Appendix E

FIELD NOTES FOR GEOTECHNICAL BORINGS AND CPT SOUNDINGS
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Blows/6&quot;</th>
<th>Recal. or (ROD%)</th>
<th>Description of Material</th>
<th>PP or TV (kbf)</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>Brown silty clayey sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.1</td>
<td>3.4</td>
<td></td>
<td>15&quot;</td>
<td>Brown silty clayey sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.2</td>
<td>2.3</td>
<td></td>
<td>14&quot;</td>
<td>Tan silty sand soft moist</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.3</td>
<td>2.9</td>
<td></td>
<td>12&quot;</td>
<td>Same</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.4</td>
<td>2.6</td>
<td></td>
<td>13&quot;</td>
<td>Tan fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.5</td>
<td>4.7</td>
<td></td>
<td>16&quot;</td>
<td>Tan clayey sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.6</td>
<td>1.1</td>
<td></td>
<td>18&quot;</td>
<td>Saturated tan clayey sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.7</td>
<td>3.7</td>
<td></td>
<td>17&quot;</td>
<td>Same</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.8</td>
<td>3.8</td>
<td></td>
<td>16&quot;</td>
<td>Grey coarse gravelly sand, w/ coal deposit</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Drilling Company: Midwest Est
Drilling Method: CFA/mud Roto
SPT Hammer: Safety Donut Auto, Other
Driller: Colin
Drill Rig: 850 17V
Logged by: 811 811
Backfilled with: cuttings/bentonite

Completion Depth: 91.5 ft
Depth to GW: During Drilling 19 ft
After Drilling 17 ft
After hours 9 ft
<table>
<thead>
<tr>
<th>DEPTH ft</th>
<th>SAMPLE</th>
<th>SPT Blows/ft</th>
<th>REC/LG. (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>34.9</td>
<td>68.0</td>
<td>17.11</td>
<td>Med-Coarse gravelly sand gravel to 1/2&quot;</td>
<td>-</td>
<td>-</td>
<td>&quot;In out of stiffer gravelly drilling 30'-40'&quot;</td>
</tr>
<tr>
<td>5</td>
<td>45.10</td>
<td>10.10</td>
<td>13.21</td>
<td>Coarse gravelly greensand traces of coal</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>0</td>
<td>55.11</td>
<td>13.21</td>
<td>12.21</td>
<td>Grey mud and trace gravelly&quot;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>55.12</td>
<td>9.12</td>
<td>7.11</td>
<td>Grey coarse sand with coal</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>50</td>
<td>55.13</td>
<td>12.08</td>
<td>14.21</td>
<td>Grey coarse gravelly sand gravel to 1/2&quot;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

45.5        Heavy gravelly drilling off/on
51 Very stiff rocky gravelly drilling added 250-300/6 down pressure
56-56.5 Very stiff layer
56.5 back to rocky gravelly drilling 250/6 down pressure
60.5-61.5 Very stiff rocky drilling limestone cuttings in mud return
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Blows/ft</th>
<th>REC/LOG or (RQD %)</th>
<th>Description of Material</th>
<th>PP or TV ksf</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>65</td>
<td>44-14</td>
<td>9.9 13&quot;</td>
<td>grey coarse gravelly sand, gravel to 3/8&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td>44-15</td>
<td>9.9 8&quot;</td>
<td>grey coarse gravelly sand, w/gravel and rock frag to 3/4&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>55/16</td>
<td>17.11 6&quot;</td>
<td>same w/rock frag to 1&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
<td></td>
<td>boring terminated at 91.5' after destroying teeth on Roto bit eating through rocky layers of material, rods were binding upward starting to bend</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>85</td>
<td></td>
<td></td>
<td>RODS Clogged up after 55-14, had to be pulled out &amp; flushed out 71'-73'/27-78 very stiff 80'-4-91/2' 400% down pressure very stiff weathered ROCKY drilling off from (5'4&quot;) from 80'-91/2' bottom 10' of hole redrilled after 55-15x55/16 due to rocky ledges then kept puller bit rods from advancing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPTH ft</td>
<td>SAMPLE</td>
<td>SPT Blows/5' or (ROD%)</td>
<td>DESCRIPTION OF MATERIAL</td>
<td>PP or TV ksf</td>
<td>γ₀</td>
<td>LL</td>
<td>PL</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>-----------------------</td>
<td>--------------------------</td>
<td>--------------</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>0</td>
<td>0-30'</td>
<td>Drilled w/ 4½&quot; HSA (7½&quot; OD) augers flushed w/revert mud rotary prior to piezometer installation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0'-2'</td>
<td>Concrete backfill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2'-17'</td>
<td>Bentonite chips backfill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17'-29'</td>
<td>Filter sand backfill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150 lbs (3 bags)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29'</td>
<td>Bottom of screen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32.2'</td>
<td>Total piezometer pipe + screen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION:** Medium (USCS), color, strength or density, plasticity, inclusions, moisture. EXAMPLE: Silty CLAY (CL), gray & tan molt., soft, low plastic, w/limon, 5%g, trace fine sand, moist.

**ROCK DESCRIPTION:** ROCK, color, modifiers, hardness, weathering, bedding, fractures, texture, inclusions. EXAMPLE: LIMESTONE, ft, gray, sandy, soft, mod. weathered, thin-beded, crystalline...

