Clay	0	12
Sand rock	12	18
Gray shale	18	29
Lime	29	34
Gray shale	34	68
Coal	68	69
Dark shale	69	124
Sandy shale	124	135
Water sand	135	178

Continue on separate sheet if necessary.

Signed Jas. A. Speth Date 5-11-90

IMPORTANT NOTICE

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PRESS FIRMLY WITH BLACK PEN OR TYPE
Do Not Use Felt Pen

IL482-0

Typical Well

City Lawrenceville, Ill.RFD #4 County Lawrence

Section 1 Lawrence Twp. No. 3N Range 12W

Location (in feet from section corner) 1905'E and 2620'S of N.W.Cor. Section #1

Owner J.N.Stansfield,Rt.4 Lawrenceville,Ill Authority Owner

Contractor Ohio Oil Co. Address Bridgeport, Ill.

Date drilled about 1912 Elev. above sea level top of well 470'

Depth 190'

Log No record

Were drill cuttings saved No Where filed Not filed

Size hole 8" If reduced, where and how much Not reduced

Casing record 20' of 8" common black pipe

Distance to water when not pumping about 90' Distance to water is Does not pump off.

~~feet~~ after pumping at ~~30~~ 4.0 G. P. M. for 1 hours.

Reference point for above measurements Top of casing or ground level.

Type of pump Piston Distance to cylinder 100'

Length of cylinder 16" x 2" Length of suction pipe below cylinder 20'

Length stroke 8" Speed 38 Strokes per Min.

Hours used per day Only in Summer Type of power Gasoline engine, also windmill

Rating of motor 1½ H.P. Rating of pump in G. P. M. Could not learn

Can following be measured: (1) Static water level Not unless pump and rods removed

(2) Pumping level Not unless pump and rods removed (3) Discharge Yes

(4) Influence on other wells None

Temperature of water Well not operating Was water sample collected No

Date Soft.Same quality as other well. Effect of water on meters, hot water coils, etc.

Date of Analysis Analysis No.

Recorder Joseph M Smith

Date February ~~1st~~ 1934

2807-19313 12

Well #505

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

INSTRUCTIONS TO C LERS

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ✓. Hole Diam. 36 in. Depth 30 ft.
   Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. ____ in. Depth ____ ft.
   c. Drilled ____. Finished in Drift ____. In Rock ____.
   Tubular ____. Gravel Packed ✓.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building ____ Ft. Seepage Tile Field ____
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank ____ Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Well furnishes water for human consumption? Yes ____ No ____
4. Date well completed Dec 21 1978
5. Permanent Pump Installed? Yes ____ Date ____ No ✓
   Manufacturer ____ Type ____ Location ____
   Capacity ____ gpm. Depth of Setting ____ Ft.
6. Well Top Sealed? Yes ✓ No ____ Type ____
7. Pitless Adapter Installed? Yes ____ No ✓
   Manufacturer ____ Model Number ____
   How attached to casing? ____
8. Well Disinfected? Yes ____ No ✓
9. Pump and Equipment Disinfected? Yes ____ No ✓
10. Pressure Tank Size ____ gal. Type ____
    Location ____
11. Water Sample Submitted? Yes ____ No ✓

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Lawrenceville Ready-Mix Co. Well No. ____
    Address Adams St Lawrenceville Ill
    Driller Delbert Hacker License No. 102-200
11. Permit No. 83282 Date 1-10-79
12. Water from Sand (Formation) at depth 7 to 13 ft.
13. County Lawrence
    Sec. 6 2h
    Twp. 3N
    Rge. 11W
    Elev. ____
14. Screen: Diam. ____ in. Length: ____ ft. Slot ____
15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
32'	8" plastic	0	32

SHOW LOCATION IN SECTION PLAT (Industrial)

16. Size Hole below casing: ____ in.
17. Static level ____ ft. below casing top which is ____ ft. above ground level. Pumping level ____ ft. when pumping at ____ gpm for ____ hours.

18.

FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Surface	0	7
Sand	7	13
muck & clay	13	30

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED ____ DATE ____

IDPH 4.055
1/74 8-1

#a

INSTRUCTIONS TO ' LERS

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ____. Hole Diam. ____ in. Depth 256
      Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. ____ in. Depth ____ ft.
   c. Drilled X. Finished in Drift ____. In Rock ____.
      Tubular ____. Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 25 Ft. Seepage Tile Field none
   Cess Pool none Sewer (non Cast iron) none
   Privy none Sewer (Cast iron) 300
   Septic Tank none Barnyard none
   Leaching Pit none Manure Pile none
3. Well furnishes water for human consumption? Yes ____ No X
4. Date well completed 9-16-88
5. Permanent Pump Installed? Yes X Date 9-28-88 No ____
   Manufacturer Flint Walling Type submersible Location in well
   Capacity 55 gpm. Depth of Setting 210 Ft.
6. Well Top Sealed? Yes X No ____ Type ____
7. Pitless Adapter Installed? Yes X No ____
   Manufacturer Dicken Model Number 520
   How attached to casing? ____
8. Well Disinfected? Yes X No ____
9. Pump and Equipment Disinfected? Yes X No ____
10. Pressure Tank Size ____ gal. Type ____
    Location ____
11. Water Sample Submitted? Yes ____ No X

REMARKS:

Co. 29924

IDPH 4.065
1/74 – KNB-1

#10

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner Emulsions Inc Well No. ____
    Address 1105 Adams Street Lawrenceville, Ill. 62439
    Driller James A. Spitz License No. 102-0026
11. Permit No. D05307 Date 8-30-88
12. Water from water sand (Formation) at depth 201 to 247 ft.
13. County Lawrence
    Sec. 6.5h
    Twp. 3N
    Rge. 11W
    Elev. ____
14. Screen: Diam. ____ in. Length: ____ ft. Slot ____

SHOW LOCATION IN SECTION PLAT: NE, NE, NW

	X	X	

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
6" ID	PVC well casing	+	256

16. Size Hole below casing: ____ in.
17. Static level 35 ft. below casing top which is 1 ft. above ground level. Pumping level 90 ft. when pumping at 30 gpm for ____ hours.

18.

FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM

OVER

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED James A. Spitz DATE 9-7-88

City Lawrenceville Ill. R.F.D. #4 County Lawrence

Section 35 in Lawrence Twp. No. 4 N Range 12 W.

Location (in feet from section corner) 90' N + 65 W. of S. E. corner Sec. 35

Owner Dan Whittaker - R4 Lawrenceville Ill. Authority Owner

Contractor Jim Whittaker - Address R. 4 Lawrenceville Ill.

Date ~~drilled~~ Dug about 1910 Elev. above sea level top of well about 468

Depth 24'

Log 11' soil - 13' shale.

Were drill cuttings saved No Where filed No

Size hole 30" If reduced, where and how much Not.

Casing record Bricked for 11' down to shale

Distance to water when not pumping 22' Distance to water is 24'

feet after pumping at 4 G. P. M. for 5 Min. ~~hours~~

Reference point for above measurements Top of ground.

Type of pump piston Distance to cylinder 4'

Length of cylinder 3" X 14 Length of suction pipe below cylinder 20'

Length stroke 8" Speed 40

Hours used per day 15 Min per day. Type of power Hand.

Rating of motor None Rating of pump in G. P. M. 8

Can following be measured: (1) Static water level yes

(2) Pumping level yes (3) Discharge yes.

(4) Influence on other wells None.

Temperature of water 54°F air, 44°F Was water sample collected No.

Date Effect of water on meters, hot water

coils, etc Much deposit in teakettle.

Date of Analysis Analysis No.

Non-Typical.

Recorder S P Hall

Date Feb. 5

2807-18313 12

#11

P-83876

Only well in Sec. 36.

35

City Lawrenceville, Ill. Route #4 County Lawrence

Section 36 Lawrence Twp. No. 4N Range 12W

Location (in feet from section corner) 610' N. and 1380' W. of S&W.Cor. Section 36

Owner M.J.Lewis, Rt.4, Lawrenceville, Ill. Authority Owner

Contractor Not known Address

Date ~~drilled~~ dug Not known. Very old. Elev. above sea level top of well 468'

Depth 63'

Log 40' not known. 23' brown sand rock.

Were drill cuttings saved No Where filed Not filed

Size hole 60" If reduced, where and how much Not

Casing record 40' sandstone rock, down thru rock and shale.

Distance to water when not pumping 51' Distance to water is 58'

feet after pumping at 6 G. P. M. for 58" hours.

Reference point for above measurements Cement platform.

Type of pump Piston Distance to cylinder 40' 1¼"

Length of cylinder 3" x 14" Length of suction pipe below cylinder 20' x 1¼"

Length stroke 10" Speed 40

Hours used per day 1 to 8 Type of power Windmill- Aermotor, 50' high.

Rating of motor Not known Rating of pump in G. P. M. 12

Can following be measured: (1) Static water level Yes

(2) Pumping level Yes (3) Discharge Yes

(4) Influence on other wells None

Temperature of water 52°F Air 40°F Was water sample collected Yes

Date Feb. 5th. 1934 Effect of water on meters, hot water coils, etc. No taste or odor, not much deposit in teakettle.

Date of Analysis Analysis No. 50438

Only well in section Recorder S. P. Hull

2807-19309 12 Date February 5th. 1934

#6

12

P-83880

March 3,1934

BOILER WATER ANALYSIS
(C.W.A.) LAW 4N12W-36.6a

Sample of water collected February 5,1934 by Mr.S.P.Hull from a well in Lawrence county owned by Mr.F.J.Lewis and located 810'N. and 1330'E. of the S.W.corner of Sec.36-T.4N-R.12W., R.F.D.No.4, Lawrenceville, Illinois. Depth of well 63'.

LABORATORY NO. 80438

Determinations made		Pts.per million
Iron	Fe	0.1
Manganese	Mn	0.1
Silica	SiO_2	8.0
Turbidity		0.0
Calcium	Ca	100.3
Magnesium	Mg	61.4
Ammonium	NH_4	--
Sodium	Na	14.7
Sulfate	SO_4	19.7
Nitrate	NO_3	132.8
Chloride	Cl	57.0
Alkalinity as	$CaCO_3$	
Phenolphthalein		0.0
Methyl Orange		328.0
Residue		547.0*
Total Hardness		503.5

Hypothetical Combinations		Pts.per million	Grs.per gallon
Sodium Nitrate	$NaNO_3$	54.4	3.17
Magnesium Nitrate	$Mg(NO_3)_2$	111.3	6.48
Magnesium Chloride	$MgCl_2$	76.2	4.44
Magnesium Sulfate	$MgSO_4$	24.7	1.45
Magnesium Carbonate	$MgCO_3$	64.9	3.78
Calcium Carbonate	$CaCO_3$	251.2	14.65
Iron Oxide	Fe_2O_3	0.1	0.01
Manganese Oxide	MnO	0.1	0.01
Silica	SiO_2	8.0	0.47
Totals.		590.9	34.46

*Low determined residue due to presence of acid salts.

SOFTENING REQUIREMENTS:

Lime = 3.02 lbs. per 1,000 Gals.
Soda Ash = 1.63 lbs. per 1,000 Gals.

STATE WATER SURVEY DIVISION

C.S.Boruff, Chemist

CSB/CH

Sec. 31. 13

City Lawrenceville, Ill/ Rt/3 County Lawrence

Section 31 Lawrance Twp. No. 4N Range 11W

Location (in feet from section corner) 2934'W and 690'N of S.E.Corner of Section 31

Owner Otto Barnes, Lawrenceville, Ill Authority Owner, and Leonard Gosnell, Tenant

Contractor Tenant Address Lawrenceville, Ill/ Rt.3

Date Drove 1934 Elev. above sea level top of well About 420

Depth 13'

Log 10' sandy soil, well point 3' into water gravel.

Were drill cuttings saved No Where filed Not

Size hole 1 1/4" If reduced, where and how much Not

Casing record 10' of 1 1/4" galvanized iron pipe. 3' screened point.

Distance to water when not pumping 10' Distance to water is

feet after pumping at Does not pump off 6 G. P. M. for 1 hours.

Reference point for above measurements Top of ground

Type of pump Piston Distance to cylinder 3'

Length of cylinder 3" x 12" Length of suction pipe below cylinder 10'

Length stroke 8" Speed 40

Hours used per day 1/2 Type of power Hand

Rating of motor None Rating of pump in G. P. M. 10 (Computed)

Can following be measured: (1) Static water level No

(2) Pumping level No (3) Discharge Yes

(4) Influence on other wells None

Temperature of water 56F Was water sample collected No

Date Effect of water on meters, hot water

coils, etc. Some teakettle deposit. Semi-soft. No taste or odor.

Date of Analysis Analysis No.

Only well in section.

Recorder S.P.Hull

2807-10309 12

Date February 19th/ 1934

#40 #13 P-03819

Non-Typical Well

City Lawrenceville, Ill/ 503 N.7th. County Lawrence

Section 6 Lawrenceville ~~Map~~ Twp. Twp. No. (Unplatted) 3 N Range 11-W

Location (in feet from section corner) 50'E and 150'N of intersection of 7th. & Walnut Sts.

Owner H.W.Mills Authority Owner

Contractor Richard Jerold Address Unknown

Date drilled 1900 Elev. above sea level top of well 480'

Depth 36' to bottom of dug well. Depth below unknown.

Log Unknown

Were drill cuttings saved No Where filed Not filed

Size hole 4' If reduced, where and how much At 36' to 2" to unknown depth.

Casing record Brick laid in morter down 23 1/2' to solid rock. Drilled below

Distance to water when not pumping 24' Distance to water is Does not pump off

feet after pumping at 10 3 G. P. M. for About 12 hours.

Reference point for above measurements Top of platform 6" above ground level.

Type of pump Bucket and chain Distance to cylinder None

Length of cylinder None Length of suction pipe below cylinder None

Length stroke None Speed Varies

Hours used per day About 10 buckets Type of power Hand

Rating of motor None Rating of pump in G. P. M. None

Can following be measured: (1) Static water level Yes

(2) Pumping level Yes (3) Discharge Yes

(4) Influence on other wells None

Temperature of water 56F Air 48F Was water sample collected No

Date Effect of water on meters, hot water

coils, etc Hard water. No taste or odor. Leaves deposit on kettles.

Date of Analysis Analysis No.

Recorder S.P.Hull

2507-10300 12

Date March 5th/ 1934

#542

#

14

P-83507

Typical Drilled Well

City Lawrenceville, Ill/ City County Lawrence

Section #6 TWP Lawrenceville Twp. 3N R-11W 1414 So. 12th/ St. 72' N and 105'E of intersection 12th.St. and Collins Ave. going West.
TWP No

Location (in feet from section corner) Lot #4 T.C.Watts Addition

Owner Tyler L. Andrews Authority Owner

Contractor Unknown Address Unknown

Date drilled 1910 Elev. above sea level top of well About 440'

Depth 91'

Log Unknown

Were drill cuttings saved No Where filed Not filed

Size hole 8" If reduced, where and how much At 25' reduced to 6 5/8"

Casing record 60' of 6 5/8" black iron pipe.

Distance to water when not pumping Unknown Distance to water is Does not pump off

~~test~~ after pumping at ~~7~~ 2½ G. P. M. for 1 hours.

Reference point for above measurements Ground level

Type of pump Piston double action Distance to cylinder 40'

Length of cylinder 12" x 3" Length of suction pipe below cylinder 40'

Length stroke 6" Speed 40 strokes per minute

Hours used per day Very little at present Type of power Hand

Rating of motor None Rating of pump in G. P. M. 7 (Computed)

Can following be measured: (1) Static water level Not without removing pump

(2) Pumping level Not without removing pump (3) Discharge Yes

(4) Influence on other wells None

Temperature of water 56 F Was water sample collected No

Date Effect of water on meters, hot water

coils, etc. Hard. No taste or odor. Leaves deposit on kettles.

Date of Analysis Analysis No.

Recorder J.W.Lancaster

2807-10000 12

Date February 2nd. 1934

#548

5

City Lawrenceville, Ill. 403 N. 13th. St. County Lawrence

Section 26 Lawrenceville Twp ~~Map xxxx~~ (Unplatted) T-3 N Range 11 W

Location (in feet from section corner) 60'W and 345'N of intersection 13th. & Walnut Sts.

Owner Otto Barnes, 506 12th. Authority E.C.Murphy, Tenant

Contractor Tenant Address 403 N. 13th. St/, Lawrenceville, Ill

Date Dug 1933 Elev. above sea level top of well 450'

Depth 29 1/2'

Log 25' soil, 4 1/2' into sand rock

Were drill cuttings saved No Where filed Not

Size hole 6" If reduced, where and how much At 25' to 3"

Casing record 25' 6" drain tile

Distance to water when not pumping 24' Distance to water is

feet after pumping at Pumps off at 1 G. P. M. for 1/4 hours.

Reference point for above measurements Top of ground

Type of pump Pitcher Distance to cylinder At top

Length of cylinder 2 1/2" x 8" Length of suction pipe below cylinder 28'

Length stroke 4" Speed 40

Hours used per day 1/4 Type of power Hand

Rating of motor None Rating of pump in G. P. M. 4 (Computed)

Can following be measured: (1) Static water level Yes

(2) Pumping level Yes (3) Discharge Yes

(4) Influence on other wells None

Temperature of water 53F Air 42F Was water sample collected No

Date Effect of water on meters, hot water coils, etc. Some teakettle deposit. Semi soft. No taste or odor.

Date of Analysis Analysis No.

Non-Typical Well Recorder S.P.Hull

2607-19399 12 Date March 3rd. 1934

#541

#16

25551

Typical Drilled Well

547

City Lawrenceville, Ill/ City County Lawrence

Section #6 Lawrenceville Twp 1212 So. 10th. St. T-3N R-11W Lot 60 Watts South Park Addition.