**Drilling Company:** Midwest Drilling

**Drilling Method:** 4½" S D HSA (7½" OD), mud rotary (concrete)

**Depth to GW:** 97 ft

**SPT Hammer:** Safety

**Driller:** Colin

**Logged by:** S. Pruitt

**Drilling Mud:** Revert

**Completion Depth:** 30 ft

**During Drilling:** 19 ft

**After Drilling:** 10 ft

**After hours:** 9 ft

**Datum:**

**Piez. CONST.**

<table>
<thead>
<tr>
<th>Screen, backfill, riser, etc.</th>
<th>3.3' above ground</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3' over piezometer</td>
<td></td>
</tr>
<tr>
<td>6' ground</td>
<td></td>
</tr>
</tbody>
</table>

**Job Title:** Ameren Labadie Power Plant UWL DST

**Location:** Franklin Co, MO

**Coord.: E**

**Elevation:**

**Date:** 3-14-07

**Sheet:** 1 of 1

**Piez. No.:** P-149

**REITZ & JENS, Inc.**

**CONSULTING ENGINEERS**
<table>
<thead>
<tr>
<th>DEPTH ft</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV test</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>35-1</td>
<td>3.56</td>
<td>18&quot;</td>
<td></td>
<td>brown mud-ropy clay</td>
<td>2.75</td>
<td>Q1, Silty, CL</td>
<td></td>
</tr>
<tr>
<td>35-2</td>
<td>3.2</td>
<td>17&quot;</td>
<td></td>
<td>grey silty sand</td>
<td>2.25</td>
<td>Q1, Silty, CL</td>
<td></td>
</tr>
<tr>
<td>35-3</td>
<td>3.4</td>
<td>18&quot;</td>
<td></td>
<td>tan fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-4</td>
<td>2.03</td>
<td>16&quot;</td>
<td></td>
<td>moist tan fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-5</td>
<td>6.7</td>
<td>18&quot;</td>
<td></td>
<td>saturated tan fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-6</td>
<td>7.5</td>
<td>14&quot;</td>
<td></td>
<td>saturated grey fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-7</td>
<td>3.5</td>
<td>18&quot;</td>
<td></td>
<td>saturated grey fine-mud</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-8</td>
<td>7.8</td>
<td>18&quot;</td>
<td></td>
<td>med-coarse gravelly sand</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Drilling Company: Midwest Drilling
Drilling Method: CFA
SPT Hammer: Safety
Driller: Colvin
Logged by: John H.
Backfilled with: cuttings/bentonite

Completion Depth: 30 ft
Depth to GW: 14 ft
After Drilling: _______ ft
After _______ hours

boring terminated at 30' in accordance with instruction
### Piezometer Log

**Site:** Job Title Airfield, Lagoon Power Plant Unit B5T

**Location:** E 14 Br. Co. County, Mo

**Elevation:**

**PIEZOMETER LOG**

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Description of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0-1.0</td>
<td>Drilled with HSA (7% o/d)</td>
</tr>
</tbody>
</table>

**Drilling Method:**
- 2" ID HSA Auger
- Drilling Company: Midwest Drilling
- Completion Depth: 31.6 ft

**Piezometer Details:**
- **Screen:** 0-2 ft, 18.4" of screen
- **Top of Screen:** 2-16 ft, 16" of concrete
- **Top of Metal:** 16.4-28 ft, 18" of concrete
- **Top of Protector:** 16.4-28 ft, 18" of concrete

**Revetment make-up used to flash auger pipe prior to piezometer installation.**

**Other:**
- Drilled by HSA (7% o/d)
- Revetment made to use 8" pipe to piezometer installation
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Blows/SQF</th>
<th>Rec. or RQD%</th>
<th>Description of Material</th>
<th>PP or TV (kaf)</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>55-1</td>
<td>234</td>
<td>14&quot;</td>
<td>Dark brown silt clay to 10&quot; tan silty sand, bottom 4&quot;</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>55-2</td>
<td>18</td>
<td>17&quot;</td>
<td>Tan silty sand to sand, becoming moist</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>55-3</td>
<td>14</td>
<td>18&quot;</td>
<td>Grey tan fine sand, becoming moist traces of limonite, silty fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>55-4</td>
<td>234</td>
<td>18&quot;</td>
<td>Grey saturated fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>55-5</td>
<td>243</td>
<td>15&quot;</td>
<td>Grey fine-medi fine sand saturated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>55-6</td>
<td>258</td>
<td>18&quot;</td>
<td>Same</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>55-7</td>
<td>258</td>
<td>18&quot;</td>
<td>Same</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>55-8</td>
<td>677</td>
<td>18&quot;</td>
<td>Same</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Drilling Company: Atlantic Drilling
Drilling Method: CFA
SPT Hammer: □Safety □Donut □Auto, Other
Driller: Colin
Drill Rig: 550 ATV
Logged by: True
Backfilled with: cuttings/bentonite
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Blows/Bfl</th>
<th>REC/LG or (RQD%)</th>
<th>Description of Material</th>
<th>PP or TV ksf</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>31½&quot; stiff rocky drilling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>32' started chewing through rock very slowly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td>32' 10&quot; auger refused in Rock</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td>boring terminated at 32' 10&quot; in rock</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>
**PIEZOMETER LOG**

**Job Title:** Ameren Laadie Power Plant w/ DSI

**Location:** FRANKLIN County, MO

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<table>
<thead>
<tr>
<th>DEPTH ft</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG. or (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>wv</th>
<th>LL</th>
<th>PL</th>
<th>Piez.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>0-20' drilled w/ 4&quot;OD, CFA then 20'-30' was revert mud rotary drilled to keep hole open</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION:** Modifiers CLAS (USCS). color, strength or density, plasticity, inclusions, moisture. EXAMPLE: Silty CLAY (CL), gray & tan moist, firm, low plastic, w/ limonite, & Ig, trace fine sand, mud. ROCK DESCRIPTION: ROCK, color, modifiers, hardness, weathering, bedding, fractures, texture, inclusions. EXAMPLE: LIMESTONE, t gray, sandy, soft, mod. weathered, thin-bededded, crystalline...

**Drilling Company:** Midwest Drilling

**Drilling Method:** 4" CFA mud Roto Tricone 137º'

**SPT Hammer:** □Safety □Donut □Auto. Other.

**Driller:** Colin License #

**Logged by:** J. Fluente

**Drilling Mud:** Revert

---

**Completion Depth:** 30 ft

**Depth to GW:**

<table>
<thead>
<tr>
<th>During Drilling</th>
<th>13.5 ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>After Drilling</td>
<td>______ ft</td>
</tr>
<tr>
<td>After hours</td>
<td>______ ft</td>
</tr>
<tr>
<td>After ______</td>
<td>______ ft</td>
</tr>
<tr>
<td>DEPTH ft</td>
<td>SAMPLE</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>5</td>
<td>55-1</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>55-2</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>55-3</td>
</tr>
<tr>
<td>15</td>
<td>55-4</td>
</tr>
<tr>
<td>20</td>
<td>55-5</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>55-6</td>
</tr>
<tr>
<td>25</td>
<td>55-7</td>
</tr>
</tbody>
</table>

REMARKS: hi water 18.5' at 25' boring terminated at 25' in sand per instructions

Completion Depth: 25 ft
Depth to GW: During Drilling 18.5 ft
After Drilling ft
After ___ hours ft
After ___ hours ft

Drilling Company: Midwest Drilling
Drilling Method: CFA
SPT Hammer: ☐ Safety ☐ Donut ☐ Auto. Other
Driller: Eolyn
Drill Rig: 550
Logged by: J. Creed
Backfilled with: cuttings/bentonite
<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG. (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV (ksc)</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>dark brown sandy silty clay</td>
<td>1.75</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>23</td>
<td>18</td>
<td>dark brown silt clay, limonite</td>
<td>2.0</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>24</td>
<td>14</td>
<td>med. HP dark brown clay, limonite, after sand seams</td>
<td>2.5</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>33</td>
<td>17</td>
<td>tan fine sand, moist to 2&quot; of sample</td>
<td>2.0</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>34</td>
<td>13</td>
<td>tan to grey fine sand</td>
<td>1.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>45</td>
<td>16</td>
<td>saturated grey fine sand</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>134</td>
<td>16</td>
<td>same</td>
<td>1.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td>114</td>
<td>18</td>
<td>boring terminated at 25' in sand per instructions</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Drilling Company: Midwest Drilling
Drilling Method: FEH
SPT Hammer: □Safety □Donut □Auto. Other
Driller: Colin
Drill Rig: 590 BTU
Logged by: J Pratt
Backfilled with: cuttings/bentonite

Completion Depth: 25' ft
Depth to GW: During Drilling: 16.5' ft
After Drilling: ______ ft
After ______ hours ______ ft
After ______ hours ______ ft
<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows (S)</th>
<th>REC/LOG or (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>55-1</td>
<td>233</td>
<td>11</td>
<td>brown silty clay</td>
<td>1.0</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>5-10</td>
<td>55-2</td>
<td>344</td>
<td>19</td>
<td>brown sandy silt</td>
<td>1.5</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>55-3</td>
<td>359</td>
<td>17</td>
<td>tan and grey fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>55-4</td>
<td>665</td>
<td>18</td>
<td>same</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>55-5</td>
<td>345</td>
<td>13</td>
<td>soft and moist grey fine sand</td>
<td></td>
<td></td>
<td>hi wat 16'</td>
</tr>
<tr>
<td>25</td>
<td>55-6</td>
<td>123</td>
<td>14</td>
<td>saturated grey fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Drilling Company:** Midwest Drilling

**Depth to GW:**
During Drilling: 16 ft
After Drilling: 20 ft

**Completion Depth:** 20 ft

**Drilling Method:** CFA

**SPT Hammer:** Safety

**Driller:** Calvin

**ATU:** 550

**Logged by:** Gruehl

**Backfilled with:** cuttings/bentonite
<table>
<thead>
<tr>
<th>DEPTH ft</th>
<th>SAMPLE</th>
<th>SPT Blows/&quot;</th>
<th>REC/LG. or (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LA.S TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>55-1</td>
<td>234</td>
<td>18&quot;</td>
<td>4&quot; tops of oil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4&quot; brown, med. HPlsttclay</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Roots</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>55-2</td>
<td>234</td>
<td>18&quot;</td>
<td>1&quot; grey, fp clay, ligt limo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>55-3</td>
<td>234</td>
<td>17&quot;</td>
<td>1&quot; grey, brown, HPlcay, ligt limo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>55-4</td>
<td>234</td>
<td>18&quot;</td>
<td>moist, grey, silty sand, to send</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>55-5</td>
<td>234</td>
<td>18&quot;</td>
<td>limonite, staining</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>55-6</td>
<td>234</td>
<td>18&quot;</td>
<td>saturated grey fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>55-7</td>
<td>234</td>
<td>18&quot;</td>
<td>same</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>grey coarse gravelly sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>w/rock frag to 1&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>boring terminated at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25' in coarse gravelly sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>per instructions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Drilling Company: Midwest Drilling
Drilling Method: CFA
SPT Hammer: □Safety □Donut □Auto. Other
Driller: Colin
Drill Rig: 550 ATU
Logged by: ??
Backfilled with: cuttings/bentonite