Location (in feet from section corner) 105'E and 72'N of Intersection 10th. & Washington Sts.

Owner S.C.Alexander,1212 So. 10th.St. Authority Owner

Contractor Ted Draim Address Vincennes, Ind.

Date drilled About 1921 Elev. above sea level top of well 450'

Depth 97'

Log 40' dirt, 40' limestone, 17' quicksand

Were drill cuttings saved No Where filed Not

Size hole 5" If reduced, where and how much Not

Casing record 40' 5" galvanized Iron Pipe

Distance to water when not pumping About about 47' Distance to water is Does not pump off after pumping at 14 G. P. M. for 1 hours.

Reference point for above measurements Ground level

Type of pump Piston Distance to cylinder About 66'

Length of cylinder 12" x 3" Length of suction pipe below cylinder 22'

Length stroke 12" Speed 40 strokes per minute.

Hours used per day about 1/4 Type of power Hand

Rating of motor None Rating of pump in G. P. M. 14(Computed)

Can following be measured: (1) Static water level Not without removing pump

(2) Pumping level Not without removing pump (3) Discharge Yes

(4) Influence on other wells None

Temperature of water 56 F Was water sample collected No

Date Effect of water on meters, hot water coils, etc. Semi-soft water. No taste or odor. Leaves some deposit on kettles.

Date of Analysis Analysis No.

Recorder J.W.Lancaster

2807-10309 12

Date March 2nd, 1934

#547

#17

Typical Well

(54)

City Lawrenceville, Ill/ 1502 S.6th.St County Lawrence SE

Section Lawrenceville ~~Map xxxxx~~ Twp 6 Lot #94 of Titus & Jones Addition Range R-11w. T-3N

Location (in feet from section corner) 63'E and 45'S of Intersection of 6th. & Collins Sts

Owner W.M.Rushing Authority Owner

Contractor Owner Address 1502 S. 6th. St.

Date ~~drilled~~ Driven 1924 Elev. above sea level top of well 430'

Depth 12'

Log 9 1/2' Dirt; 2 1/2' quick sand

Were drill cuttings saved No Where filed Not filed

Size hole 1 1/4" If reduced, where and how much Not reduced

Casing record 9' 1 1/4" galvanized iron pipe with 3' screen point.

Distance to water when not pumping 9 1/2' Distance to water is Does not pump off

~~test~~ after pumping at 3 G. P. M. for 1 hours.

Reference point for above measurements Top of platform 18" above ground level

Type of pump Pitcher Distance to cylinder At top

Length of cylinder 8" x 2 1/2" Length of suction pipe below cylinder 12'

Length stroke 4" Speed 40

Hours used per day 1/4 Type of power Hand

Rating of motor None Rating of pump in G. P. M. 3 (Computed)

Can following be measured: (1) Static water level Only by removing pump.

(2) Pumping level No (3) Discharge Yes

(4) Influence on other wells None

Temperature of water 48F Was water sample collected No

Date Effect of water on meters, hot water

coils, etc. Hard water. No taste or odor. Some deposit on kettles.

Date of Analysis Analysis No.

Typical Well Recorder J.W.Lancaster

2807-10309 12 Date March 5th/ 1934

#545

#18

A-83515

Typical Well

(546)

City Lawrenceville, Ill/ 1612 S. 11th. St. County Lawrence

Section 6 Lawrenceville ~~Map~~ ~~Twp. No.~~ Unplatted Twp T-3 N Range R-11 W.

Location (in feet from section corner) 108' E and 258'S of intersection of 11th. & Cedar Sts.

Owner Willard Lewis Authority Owner

Contractor Ray Lewis Address Lawrenceville, Ill/ 1612 S. 11th. St.

Date ~~Drilled~~ Driven 1933 Elev. above sea level top of well 432'

Depth 16'

Log 14' Dirt, 2' quicksand

Were drill cuttings saved No Where filed Not filed

Size hole 1 1/4" If reduced, where and how much Not

Casing record 13' galvanized iron pipe 1 1/4", 3' screen point

Distance to water when not pumping About 9' Distance to water is Does not pump off ~~feet~~

after pumping at ~~10~~ 4 G. P. M. for 2 hours.

Reference point for above measurements Top of platform 24" above ground level.

Type of pump Pitcher Distance to cylinder At top

Length of cylinder 6" x 2 1/2" Length of suction pipe below cylinder 16'

Length stroke 3" Speed 40 strokes per minute.

Hours used per day 1/4 Type of power Hand

Rating of motor None Rating of pump in G. P. M. 11 (computed)

Can following be measured: (1) Static water level Yes, if pump removed.

(2) Pumping level No (3) Discharge Yes

(4) Influence on other wells None

Temperature of water 53F Was water sample collected No

Date Effect of water on meters, hot water coils, etc. Hard water. No taste or odor. Leaves a little deposit on kettles.

Date of Analysis Analysis No.

Recorder J.W.Lancaster

2807-10309 12

Date March 5th/ 1934

#546

19

P-33516

Typical Well

544

10

City Lawrenceville, Ill/314 E.Locust St. County Lawrence NE

Section 6 Lawrenceville ~~Twp.~~ Twp. No. T-3N ~~Range~~ R-11W Lot #3, Block T, T.T.Jones Valley View Addition.

Location (in feet from section corner) 78'S and 87'E of Intersection 4th. & Locust Sts.

Owner Geo.Petty, 12th.St., Lawrenceville Ill. Authority S.C.Wright, Tenant

Contractor John Lorrance Address Lawrenceville, Ill.

Date ~~Dug~~ About 1924 Elev. above sea level top of well About 437'

Depth About 13th

Log 11'soil, 2' sand rock

Were drill cuttings saved No Where filed Not filed

Size hole 3 1/2' If reduced, where and how much Not reduced

Casing record Brick wall laid loose on sand rock.

Distance to water when not pumping 3' Distance to water is Pumps off

~~feet~~ after pumping at 4 G. P. M. for 1/2 hours.

Reference point for above measurements Ground level

Type of pump Piston Distance to cylinder about 4'

Length of cylinder 12" x 3" Length of suction pipe below cylinder 8'

Length stroke 4" Speed 40 strokes per minute

Hours used per day About 1 Type of power Hand

Rating of motor None Rating of pump in G. P. M. 5 (Computed)

Can following be measured: (1) Static water level Yes, by removing pump.

(2) Pumping level No (3) Discharge Yes

(4) Influence on other wells None

Temperature of water 47F Air 50F Was water sample collected No

Date Effect of water on meters, hot water

coils, etc. Hard water. No taste or odor. Some deposit on kettle.

Date of Analysis Analysis No.

Typical Well Recorder J.W.Lancaster

2807-19399 12 Date March 5th/ 1934

#544

#20

P-83506

Typical Well

(543) 9

City Lawrenceville, Ill/ State St. County Lawrence NS

Section 6 Twp Lawrenceville Map Twp. T-3N Rge R-11W Lot #3, Block O T.T.Jones Valley View Addition.

Location (in feet from section corner) 100'E and 75'S of intersection State & 4th. Sts.

Owner L.M.Taylor, Lawrenceville, Ill. Authority Zab Akers, Tenant

Contractor L.M.Taylor Address Lawrenceville, Ill/

Date Dug 1912 Elev. above sea level top of well 431'

Depth 12'

Log 7' soil, 5' shale rock

Were drill cuttings saved No Where filed Not

Size hole 3' If reduced, where and how much Not reduced

Casing record Brick laid loose to rock.

Distance to water when not pumping About 12' Distance to water is Pumps off in about 12 hours.

after pumping at 3 G. P. M. for about 12 hours.

Reference point for above measurements Ground level

Type of pump Pitcher Distance to cylinder At top

Length of cylinder 8" x 2 1/2" Length of suction pipe below cylinder about 10'

Length stroke 4" Speed 40 strokes per minute

Hours used per day about 1/2 Type of power Hand

Rating of motor None Rating of pump in G. P. M. 3 (Computed)

Can following be measured: (1) Static water level Yes, by removing pump.

(2) Pumping level Yes. (3) Discharge Yes

(4) Influence on other wells None

Temperature of water 48F Air 46F Was water sample collected No

Date Effect of water on meters, hot water coils, etc. Hard water. No taste or odor. Leaves slight kettle deposit.

Date of Analysis Analysis No.

Recorder J.W.Lancaster

Date March 5th/ 1934

2807-10309 12

#543 #21 P-83511

Typical Dug Well (238)

City Lawrenceville, Ill/1712 S. 15th. St. County Lawrence

Section #1 Twp Lawrenceville Map Lot #3, Titus Addition or T-3 N, R-12 W

Location (in feet from section corner) 240'S and 87'E of intersection of 15th. & Ash St. going West. 1712 S. 15th. St.

Owner Oscar Broadstone, Authority Owner

Contractor Unknown Address Unknown

Date Dug Unknown (Many years ago) Elev. above sea level top of well About 440'

Depth 25'

Log Unknown

Were drill cuttings saved No Where filed Not filed.

Size hole 3' If reduced, where and how much Not reduced

Casing record Walled with brick, laid in morter

Distance to water when not pumping 19' Distance to water is Does not pump off

after pumping at 10 3.1 G. P. M. for 3 hours.

Reference point for above measurements Ground level

Type of pump Piston Distance to cylinder About 4'

Length of cylinder 12" x 3" Length of suction pipe below cylinder About 19'

Length stroke 8" Speed 40 strokes per minute

Hours used per day 1/2 Type of power Hand

Rating of motor None Rating of pump in G. P. M. 10(Computed)

Can following be measured: (1) Static water level Yes

(2) Pumping level Yes (3) Discharge Yes

(4) Influence on other wells None

Temperature of water 52 F Air 46F Was water sample collected No

Date Effect of water on meters, hot water

coils, etc. Soft. No taste or odor. Leaves very slight deposit.

Date of Analysis Analysis No.

Recorder J.W.Lancaster

2807-10390 12

Date February 2nd/ 1934

#538 #22 P-83566

City Lawrenceville, Ill. City County Lawrence
T-3N R-12W
Section #1 Twp. Lawrenceville 501 20th. St. Lot 14 Maxwell Addition
Location (in feet from section corner) 81'W and 30'S of the intersection of 20th. and Charles Sts.
Owner Sumner Building & Loan Assn., Sumner, Ill. Authority Recorder and J.E.Hockgeiger, Tenant.
Contractor Not known Address Not known
Date Dug Not known Elev. above sea level top of well About 460'
Depth 17 1/2'
Log Water in gravel and sand

Were drill cuttings saved No Where filed Not
Size hole 36" If reduced, where and how much Not
Casing record Bricked to bottom. Morter for top 3'. Loose below.
Distance to water when not pumping ~~8'~~ 4.4 Distance to water is
feet after pumping at Does not pump off 3 G. P. M. for 3 hours.
Reference point for above measurements Top of platform
Type of pump Pitcher Distance to cylinder At top
Length of cylinder 2 1/2" x 8" Length of suction pipe below cylinder 16 1/2' of 1 1/4"
Length stroke 4" Speed 40
Hours used per day 1/4 to 2 Type of power Hand
Rating of motor None Rating of pump in G. P. M. 4 (Computed)
Can following be measured: (1) Static water level Yes
(2) Pumping level Yes (3) Discharge Yes
(4) Influence on other wells None
Temperature of water 51 F Air 48 F Was water sample collected No
Date Effect of water on meters, hot water
coils, etc. Semi-soft. Some teakettle deposit. No taste or odor.
Date of Analysis Analysis No.
Typical Dug Well
Recorder S.P.Hull
2807-19399 12
Date February 2nd/ 1934

#540

P-83567

#57

Exhibit F

Hydraulic Conductivity from Slug Test Data
using Bouwer and Rice Method

Project: Croslow's Shell - MW-1 Date: 10/24/2006
Calc. By: JME Chk'd by:

Well Column Diameter (2rc):		2.0 inches		Depth to water tbl(ft):	5.47
Sand Pack Diameter (2rw):		8.0 inches		Depth of well bot (ft):	20.00
Screened Length (Le):		10.0 feet		Ref Depth: top of riser	96
Aquifer Thickness (H):		18.00 feet		Depth/Xducer:	Depth
Water ht above screen bot (Lw):		14.13 feet			
	Lw/rw:	42.4			
	Le/rw:	30.0	ln(Le/rw):	3.40	
Bouwer-Rice Factors:	A:	2.37		4th Order Polynomial	
	B:	2.21		approximations to curves in	
	C:	1.81		1989 paper	
ln(Re/rw):	H=Lw:				
	H>Lw:	1.808			
Hydr. Cond. (cm/s)	H=Lw:			best fit slope:	0.00401
	H>Lw:	7.6718E-05			

	TIME(sec)	D sub n	h sub n	ln(h sub n)	ln(hn/hn-1)	ln(h/h-1)/t	Estimated Slope
1	0	0	5.47	1.70			
2	5	0.7	4.77	1.56	-0.136932	-0.027386	-0.0273865
3	10	1.2	4.27	1.45	-0.110732	-0.022146	-0.0247665
4	15	1.7	3.77	1.33	-0.124539	-0.024908	-0.0245469
5	20	2.14	3.33	1.20	-0.124103	-0.024821	-0.0245577
6	25	2.62	2.85	1.05	-0.155653	-0.031131	-0.0254998
7	30	2.86	2.61	0.96	-0.087969	-0.017594	-0.0249892
8	35	3.08	2.39	0.87	-0.088057	-0.017611	-0.0241616
9	40	3.32	2.15	0.77	-0.105826	-0.021165	-0.0235756
10	45	3.58	1.89	0.64	-0.128891	-0.025778	-0.0233974
11	50	3.7	1.77	0.57	-0.065597	-0.013119	-0.0228331
12	55	3.86	1.61	0.48	-0.094745	-0.018949	-0.0223581
13	60	3.98	1.49	0.40	-0.077458	-0.015492	-0.0218447
14	70	4.18	1.29	0.25	-0.144134	-0.014413	-0.0210398
15	80	4.33	1.14	0.13	-0.123614	-0.012361	-0.0200722
16	90	4.48	0.99	-0.01	-0.141079	-0.014108	-0.0192155
17	100	4.59	0.88	-0.13	-0.117783	-0.011778	-0.0184054
18	110	4.64	0.83	-0.19	-0.058496	-0.00585	-0.0174821
19	120	4.71	0.76	-0.27	-0.088107	-0.008811	-0.0166487
20	130	4.76	0.71	-0.34	-0.068053	-0.006805	-0.0068053
21	140	4.8	0.67	-0.40	-0.057987	-0.005799	-0.006302
22	150	4.83	0.64	-0.45	-0.04581	-0.004581	-0.0057354
23	160	4.84	0.63	-0.46	-0.015748	-0.001575	-0.0047899
24	170	4.85	0.62	-0.48	-0.016	-0.0016	-0.0040641
25	180	4.87	0.60	-0.51	-0.03279	-0.003279	-0.0037208
26	190	4.89	0.58	-0.54	-0.033902	-0.00339	-0.0035502
27	200	4.91	0.56	-0.58	-0.035091	-0.003509	-0.0034678
28	210	4.92	0.55	-0.60	-0.018019	-0.001802	-0.003335
29	220	4.93	0.54	-0.62	-0.018349	-0.001835	-0.0031944

30	230	4.94	0.53	-0.63	-0.018692	-0.001869	-0.0030623
31	240	4.94	0.53	-0.63	0	0	-0.0028815
32	250	4.95	0.52	-0.65	-0.019048	-0.001905	-0.00274
33	260	4.96	0.51	-0.67	-0.019418	-0.001942	-0.002628
34	270	4.97	0.50	-0.69	-0.019803	-0.00198	-0.0025388
35	280	4.98	0.49	-0.71	-0.020203	-0.00202	-0.0024674
36	290	4.99	0.48	-0.73	-0.020619	-0.002062	-0.0024102
37	300	5	0.47	-0.76	-0.021053	-0.002105	-0.0023644
38	320	5.02	0.45	-0.80	-0.043485	-0.002174	-0.002323
39	340	5.03	0.44	-0.82	-0.022473	-0.001124	-0.0022583
40	360	5.05	0.42	-0.87	-0.04652	-0.002326	-0.0022137
41	380	5.06	0.41	-0.89	-0.024098	-0.001205	-0.0021584
42	400	5.08	0.39	-0.94	-0.05001	-0.002501	-0.0021266
43	420	5.09	0.38	-0.97	-0.025975	-0.001299	-0.0020884
44	440	5.01	0.46	-0.78	0.191055	0.009553	-0.0018624
45	460						
46	480						
47	500						
48	520						
49	540						
50	560						
51	580						
52	600						
53	660						
54	720						
55	780						
56	840						
57	900						
58	960						
59	1020						

ENVIRONMENTAL SCIENCE CORP.

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Bryan Williams
Applied Environmental Technologies,
PO Box 303
Carmi, IL 62821

October 30, 2006

ESC Sample # : L265957-41

Site ID :

Project # : CROSLOW SHELL

Date Received : October 20, 2006
Description : Croslows Shell

Sample ID : B-2 7.5 FT

Collected By : Bryan Williams
Collection Date : 10/17/06 09:52

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TOC (Total Organic Carbon)	3000	1.0	mg/kg	USDA LOI	10/26/06	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 10/30/06 08:46 Printed: 10/30/06 08:49

HOLCOMB FOUNDATION ENGINEERING CO., INC.