Completion Depth: 25' ft
Depth to GW: During Drilling: 14' ft
After Drilling: ______ ft
After ______ hours ______ ft
<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows/ft</th>
<th>REC.A.G. (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or LV</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td>CFA auger to 20', then switched to mud rotary drilling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>First sample taken at 28.5', where next sample of B-7 would have been taken</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>24</td>
<td>30 28.5'</td>
<td></td>
<td>grey coarse gravelly sand</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Drilling Company: Midwest Drilling
Drilling Method: CFA
SPT Hammer: □Safety □Donut □Auto. Other
Driller: Joliv
Drill Rig: 550BTV
Logged by: Joliv
Backfilled with: cuttings/bentonite

Completion Depth: 104.5' ft
Depth to GW: During Drilling
After Drilling

After ___ hours ___ ft
After ___ hours ___ ft
<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG. or (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>SS-1</td>
<td></td>
<td></td>
<td>grey fine sand/gravel 0.1&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>SS-2</td>
<td>17, 15, 22</td>
<td>14&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>SS-3</td>
<td>10</td>
<td>17, 24, 18&quot;</td>
<td>stiff fine - medium grey sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>SS-4</td>
<td>15, 23, 30</td>
<td>18&quot;</td>
<td>same</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>SS-5</td>
<td>14, 19, 16</td>
<td>16&quot;</td>
<td>grey medium fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>SS-6</td>
<td></td>
<td></td>
<td>grey coarse gravelly sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>SS-7</td>
<td>9, 13, 17</td>
<td>17&quot;</td>
<td>grey coarse gravelly sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>SS-8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS:
- hole clogged to 26' after 55' - mud was thickened
- tore at 65' continue hole
<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG or (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td></td>
<td></td>
<td>grey coarse gravelly sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td></td>
<td></td>
<td>grey gravel to 3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15</td>
<td></td>
<td></td>
<td>same</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td></td>
<td></td>
<td>grey coarse gravelly sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25</td>
<td></td>
<td></td>
<td>w/black coal frag to 1/4&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
<td></td>
<td></td>
<td>grey coarse gravelly sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>35</td>
<td></td>
<td></td>
<td>traces of coal</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks:
71.5'-72.5'
9 ft out of stiff rocky layers
<table>
<thead>
<tr>
<th>DEPTH ft</th>
<th>SAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>SPT Blows/6'</th>
<th>REC/LG or (RQD%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
</tr>
</thead>
<tbody>
<tr>
<td>103' Weathered Rock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-3 min per inch, 500#down pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>104' Chewing through</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-6 min per inch, 500#down pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>104.5' Auger refusal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Rock</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>103' Stiff Rock</td>
</tr>
<tr>
<td>DEPTH (ft)</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
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<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Drilling Company: Midwest Drilling
Drilling Method: CFA
SPT Hammer: □Safety □Donut □Auto. Other
Driller: Colin
Drill Rig: 550 ATU
Logged by: S. Prueff
Backfilled with: cuttings/ bentonite

Completion Depth: 20' ft
Depth to GW: During Drilling 17.5' ft
After Drilling __________ ft
After ______ hours ________ ft
After ______ hours ________ ft
<table>
<thead>
<tr>
<th>DEPTH ft</th>
<th>SAMPLE</th>
<th>SPT Blows/ft</th>
<th>REC/LG or (ROD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksl</th>
<th>LL %</th>
<th>DU, SW, PL, PD, UU, Other</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>55.1</td>
<td>2.2</td>
<td>12&quot;</td>
<td>brown silty fine sand + silt + gray fine sand + silt (clay in SNCR)</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>57.2</td>
<td>2.3</td>
<td>235</td>
<td>grey sandy silt + silt clay (moist)</td>
<td>75</td>
<td></td>
<td></td>
<td>hit water at 5' with rods</td>
</tr>
<tr>
<td>3</td>
<td>55.3</td>
<td>0.1</td>
<td>18&quot;</td>
<td>saturated grey silty fine sand + fine sand + silt + limo</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>55.4</td>
<td>1.3</td>
<td>16&quot;</td>
<td>sandy + clay + silt + limo (midspan)</td>
<td>5</td>
<td></td>
<td></td>
<td>switch to mud + roto after 55-4 mix mud + keep drilling</td>
</tr>
<tr>
<td>5</td>
<td>55.5</td>
<td>4.4</td>
<td>12&quot;</td>
<td>grey silty fine sand + fine sand</td>
<td>5</td>
<td></td>
<td></td>
<td>trace fine roots in mud return</td>
</tr>
<tr>
<td>6</td>
<td>55.6</td>
<td>3.6</td>
<td>14&quot;</td>
<td>grey fine-med fine sand</td>
<td>5</td>
<td></td>
<td></td>
<td>muddy organic, still in mud return</td>
</tr>
<tr>
<td>7</td>
<td>55.7</td>
<td>5.11</td>
<td>16&quot;</td>
<td>same + fine less + fine sand</td>
<td>5</td>
<td></td>
<td></td>
<td>coarse sand in mud return</td>
</tr>
<tr>
<td>8</td>
<td>55.8</td>
<td>4.7</td>
<td>16&quot;</td>
<td>grey coarse sand + gravel + 0%</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Drilling Company: Terra Drill
Drilling Method: HSH/mud roto
SPT Hammer: □Safety □Donut □Auto. Other
Driller: Wayne □ATV
Logged by: J. Pruett
Backfilled with: cuttings/bentonite

Completion Depth: 35 ft
Depth to GW: During Drilling 5 ft
After Drilling 15 ft
After ___ hours ___ ft
After ___ hours ___ ft
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Blows</th>
<th>REC/LG</th>
<th>Description of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>Grey fine-coarse sand and gravel to 1/4&quot;</td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td>Boring terminated at 35' in per instructions</td>
</tr>
</tbody>
</table>

Remarks:
- Coarse sand
- Fine gravel
- In cuttings
<table>
<thead>
<tr>
<th>DEPTH</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC. LG. or (ROD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP of TV ksl</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>ST-1</td>
<td>12</td>
<td>1/2&quot;</td>
<td>brown to grey brown silty clay + gravel sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>ST-2</td>
<td>12</td>
<td>1/2&quot;</td>
<td>grey saturated finesand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>ST-3</td>
<td>4</td>
<td>1/2&quot;</td>
<td>grey fine/silty finesand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>ST-4</td>
<td>15</td>
<td>1/2&quot;</td>
<td>grey silt/fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>S5-S</td>
<td>24</td>
<td>16&quot;</td>
<td>grey tan fine - med finesand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>S5-6</td>
<td>34</td>
<td>14&quot;</td>
<td>same w/ gravel + 10%&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>S5-7</td>
<td>34</td>
<td>16&quot;</td>
<td>grey fine - med finesand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>S5-8</td>
<td>35</td>
<td>16&quot;</td>
<td>grey med-coarse sand, gravel + 3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Drilling Company: Terra Drill
Drilling Method: HSG mud Roto
SPT Hammer: Safety
Driller: Wayne
Logged by: J. Pruett
Backfilled with: cuttings/bentonite

Completion Depth: 50 ft
Depth to GW: During Drilling: 6.5 ft

After Drilling: 40 hours 3.03 ft

After ___ hours ___ ft
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Blows/6&quot;</th>
<th>Rec/LG. or (RQD%)</th>
<th>Description of Material</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>Gravel/cobbles + 0.1&quot;</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td>Grey coarse sand</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td>Coarse sand gravel to ½&quot;</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td>Coarse gravelly sand</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td>Drilling terminated at 50</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**
- Coarse sand in mud return
- Coarse sand fine gravel (1/8"") in mud return
- Rig bouncing while drilling
- 40-43.5" gravel
- Stiffer drilling
- 40-43.5" gravel
- Rock frag to 3/4" in mud return
- 43.5" rig starting
- 45.5"-46.5" Downpressore limestone chips in mud return
- 48" rig bouncing stiffened up again
<table>
<thead>
<tr>
<th>DEPTH</th>
<th>SAMPLE</th>
<th>SPT Blows/&quot;</th>
<th>REC/LG or (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>DESCRIPTION OF MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>tan fine-med fmsand</td>
<td>tan fine-med fmsand</td>
<td>tan fine-med fmsand</td>
<td>tan fine-med fmsand</td>
</tr>
<tr>
<td>5</td>
<td>55-1</td>
<td>3.2</td>
<td>18&quot;</td>
<td>10 ft below sample</td>
<td>tan fine-med fmsand</td>
<td>tan fine-med fmsand</td>
<td>tan fine-med fmsand</td>
<td>tan fine-med fmsand</td>
</tr>
<tr>
<td>5</td>
<td>55-2</td>
<td>3.4</td>
<td>10&quot;</td>
<td>moist tan fmsand (top)</td>
<td>grey silty clay w/sand</td>
<td>grey silty clay w/sand</td>
<td>grey silty clay w/sand</td>
<td>grey silty clay w/sand</td>
</tr>
<tr>
<td>5</td>
<td>55-3</td>
<td>1.7</td>
<td>14&quot;</td>
<td>tan brown silty fmsand</td>
<td>very moist, saturated</td>
<td>very moist, saturated</td>
<td>very moist, saturated</td>
<td>very moist, saturated</td>
</tr>
<tr>
<td>10</td>
<td>55-4</td>
<td>0.3</td>
<td>12&quot;</td>
<td>same, bottom 2&quot; sand/silt</td>
<td>saturated</td>
<td>saturated</td>
<td>saturated</td>
<td>saturated</td>
</tr>
<tr>
<td>15</td>
<td>55-5</td>
<td>1.4</td>
<td>14½&quot;</td>
<td>tan &amp; grey fmsand/silt</td>
<td>tan &amp; grey fmsand/silt</td>
<td>tan &amp; grey fmsand/silt</td>
<td>tan &amp; grey fmsand/silt</td>
<td>tan &amp; grey fmsand/silt</td>
</tr>
<tr>
<td>20</td>
<td>55-6</td>
<td>6.7</td>
<td>14½&quot;</td>
<td>tan fine-med fmsand</td>
<td>tan fine-med fmsand</td>
<td>tan fine-med fmsand</td>
<td>tan fine-med fmsand</td>
<td>tan fine-med fmsand</td>
</tr>
<tr>
<td>25</td>
<td>55-7</td>
<td>3.5</td>
<td>14&quot;</td>
<td>tan to lt grey fmsand</td>
<td>tan to lt grey fmsand</td>
<td>tan to lt grey fmsand</td>
<td>tan to lt grey fmsand</td>
<td>tan to lt grey fmsand</td>
</tr>
<tr>
<td>30</td>
<td>55-8</td>
<td>7.4</td>
<td>16&quot;</td>
<td>tan lt grey med-coarse</td>
<td>tan lt grey med-coarse</td>
<td>tan lt grey med-coarse</td>
<td>tan lt grey med-coarse</td>
<td>tan lt grey med-coarse</td>
</tr>
</tbody>
</table>