SOILS - BITUMINOUS - CONCRETE - INVESTIGATIONS AND TESTING

www.holcombengineering.com

SHIPPING ADDRESS
Box 393 Wood Road
Carbondale, IL 62901

MAILING ADDRESS
P.O. Box 68
Carbondale, IL 62903

618-529-5262
800-333-1740
FAX 618-457-8991

October 26, 2006

Applied Environmental Technologies
PO Box 303
Carmi, Illinois 62821

Attention: Mr. Bryan Williams

Re: Soil Testing
Dersch Energy
Croslow Station – Lawrenceville, Illinois
HFE File H-06259

Dear Sir:

Results of laboratory tests performed on a soil sample delivered to our laboratory on October 20, 2006, are as follows:

Boring:	B-2
Sample Depth:	6'
Moisture Content:	25.0%
Bulk Unit Weight:	130.4 pcf
Specific Gravity (Particle Density):	2.66

If you should have any questions, please feel free to contact us at your convenience.

Sincerely,

HOLCOMB FOUNDATION ENGINEERING CO.

Timothy J. Holcomb, P.E.

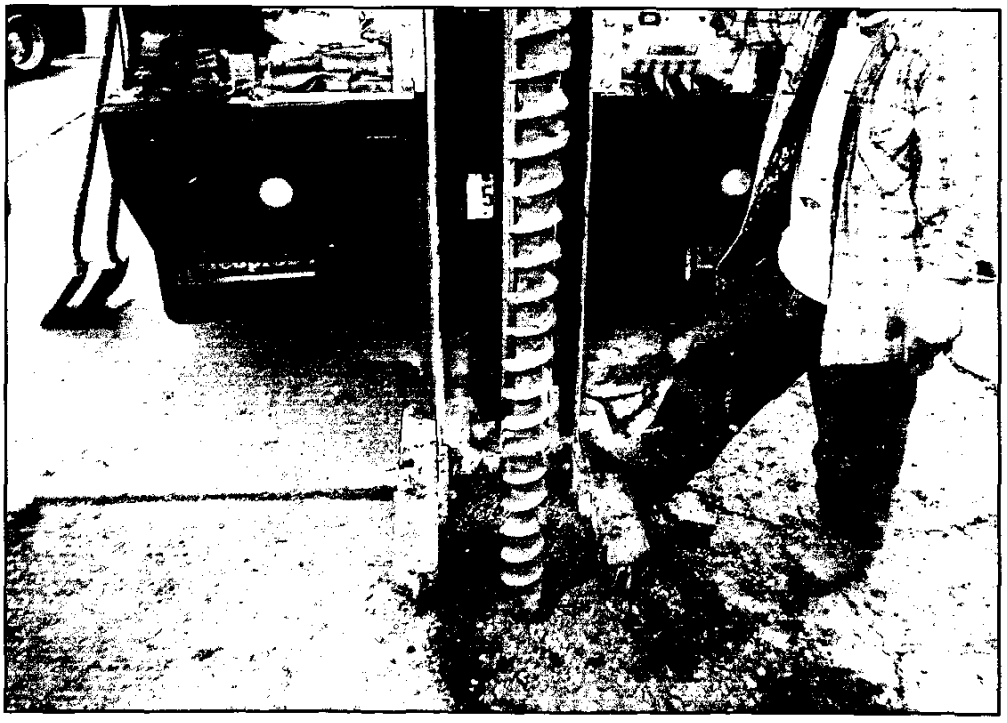
REGISTERED PROFESSIONAL ENGINEER
TIMOTHY J.
HOLCOMB
062-042149
10-26-06
ILLINOIS

Exhibit G

View of B-4 (MW-4) being performed on the south property line.

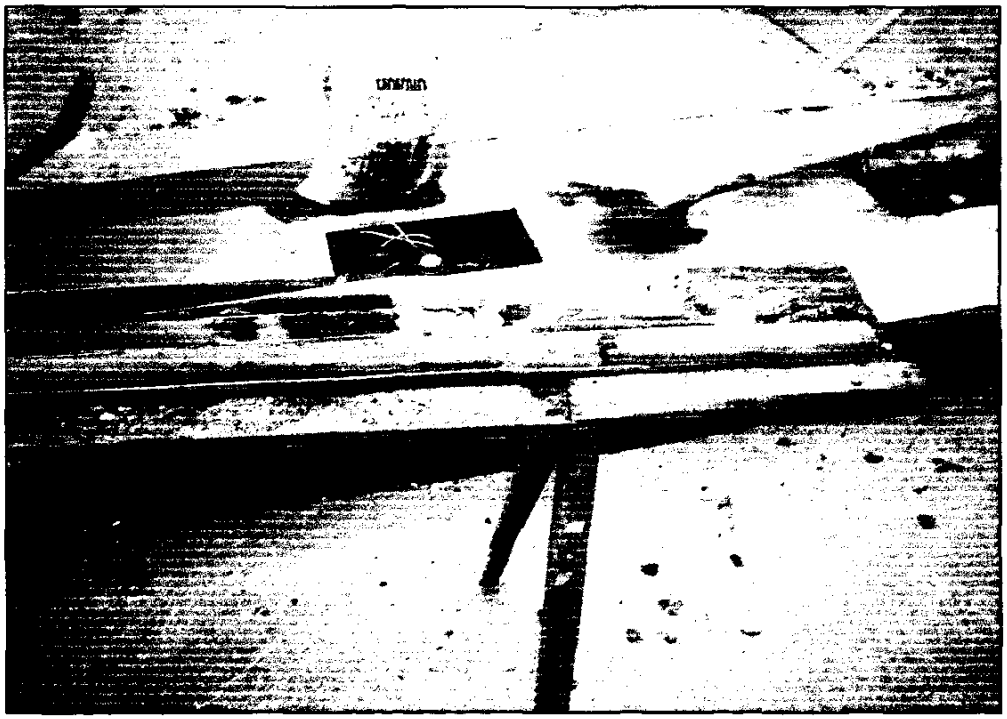
View of soil sample tubes from B-4. Note the distinct contamination contact line with the impermeable sandstone.

View of B-2 (MW-2) being performed, looking north.



View of contaminated drill cuttings from MW-2.

View of B-6 being performed on the west edge of the former tank pit.



View of the soil sample tubes from B-6. Note the distinct contamination contact line with the impermeable sandstone bottom.

Exhibit H

General Information for the Budget and Billing Forms

LPC#: 1010155024 County: Lawrence

City: Lawrenceville Site Name: Croslow's Shell

Site Address: 1421 Lexington Avenue

IEMA Incident No.: 20050374

IEMA Notification Date: 03/17/05

Date this form was prepared: 02/14/07

This form is being submitted as a (check one):

- ☐ Budget Proposal
- ☐ Budget Amendment (Budget amendments must include only the costs over the previous budget.)
- ☑ Billing Package

  Please provide the name(s) and date(s) of report(s) documenting the costs requested:

  Name(s): SIP - Phase 2/3

  Date(s): 02/14/07

This package is being submitted for the site activities indicated below (check one):

35 Ill. Adm. Code 734:

- ☐ Early Action
- ☐ Free Product Removal after Early Action
- ☑ Site Investigation: Stage 1: ☑ Stage 2 ☐ Stage 3: ☐
- ☐ Corrective Action

35 Ill. Adm. Code 732:

- ☐ Early Action
- ☐ Free Product Removal after Early Action
- ☐ Site Classification
- ☐ Low Priority Corrective Action
- ☐ High Priority Corrective Action

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35 Ill. Adm. Code 731:

- ☐ Site Investigation
- ☐ Corrective Action

General Information for the Budget and Billing Forms

If eligible for reimbursement, where should reimbursement checks be sent? Please note that only owners or operators of USTs may be eligible for reimbursement. Therefore, payment can only be made to an owner or operator. The Illinois EPA is not required to and will not recognize an assignment or other delegation of payment as justification for issuing payment to anyone other than the owner or operator. The following address will be used as the mailing address for reimbursement checks and any final determination letters regarding reimbursement.

Pay to the order of: Dersch Energies, Inc.

Send in care of: Mr. Tom Dersch, Vice President

Address: 620 Oak Street

City: Mt. Carmel State: IL Zip: 62863

The payee is the: Owner ☑ Operator ☑ (Check one or both.)

_____ If you have a change of address,
Signature of the owner or operator of the UST(s) (required) click here to print off a W-9 Form.

Number of petroleum USTs in Illinois presently owned or operated by the owner or operator; any subsidiary, parent or joint stock company of the owner or operator; and any company owned by any parent, subsidiary or joint stock company of the owner or operator:

Fewer than 101: ☑ 101 or more: ☐

Number of USTs at the site: 4 (Number of USTs includes USTs presently at the site and USTs that have been removed.)

Number of incidents reported to IEMA for this site: 1

Incident Numbers assigned to the site due to releases from USTs: 20050374 _____, _____,

_____, _____, _____

Please list all tanks that have ever been located at the site and tanks that are presently located at the site.