**Remarks:**
- 13/4' hit water
- mixed mud
- switching mud
- hole collapsed
- hit was flushed out prior to continuing drilling

**Completion Depth:** 35 ft

**Depth to GW: During Drilling:** 13 ft

**After Drilling:** ________ ft

**After ________ hours:** ________ ft

**Backfilled with:** cuttings/bentonite
<table>
<thead>
<tr>
<th>DEPTH</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG. or (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>8&quot; coarse sand w/ gravel + 3/8&quot;</td>
</tr>
<tr>
<td>35</td>
<td>56-9</td>
<td>17</td>
<td>16%</td>
<td>to 8&quot; grey fine to medium sand, gravel + 3/8&quot;</td>
</tr>
</tbody>
</table>

**REMARKS**

- Boring terminated at 35' 1" med sand w/ gravel
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Blows</th>
<th>REC/LG. (RQD%)</th>
<th>Description of Material</th>
<th>PP or TV (kSf)</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>5T2</td>
<td>Rec 100</td>
<td>12/24</td>
<td>Brown &amp; grey silty sandclay</td>
<td>5</td>
<td></td>
<td>Hit water T°</td>
</tr>
<tr>
<td>5</td>
<td>5T3</td>
<td>0</td>
<td>16</td>
<td>Top 10&quot; grey sandy silty clay, bottom 2&quot; grey silty finesand</td>
<td>6.5</td>
<td></td>
<td>Switch to mud at 55-4'</td>
</tr>
<tr>
<td>10</td>
<td>5T4</td>
<td>2.5</td>
<td>17</td>
<td>Grey silty finesand/finesand</td>
<td>25</td>
<td></td>
<td>Mixed mud after 55-4'</td>
</tr>
<tr>
<td>15</td>
<td>5T5</td>
<td>6.5</td>
<td>16</td>
<td>Grey &amp; brown silty finesand</td>
<td>25</td>
<td></td>
<td>Continue drilling</td>
</tr>
<tr>
<td>20</td>
<td>5T6</td>
<td>3.8</td>
<td>14</td>
<td>Grey fine sand/silty finesand</td>
<td>25</td>
<td></td>
<td></td>
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<tr>
<td>25</td>
<td>5T7</td>
<td>1.06</td>
<td>18</td>
<td>Grey silty fine sand</td>
<td>25</td>
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<td></td>
</tr>
<tr>
<td>30</td>
<td>5T8</td>
<td>4.05</td>
<td>12</td>
<td>Grey + tan coarse sand, gravel to 1/4&quot; traced sand</td>
<td>25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Completion Depth: 45 ft
Depth to GW: During Drilling 10 ft
After Drilling ___ ft
After ____ hours ___ ft
<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG or (RQD %)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV (kbf)</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>Grey coarse sand, gravel to 1/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td>Grey coarse sand, n/gravel to 1/4&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td>Grey coarse gravelly sand, gravel + rockfrag + clays 6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td>Boring terminated at 45' in course gravelly sand +</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks:
- 2' blow in prior to 55'-9', hole flushed out before taking 55'-9'
- Rods clogged 5' blow in redrilled to sample depth flushed hole still clogged 8"- need to mix new mud in morning of after getting more water in morning 10-26-89, mixed new mud drilled to 55'-9' took sample hole stayed open Rig bouncing from 90'-43'.5'
<table>
<thead>
<tr>
<th>DEPTH ft</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG. or (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>55-1</td>
<td>13</td>
<td>17&quot;</td>
<td>brown silty clay w/roots</td>
<td>400</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>55-2</td>
<td>19</td>
<td>24&quot;</td>
<td>tan fine sand + fine</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>sandy silt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>55-3</td>
<td>13</td>
<td>17&quot;</td>
<td>tan fine sand + osily</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>55-4</td>
<td>18</td>
<td>18&quot;</td>
<td>tan fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>55-5</td>
<td>9.28</td>
<td>28&quot;</td>
<td>grey fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.5</td>
<td>55-6</td>
<td>13.4</td>
<td>16&quot;</td>
<td>grey coarse sand, gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>to 1/2&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>55-7</td>
<td>9.67</td>
<td>12&quot;</td>
<td>grey fine - med fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Drilling Company: Terra Drill
Drilling Method: HSH
SPT Hammer: □ safety □ Donut □ Auto. Other
Driller: Wayne
Drill Rig: ATV
Logged by: J. Pruett
Backfilled with: cuttings/bentonite

Completion Depth: 50 ft
Depth to GW: During Drilling 6 ft
After Drilling 6 ft
After 19 hours 3.6 ft
After hours ft
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Blows/6&quot;</th>
<th>RQD%</th>
<th>Description of Material</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>29.5</td>
<td>55-8</td>
<td>68</td>
<td>16&quot;</td>
<td>tan fine to medium sand</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37.5</td>
<td>64-9</td>
<td>69</td>
<td>18&quot;</td>
<td>grey fine - medium sand</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>55-10</td>
<td>10</td>
<td>18&quot;</td>
<td>grey med sand turning to grey coarser sand (bottom of spoon)</td>
<td></td>
</tr>
<tr>
<td>41.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43.5</td>
<td>55-11</td>
<td>11/3</td>
<td>1/8&quot;</td>
<td>grey clayey fine sand</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48.5</td>
<td>55-12</td>
<td>6/3</td>
<td>14&quot;</td>
<td>grey med-coarse sand, gravel to 1/8&quot;</td>
<td>boring terminated at 50' in med-coarse sand per instructions</td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**EXPLORATION LOG**