Product Stored in UST	Size (gallons)	Did UST have a release?	Incident No.	Type of Release Tank Leak / Overfill / Piping Leak
Gasoline	6,000	Yes ☑ No ☐	20050374	Piping Leak
Gasoline	6,000	Yes ☑ No ☐	20050374	Piping Leak
Gasoline	6,000	Yes ☑ No ☐	20050374	Piping Leak
Diesel	1,000	Yes ☑ No ☐	20050374	Piping Leak
		Yes ☐ No ☐		
		Yes ☐ No ☐		
		Yes ☐ No ☐		
		Yes ☐ No ☐		
		Yes ☐ No ☐		
		Yes ☐ No ☐		
		Yes ☐ No ☐		

Proposed Budget Summary and Budget Total

BUDGET SUMMARY PAGE

List the total dollar amount from each of the forms listed below as applicable. The total proposed budget will be automatically calculated.

1. Drilling and Monitoring Well Costs Form: $ 4,944.00

2. Analytical Costs Form: $ 2,870.00

3. Remediation and Disposal Costs Form: $ 800.00

4. UST Removal and Abandonment Costs Form: $ 0.00

5. Paving, Demolition, and Well Abandonment Costs Form: $ 1,000.00

6. Consulting Fees Form: $ 8,450.75

7. Handling Charges Form: Handling charges will be determined at the time a billing package is submitted to the Illinois EPA. The amount of allowable handling charges will be determined in accordance with the Handling Charges Form.

Total Proposed Budget (less handling charges): $ 18,064.75

Drilling and Monitoring Well Costs Form

1. **Drilling** – The "per-foot" charge for advancement of a boring or the installation of a well includes all costs associated with performing the boring. The "per-foot" rate charge includes but is not limited to all drilling labor, drill rig time, soil boring abandonment, mobilization, drill rig travel time and per diem, and other drilling expenses. An indication must be made as to why each boring is being conducted (i.e., defining the extent of contamination, classification boring, installation of monitoring wells, investigation of migration pathways, injection of a remediation compound) and the drilling type (either hollow-stem auger/conventional [HSA], push-driven technologies [PUSH], or Injection).

Number of Borings to Be Drilled	Type HSA / PUSH / Injection	Depth (feet) of Each Boring	Total Feet Drilled	Reason for Drilling
1	PUSH	20.00	20.00	Define the extent of contamination
1	PUSH	19.00	19.00	Define the extent of contamination
8	PUSH	18.00	144.00	Define the extent of contamination

Total feet via HSA: _____ feet x $_____ per foot = $_____

Total feet via PUSH: 183.00 feet x $ 18.00 per foot = $ 3,294.00

Total feet for injection via PUSH: _____ feet x $_____ per foot = $_____

Total Drilling Costs: $ 3,294.00 or Minimum Charge: $_____

2. **Monitoring / Recovery Wells** – The "per-foot" charge includes all costs associated with the installation of the monitoring or recovery well. The charge includes but is not limited to costs associated with labor, well casing, screens, filter pack, annular seal, surface seal, and well covers.

Number of Monitoring Wells	Type of Well HSA / PUSH / 4" – 6" Recovery / 8" Recovery	Diameter of Well (inches)	Depth of Well (feet)	Total Feet of Wells to Be Installed
5	HSA	2.0	20.00	100.00

Total feet of monitoring well installation via HSA: 100.00 feet x $ 16.50 per foot = $ 1,650.00

Total feet of monitoring well installation via PUSH: _____ feet x $_____ per foot = $_____

Total feet of 4" or 6" recovery well installation: _____ feet x $_____ per foot = $_____

Total feet of 8" or greater recovery well installation: _____ feet x $_____ per foot = $_____

Total Monitoring Well Costs: $ 1,650.00

Total Drilling and Monitoring Well Costs: $ 4,944.00

Analytical Costs Form

Laboratory Analysis – The laboratory analysis charge includes all costs associated with the transportation and/or delivery and analysis of each applicable sample. The charge includes but is not limited to costs associated with laboratory personnel, sample handling, transportation and/or delivery of samples to the laboratory, sampling equipment, sampling containers, sample disposal, and all aspects of the applicable laboratory analysis. Please enter the number of samples for each analysis and the actual cost per analysis up to the maximum cost per analysis.

Laboratory Analysis	Number of Samples		$ Rate per analysis		Total per parameter
Chemical					
BETX Soil with MTBE (EPA 8260)	40	x	$50.00	=	$ 2,000.00
BETX - Water with MTBE (EPA 8260)	5	x	$50.00	=	$ 250.00
COD (Chemical Oxygen Demand)		x		=	$
Corrosivity		x		=	$
Flash Point or Ignitability Analysis EPA 1010		x		=	$
FOC (Fraction Organic Carbon)		x		=	$
Fat, Oil, & Grease (FOG)		x		=	$
LUST Pollutants Soil - analysis must include volatile, base/neutral, polynuclear aromatics and metals list in Section 732 Appendix B and 734 Appendix B		x		=	$
Organic Carbon (ASTM-D 2974-87)	1	x	$20.00	=	$ 20.00
Dissolved Oxygen (DO)		x		=	$
Paint Filter (Free Liquids)		x		=	$
PCB / Pesticides (combination)		x		=	$
PCBs		x		=	$
Pesticides		x		=	$
pH		x		=	$
Phenol		x		=	$
Polynuclear Aromatics PNA, or PAH SOIL EPA 8270		x		=	$
Polynuclear Aromatics PNA, or PAH WATER EPA 8270	5	x	$100.00	=	$ 500.00
Reactivity		x		=	$
SVOC - Soil (Semi-Volatile Organic Compounds)		x		=	$
SVOC - Water (Semi-Volatile Organic Compounds)		x		=	$
TKN (Total Kjeldahl) "nitrogen"		x		=	$
TOC (Total Organic Carbon) EPA 9060A		x		=	$
TPH (Total Petroleum Hydrocarbons)		x		=	$
VOC (Volatile Organic Compound) - Soil (Non-Aqueous)		x		=	$
VOC (Volatile Organic Compound) - Water		x		=	$
Geo-Technical					
Bulk Density ASTM D4292 / D2937	1	x	$22.00	=	$ 22.00
Ex-situ Hydraulic Conductivity / Permeability		x		=	$
Moisture Content ASTM D2216-90 / D4643-87	1	x	$12.00	=	$ 12.00
Porosity		x		=	$
Rock Hydraulic Conductivity Ex-situ		x		=	$
Sieve / Particle Size Analysis ASTM D422-63 / D1140-54	1	x	$66.00	=	$ 66.00
Soil Classification ASTM D2488-90 / D2487-90		x		=	$

Analytical Costs Form

Metals					
Soil preparation fee for Metals Soil TCLP (one fee per soil sample)		x		=	$
Soil preparation fee for Metals Total Soil (one fee per soil sample)		x		=	$
Water preparation fee for Metals in Water (one fee per water sample)		x		=	$
Arsenic TCLP Soil		x		=	$
Arsenic Total Soil		x		=	$
Arsenic Water		x		=	$
Barium TCLP Soil		x		=	$
Barium Total Soil		x		=	$
Barium Water		x		=	$
Cadmium TCLP Soil		x		=	$
Cadmium Total Soil		x		=	$
Cadmium Water		x		=	$
Chromium TCLP Soil		x		=	$
Chromium Total Soil		x		=	$
Chromium Water		x		=	$
Cyanide TCLP Soil		x		=	$
Cyanide Total Soil		x		=	$
Cyanide Water		x		=	$
Iron TCLP Soil		x		=	$
Iron Total Soil		x		=	$
Iron Water		x		=	$
Lead TCLP Soil		x		=	$
Lead Total Soil		x		=	$
Lead Water		x		=	$
Mercury TCLP Soil		x		=	$
Mercury Total Soil		x		=	$
Mercury Water		x		=	$
Selenium TCLP Soil		x		=	$
Selenium Total Soil		x		=	$
Selenium Water		x		=	$
Silver TCLP Soil		x		=	$
Silver Total Soil		x		=	$
Silver Water		x		=	$
Metals TCLP Soil (a combination of all metals) RCRA		x		=	$
Metals Total Soil (a combination of all metals) RCRA		x		=	$
Metals Water (a combination of all metals) RCRA		x		=	$
Other					
Soil sampling equipment (e.g., EnCore™ Sampler)		x		=	$
Sample Shipping per sampling event[1]		x		=	$

[1]A sampling event, at a minimum, is all samples (soil and groundwater) collected in a calendar day.

Total Analytical Costs: $ 2,870.00

Remediation and Disposal Costs Form

A. Conventional Technology

Excavation, Transportation, and Disposal of contaminated soil and/or the 4-foot backfill material removal during early action activities:

The cubic yard rate includes all costs associated with the excavation, transportation, and disposal of contaminated soil and/or backfill material. The rate includes but is not limited to all personnel, equipment, materials, and other expenses for the excavation, transportation, and disposal of contaminated soil and/or backfill material. [1]

_____ cubic yards (x) $_____ per cubic yard (=) $_____

Backfilling the excavation:

The cubic yard rate includes all costs associated with the purchase, transportation, and placement of clean backfill material. The rate includes but is not limited to all personnel, equipment, materials, and other expenses for the purchase, transportation, and placement of clean backfill material. [1]

_____ cubic yards (x) $_____ per cubic yard (=) $_____

Overburden Removal and Return:

The cubic yard rate includes all costs associated with the excavation and placement of non-contaminated soil back into the excavation necessary to conduct corrective action. The rate includes but is not limited to all personnel, equipment, materials, and other expenses for the excavation and placement back into the excavation of non-contaminated soil. [1]

_____ cubic yards (x) $_____ per cubic yard (=) $_____

B. Alternative Technology

This section must be used for any remediation technology other than conventional technology. Alternative technology includes but is not limited to soil vapor extraction, land-farming, bio-piles, low-temperature thermal desorption, air sparging, bio-sparging, in-situ bioremediation, chemical oxidation, or dual-phase extraction. The information on the Remediation System Information document and a time and materials breakdown of all costs associated with all personnel, equipment, materials, operation and maintenance, consultant design time, additional personnel oversight time, and other expenses for the proposed remediation system must be submitted. Due to the variability of these systems, the Illinois EPA will review these proposals on a site-specific basis. The cost includes but is not limited to all personnel, equipment, materials, installation, operation and maintenance, system shut-down, and other expenses for the proposed remediation.[2,3]

Alternative technology selected: _____

_____cubic yards of soil remediated

Total Cost of the System (=) $_____

All materials, equipment, field purchases, and subcontractor costs must be listed on the Total Materials Cost Summary Sheet and Total Non-Consulting Personnel Time summary Sheet, and the totals from that form should be placed on the line above. All consultant time must be listed on the Consultant Fees Form.

Remediation and Disposal Costs Form

C. Groundwater Remediation and/or Free Product Removal System

This section must be used if a groundwater remediation and/or free product removal system is proposed in a corrective action plan. The information on the Remediation System Information document and a time and materials breakdown of all costs associated with all personnel, equipment, materials, operation and maintenance, and other expenses for the proposed system must be submitted. Due to the variability of these systems, the Illinois EPA will review these proposals on a site-specific basis.

Total Cost of the System (=) $_____

All materials, equipment, field purchases, and subcontractor costs must be listed on the Total Materials Cost Summary Sheet and Total Non-Consulting Personnel Time summary Sheet, and the totals from that form should be placed on the line above. All consultant time must be listed on the Consultant Fees Form.

D. Groundwater and/or Free Product Removal and Disposal

This section must be used if groundwater or free product is removed using a vacuum truck or other similar method. The charge includes but is not limited to all costs associated with the removal, transportation, and disposal of contaminated groundwater and/or free product

_____gallons (x) $_____ per gallon (=) $_____

E. Drum Disposal

This section must be used whenever a solid or liquid waste generated while performing soil borings, installing monitoring wells, hand bailing free product, or during an UST removal or other corrective action activities is disposed of in a 55-gallon drum. The charge includes all costs associated with drum disposal including but not limited to transportation charges and disposal fees.

Disposal of cuttings or solid waste: 2.0 drums (x) $ 250.00 per drum (=) $ 500.00

Disposal of Water: 2.0 drums (x) $ 150.00 per drum (=) $ 300.00

Total Drum Disposal Costs: $ 800.00

Total Remediation and Disposal Costs: $ 800.00

[1] Calculate Volume as follows: SOIL [(Length in feet x Width in feet x Depth in feet of contaminated soil) ÷ 27] x 1.05 bulking factor. This formula should be used for soil excavated, transported, and disposed. Overburden SOIL - [(Length in feet x Width in feet x Depth in feet of non-contaminated soil) ÷ 27]. This formula should be used for soil excavated and returned back into the excavation. A conversion factor of 1.5 tons/cubic yard will be used to convert invoices submitted in tons versus cubic yards.

[2] Calculate Volume as follows: SOIL [(Length in feet x Width in feet x Depth in feet of contaminated soil) ÷ 27]. This formula should be used for determining the amount of soil to be treated in-situ.

[3] Alternative technologies other that those identified in this section may be proposed; however, a time and materials breakdown of all costs associated with all personnel, equipment, materials, operation and maintenance, and other expenses for the proposed remediation must be submitted. The Illinois EPA will review these proposals on a site-specific basis.

UST Removal and Abandonment Costs Form

This section applies to UST removal, abandonment, and disposal activities. The rate includes but is not limited to all personnel, equipment, materials, and other expenses for the excavation, transportation, and disposal, or abandonment in place, of the UST(s).

Please list all tanks that have been removed from or abandoned at the site for which reimbursement is requested. The maximum amount for removal or abandonment is based on the size of the UST outlined in the Rate Sheet.

Product Stored in UST	Size (gallons)	Abandoned or Removed	$ Rate	Did UST have a release?
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐

Total UST Removal and Abandonment Costs: $_____

Paving, Demolition, and Well Abandonment Costs Form

A. Concrete and Asphalt Placement/Replacement

This section must be used for concrete and/or asphalt placement or replacement. The rate includes all costs associated with concrete and/or asphalt placement or replacement, including but not limited to all personnel, equipment, materials, and other expenses. Please note that the cost for the replacement of concrete or asphalt will not be reimbursed until after the issuance of the No Further Remediation Letter. In addition, documentation of the type, either asphalt or concrete, the thickness, and square feet of the asphalt or concrete being replaced must be provided in the accompanying plan/report.

Square feet	Asphalt or Concrete	Thickness (Inches)	Rate $	Replacement or Placement for an engineered barrier	Total $ Amount

Total Concrete and Asphalt Placement/Replacement Costs:	

B. Building Demolition and Canopy Removal

This section must be used if a building will be demolished or a canopy or other eligible above grade structure is to be removed in order for contaminated soil beneath it to be excavated. The rate includes but is not limited to all personnel, equipment, materials, and other expenses for the demolition and disposal of the building and/or dismantling and reassembly of above grade structures. Subcontractor cost estimates for the removal of a building, a canopy, or other eligible above grade structure must be submitted with all budgets.

Item to be removed	Rate $	Total $ Amount

Total Building Demolition and Canopy Removal Costs:	

Paving, Demolition, and Well Abandonment Costs Form

C. Well Abandonment

This section must be used for the abandonment of monitoring or recovery wells that are abandoned pursuant to regulations promulgated by the Illinois Department of Public Health at 77 Ill. Adm. Code 920.120. Please note that each monitoring well must be listed individually.

Monitoring Well ID #	Type of Well (HSA / PUSH / Recovery)	Depth of Well (feet)	Rate	Individual Well Abandonment Charge
MW-1	HSA	20.00	$10.00	$200.00
MW-2	HSA	20.00	$10.00	$200.00
MW-3	HSA	20.00	$10.00	$200.00
MW-4	HSA	20.00	$10.00	$200.00
MW-5	HSA	20.0	$10.00	$200.00

Total Monitoring Well Abandonment Costs:	1,000.00

Total Paving, Demolition, and Well Abandonment Costs: $1,000.00

Consulting Fees Form

The consulting fee includes all costs associated with professional consulting services. Personnel and materials not directly part of the professional consulting services or part of unit rates listed on the Rate Sheets must be listed in the Non-Consulting Personnel Time Summary Sheet and Materials Cost Summary Sheet. The consulting fee includes but is not limited to all personnel time for plan, budget, report, and reimbursement preparation, as well as project oversight, travel time and per diem, mileage or vehicle charges, and equipment charges such as for PIDs, hand augers, cameras, gloves, and sampling equipment.

This form must be completed in its entirety. Please follow the directions on the Consulting Fees Form document for each field on the Consulting Personnel Time Costs and Consultant's Materials Costs. Please note that a separate line for each employee performing tasks in each remediation category is required.

Multiple pages of the Consulting Personnel Time Costs and Consultant's Materials Costs forms must be used if additional space is needed. The total for all Consulting Personnel Time Costs and Consultant's Materials Costs must be entered below to calculate the Total Consulting Fees.

Total Consulting Personnel Time Costs: $ 8,235.00

Total Consultant's Materials Costs: $ 215.75

Total Consulting Fees: $ 8,450.75

Consulting Fees Form

Consulting Fees Form Instructions

Consulting Personnel Time Summary Sheet Instructions

a. EMPLOYEE NAME- List the name of the employee.

b. PERSONNEL TITLE – List the title of the employee. The employee title must be from the Personnel Titles and Requirements document. Personnel titles must be comparable to the task being performed.

c. HOURS – List the number of hours worked or proposed to be worked for that particular task.

d. RATE – List the hourly rate of the employee. The rate may not exceed the maximum hourly rate on the Personnel Titles and Requirements document.

e. TOTAL $ - Enter the total dollar amount requested for each task (HOURS X RATE).

f. REMEDIATION CATEGORY – Enter the appropriate remediation category abbreviation from the Remediation Categories List document that is applicable to each phase of corrective action that has or is proposed to be performed.

g. TASK – A personnel line item must be completed for each task conducted. The following are some examples of tasks: operation and maintenance, alternative technology oversight, or alternative technology remediation design. Additional information should be provided to supplement this information; for example, this information may include number of trips for operation and maintenance, number of hours for each trip, and how often trips are proposed.

h. TOTAL CONSULTING PERSONNEL TIME COSTS - Enter the total personnel costs (the sum of all tasks).