**REITZ & JENS, Inc.**
**CONSULTING ENGINEERS**

**Job Title:** Ameren Labudie  
**Location:** Franklin Cty, MO

<table>
<thead>
<tr>
<th>Depth ft</th>
<th>Sample</th>
<th>SPT Bows/6&quot;</th>
<th>Rec/LG or (RQD%)</th>
<th>Description of Material</th>
<th>PP of TV kis</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>55.1</td>
<td>12</td>
<td>144</td>
<td>brown silt, clay, roots</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>57.2</td>
<td>1/2&quot;</td>
<td></td>
<td>brown tan fine sand, silt, roots (bottom of tube)</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>55.3</td>
<td>0.0</td>
<td>18&quot;</td>
<td>tan fine, med fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>55.21</td>
<td>194</td>
<td>18&quot;</td>
<td>same</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>55.5</td>
<td>367</td>
<td>17&quot;</td>
<td>grey tan fine, med fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>55.6</td>
<td>581</td>
<td>18&quot;</td>
<td>grey fine, med fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>55.7</td>
<td>458</td>
<td>16&quot;</td>
<td>grey coarse sand, gravel + 1/4&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>55.8</td>
<td>587</td>
<td>17&quot;</td>
<td>grey fine, med fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Drilling Company:** Terra Drill  
**Drilling Method:** HSH/mud Roto  
**SPT Hammer:** Safety □ Donut □ Auto. Other  
**Driller:** Wayne  
**Logged by:** J. Pruett  
**Backfilled with:** Cuttings / Bentonite  

**Completion Depth:** 35 ft  
**Depth to GW: During Drilling:** 6.5 ft  
**After Drilling:** ft  
**After 21 hours:** 1.92 ft  
**After hours:** ft  

**Datum:**
<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/L.G. or (ROD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>55.9</td>
<td>5 1/3</td>
<td>14&quot;</td>
<td>grey fine-medium sand</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**

boring terminated at 35' in fine-medium sand per instructions
### Exploration Log

**REITZ & JENS, Inc.**  
**CONSULTING ENGINEERS**

**Job Title:** Ameren Labadie  
**Location:** Franklin Co, MO

**Coord.: E** | **N** | **Elevation** | **Datum**
--- | --- | --- | ---

#### Depth vs. Description

<table>
<thead>
<tr>
<th>Depth ft</th>
<th>Sample</th>
<th>SPT Blows</th>
<th>REC/LG (RCD%)</th>
<th>Description of Material</th>
<th>PP TV ksl</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>55-1</td>
<td>13&quot;</td>
<td></td>
<td>brown silty clay w/roots</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>55-2</td>
<td>27&quot;</td>
<td></td>
<td>brown silty clay w/saltine (bottom of tube)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>55-3</td>
<td>18&quot;</td>
<td></td>
<td>brown silty sand (moist)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>55-4</td>
<td>22&quot;</td>
<td></td>
<td>grey tan silty fine sand, turning to grey fine sand silt (bottom of spoon)</td>
<td>2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>55-5</td>
<td>14&quot;</td>
<td></td>
<td>grey sandy fine silt / silty fine sand</td>
<td>2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>55-6</td>
<td>12&quot;</td>
<td></td>
<td>grey silty fine sand</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>55-7</td>
<td>33&quot;</td>
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<td>grey silty fine sand</td>
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<td></td>
</tr>
<tr>
<td>25</td>
<td>55-8</td>
<td>435</td>
<td>14&quot;</td>
<td>grey fine-med fine sand</td>
<td></td>
<td></td>
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<td>30</td>
<td></td>
<td></td>
<td></td>
<td>grey fine-med fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Drilling Company:** Terra Drill  
**Drilling Method:** HSA  
**SPT Hammer:**  
- [ ] Safety  
- [ ] Donut  
- [ ] Auto. Other  
**Driller:** Wayne  
**Logged by:** J. Brown  
**Backfilled with:** cuttings/bentonite

**Completion Depth:** 35 ft  
**Depth to GW:** 25 ft  
**After Drilling:** 25 ft  
**After 25 hours:** 41.5 ft  
**After ____ hours:** ____ ft
<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>RECL.G. or (ROD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LL %</th>
<th>PL</th>
<th>Cu, Sieve, LI, Other</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>55-10</td>
<td>69.3</td>
<td>18&quot;</td>
<td>Grey fine/medium sand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Boring terminated at 35' in fine/medium sand per instructions</td>
</tr>
</tbody>
</table>