Consultant's Materials Costs Summary Sheet Instructions

a. MATERIALS, EQUIPMENT or FIELD PURCHASE - List all the materials, equipment, and field purchases used or proposed to be used that are not part of unit rates listed in the Rate Sheets.

b. TIME or AMOUNT USED – List, if applicable, the amount of time or the number of individual items used.

c. UNIT RATE – List the rate at which an item is charged and the unit, if applicable. The unit may be hourly, daily, weekly, monthly, yearly, etc. The unit and unit rate may also be based on an activity such as per foot, cubic yard, square foot, gallon, etc.

d. UNIT - List the units of the rate at which an item is charged, if applicable. The unit may be hourly, daily, weekly, monthly, yearly, etc. The unit and unit rate may also be based on an activity such as per foot, cubic yard, square foot, gallon, etc.

e. TOTAL COST/ITEM – List the total cost of the material, equipment, or field purchase.

f. REMEDIATION CATEGORY – Enter the appropriate remediation category abbreviation from the Remediation Categories List document that is applicable to each phase of corrective action that has or is proposed to be performed.

g. DESCRIPTION/JUSTIFICATION – Enter a description and/or justification.

h. TOTAL CONSULTANT'S MATERIALS COSTS - Enter the total costs of all materials, equipment, and field purchases.

Consulting Fees Form

Consulting Personnel Time Costs:

Employee Name	Personnel Title*	Hours	Rate*	Total $
Remediation Category	**Task**			
Bryan Williams	Senior Prof. Geologist	13.00	$75.00	$975.00
Stage 1-Field	Perform Stage 1 borings, screen and collect soil samples, install MW's.			
Jay Emery	Scientist III	13.00	$60.00	$780.00
Stage 1-Field	Assist with Stage 1 borings, sample screening and collection, install MW's			
Bryan Williams	Senior Prof. Geologist	8.00	$75.00	$600.00
Stage 1-Field	Survey, purge, and sample monitoring wells. Perform In-situ hydr. conductivity test.			
Jay Emery	Scientist III	8.00	$60.00	$480.00
Stage 1-Field	Assist with survey, purge, and sample monitoring wells. Assist In-situ hydr. cond. test.			
Jay Emery	Scientist III	2.00	$60.00	$120.00
Stage 1-Results	Prepare Bower and Rice Hydraulic Conductivity analysis			
Jay Emery	Scientist III	3.00	$60.00	$180.00
Stage 1-Field	Process and ship soil and groundwater samples.			
Bryan Williams	Senior Prof. Geologist	32.00	$75.00	$2,400.00
Stage 2/3-Plan	Prepare Site Investigation Phase 2/3 Work Plan and Budget.			
Jay Emery	Scientist III	41.00	$60.00	$2,460.00
Stage 1-Results	Prepare site maps, cross-sections, analytical tables, photos, boring logs, and mw diag.			

*Titles from the Personnel Titles and Requirements document must be used.

Total Consulting Personnel Time Costs: $ $7,995.00

Consulting Fees Form

Consulting Personnel Time Costs:

Employee Name	Personnel Title*	Hours	Rate*	Total $
Remediation Category	**Task**			
Christy Churchwell	Administrative Assistant IV	6.00	$40.00	$240.00
Stage 2/3-Plan	Copy, bind, and mail Site Investigation Stage 2/3 Plan and Budget			

*Titles from the Personnel Titles and Requirements document must be used.

Total Consulting Personnel Time Costs: $ $240.00

Consulting Fees Form

Consultant's Materials Costs:

Materials, Equipment, or Field Purchase	Time or Amount Used	Unit Rate	Units	Total Cost/Item
Remediation Category	**Description/Justification**			
Disposable Teflon Bailer	5.00	$4.95	each	$24.75
Stage 1-Field	Disposable bailers were utilized to collect water samples after purging monitoring wells.			
Vinyl tubing (1/2" I.D by 5/8" O.D.)	120.00	$0.30	per ft.	$36.00
Stage 1-Field	Vinyl tubing was connected to a low flow sub. pump to purge wells prior to sampling.			
Mileage	200.00	$0.40	mile	$80.00
Stage 1-Field	Mileage includes two trips to site (50 miles 1 way).			
Micro-FID	1.00	$75.00	1 day	$75.00
Stage 1-Field	FID for screening soil samples during SI Phase 1 *drilling*.			

Total Consultant's Materials Costs: $ $215.75

Owner/Operator and Licensed Professional Engineer/Geologist Budget Certification Form

I hereby certify that I intend to seek payment from the UST Fund for costs incurred while performing corrective action activities for Leaking UST incident 20050374. I further certify that the costs set forth in this budget are necessary activities and are reasonable and accurate to the best of my knowledge and belief. I also certify that the costs included in this budget are not for corrective action in excess of the minimum requirements of 415 ILCS 5/57, no costs are included in this budget that are not described in the corrective action plan, and no costs exceed Subpart H: Maximum Payment Amounts, Appendix D Sample Handling and Analysis amounts, and Appendix E Personnel Titles and Rates of 35 Ill. Adm. Code 732 or 734. I further certify that costs ineligible for payment from the Fund pursuant to 35 Ill. Adm. Code 732.606 or 734.630 are not included in the budget proposal or amendment. Such ineligible costs include but are not limited to:

- Costs associated with ineligible tanks.
- Costs associated with site restoration (e.g., pump islands, canopies).
- Costs associated with utility replacement (e.g., sewers, electrical, telephone, etc.).
- Costs incurred prior to IEMA notification.
- Costs associated with planned tank pulls.
- Legal fees or costs.
- Costs incurred prior to July 28, 1989.
- Costs associated with installation of new USTs or the repair of existing USTs.

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Owner/Operator: Dersch Energies, Inc.

Authorized Representative: Mr. Tom Dersch Title: Vice President

Signature: [signature] Date: 02-20-07

Subscribed and sworn to before me the 20th day of February, 2007.

Dorothy Dersch (Notary Public) Seal:

"OFFICIAL SEAL"
DOROTHY DERSCH
NOTARY PUBLIC STATE OF ILLINOIS
MY COMMISSION EXPIRES 9/30/10

In addition, I certify under penalty of law that all activities that are the subject of this plan, budget, or report were conducted under my supervision or were conducted under the supervision of another Licensed Professional Engineer or Licensed Professional Geologist and reviewed by me; that this plan, budget, or report and all attachments were prepared under my supervision; that, to the best of my knowledge and belief, the work described in the plan, budget, or report has been completed in accordance with the Environmental Protection Act [415 ILCS 5], 35 Ill. Adm. Code 732 or 734, and generally accepted standards and practices of my profession; and that the information presented is accurate and complete. I am aware there are significant penalties for submitting false statements or representations to the Illinois EPA, including but not limited to fines, imprisonment, or both as provided in Sections 44 and 57.17 of the Environmental Protection Act [415 ILCS 5/44 and 57.17].

L.P.E./L.P.G.: Mr. Bryan Williams L.P.E./L.P.G. Seal:

L.P.E./L.P.G. Signature: [signature] Date: 2/26/07

LICENSED PROFESSIONAL GEOLOGIST
BRYAN K. WILLIAMS
196-000566
ILLINOIS

Subscribed and sworn to before me the 26th day of February, 2007.

Christy Churchwell (Notary Public) Seal:

The Illinois EPA is authorized to require this information under 415 ILCS 5/1. Disclosure of this information is required. Failure to do so may result in the delay or denial of any budget or payment requested hereunder.

"OFFICIAL SEAL"
CHRISTY CHURCHWELL
Notary Public State of Illinois
My Commission Expires: 7/21/08

Site Investigation (Phase I) Budget Justification

This Site Investigation (Phase I) Budget Justification is included to explain the drilling and monitoring well installation expenses. A total of ten (10) borings were advanced with a Geoprobe brand sampler (PUSH driven technology) for the purpose of defining the horizontal and vertical extent of contamination. All soil samples were collected from the Geoprobe. The total footage drilled with the Geoprobe was 183 feet. The following costs are in the budget:

- 183 feet x $18.00 per foot = **$3,294.00**

A total of five (5) groundwater monitoring wells were installed on site during Phase I of the Site Investigation. The monitoring wells were installed to a depth of twenty (20) feet below ground level. After each soil boring, which was to be completed as a monitoring well, was completed with the Geoprobe, the wells were installed utilizing augers. It was necessary to drill out the borings with the 6" augers to allow ample space for the 2" well and filter pack. The total footage drilled utilizing the hollow stem augers was 100 feet (5 wells x 20' per well). Therefore, the costs in the budget for monitoring well installation are as follows:

- 100 feet x $16.50 per foot = **$1,650.00**

Total Drilling Cost =$4,944.00