Note: The description and remarks are handwritten in the space provided for remarks.
<table>
<thead>
<tr>
<th>DEPTH</th>
<th>SAMPLE</th>
<th>SPT Blows/&quot;</th>
<th>REC/LG (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP QT TV 1000</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>brown silty clay w/rocks</td>
<td>.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>51-2</td>
<td>033</td>
<td>18/&quot;</td>
<td>grey fine moist sand</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>grey tan finesand</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>55-3</td>
<td>444</td>
<td>18&quot;</td>
<td>grey fine/silty finesand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>grey fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>55-5</td>
<td>357</td>
<td>16&quot;</td>
<td>grey fine-medi finesand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>55-6</td>
<td>828</td>
<td>16&quot;</td>
<td>grey fine-medi finesand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>grey fine-medi finesand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>55-7</td>
<td>124</td>
<td>15&quot;</td>
<td>grey fine-medi finesand,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>lignite</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>55-8</td>
<td>355</td>
<td>17&quot;</td>
<td>grey fine-medi finesand</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Drilling Company: Terra Drill
Drilling Method: HSP/mud, radio
SPT Hammer: □Safety □Donut □Auto. Other
Driller: Wayne Drill Rig □ ATV
Logged by: J. Prohet
Backfilled with: cuttings/bentonite
Completion Depth: 50 ft
Depth to GW: During Drilling: 5.5 ft
After Drilling: 4.27 ft
After 27 hours: 4.87 ft
<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG. OR (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>grey fine-medi-fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>35-9</td>
<td>78</td>
<td>18&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35.10</td>
<td>35-10</td>
<td>632</td>
<td>16&quot;</td>
<td>grey fine sand with 3&quot; wood seam</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td>grey med-coarse sand gravel to 3'</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>45-11</td>
<td>379</td>
<td>17&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>55-12</td>
<td>588</td>
<td>18&quot;</td>
<td>same gravel to 4&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

boring terminated at 50' in coarse sand per instructions

36.5' coarse sand in mud return stiffening drilling

42.5-43' stiff gravel

bit clogged up pulled rods cleaned bit and drill 48-5' total 75`-12`

hole collapsed 15' while cleaning bit removed rods re-drilled to sample depth
### EXPLORATION LOG

**Consulting Engineers**

**Job Title:** Ameren LaBardie  
**Location:** Franklin Co., MO  
**Elevation:**  
**Datum:**  

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Blows/&quot;</th>
<th>Rec/LG or (RCD%)</th>
<th>Description of Material</th>
<th>PP or TV ksf</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-1</td>
<td>1 1/4&quot;</td>
<td>brown silt clay, trace finesand</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td>hit water</td>
</tr>
<tr>
<td>5</td>
<td>2 1/11&quot;</td>
<td>brown silt clay, limonite</td>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
<td>4' of rods</td>
</tr>
<tr>
<td>6-4</td>
<td>21 1/24&quot;</td>
<td>saturated tan fine-mud (top of tube)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>switch to muddy/rotten mix mud after 55-4</td>
</tr>
<tr>
<td>10</td>
<td>6 0 1/4&quot;</td>
<td>top 6&quot; tan finesand bottom 12&quot; very silt fine sand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>2 1/4&quot;</td>
<td>grey fine-mud finesand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>3 4 7/13&quot;</td>
<td>same</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>wooding cuttings</td>
</tr>
<tr>
<td>25</td>
<td>8 6 8/18&quot;</td>
<td>grey finesand, gravel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-8</td>
<td>3 6 8/15&quot;</td>
<td>grey fine-med finesand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Drilling Company:** Terra Drill  
**Drilling Method:** HSP/mud Roto  
**SPT Hammer:** Safety Donut Auto. Other  
**Driller:** Wayne/John Drill Rig  
**Logged by:** J. Prueh  
**Backfilled with:** cuttings/bentonite

**Boring No.:** 6-58  
**Sheet:** 1 of 2  
**Date:** 11-6-09

**Completion Depth:** 35 ft  
**Depth to GW During Drilling:** 4 ft  
**After Drilling:** 8 ft  
**After 23 hours:** 1 ft  
**After ___ hours:** ___ ft
<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG or (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>grey med-coarse sand, rock fragment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>68.1</td>
<td>18&quot;</td>
<td></td>
<td>boring terminated at 35' in med-coarse sand per instructions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Exploration Log

**Consulting Engineers:**  REITZ & JEN'S, Inc.

**Job Title:** Ameren Labadie

**Location:** Franklin Cty, Mo

**Coord.:** E N Datum: Datum

**Boring No.:** 6-72

**Sheet:** 1 of 2

**Date:** 11-20-09

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Bows/6&quot;</th>
<th>Rec/LG. or (ROD%)</th>
<th>Description of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>Brown silty clay w/rocks</td>
</tr>
<tr>
<td>5</td>
<td>31-2</td>
<td>17/4&quot;</td>
<td>12/4&quot;</td>
<td>Saturated fine sand (bottom)</td>
</tr>
<tr>
<td>10</td>
<td>31-3</td>
<td>15&quot;</td>
<td>6/3&quot;</td>
<td>Tan silty fine sand, w/trace of clay bander 2&quot; from bottom of spoon</td>
</tr>
<tr>
<td>15</td>
<td>31-4</td>
<td>18&quot;</td>
<td>14&quot;</td>
<td>Grey silty fine sand, w/traces of clay band and bottom 2&quot;</td>
</tr>
<tr>
<td>20</td>
<td>31-5</td>
<td>15&quot;</td>
<td>7/67</td>
<td>Grey med-coarse sand, w/gravel to 3/8&quot;</td>
</tr>
<tr>
<td>25</td>
<td>31-7</td>
<td>11&quot;</td>
<td>3/4y</td>
<td>Grey med-coarse sand, w/gravel to 1/4&quot;</td>
</tr>
<tr>
<td>30</td>
<td>31-8</td>
<td>15&quot;</td>
<td>8/11</td>
<td>Top 6&quot; grey fine -m-fine sand (bottom) grey fine sand</td>
</tr>
</tbody>
</table>

**Remarks:**
- 5' hit water on rods
- Switch to mud below after 35-7' mixed
- Continue drilling

**Drilling Company:** Terra Drill

**Drilling Method:** HSA/mud Roto

**SPT Hammer:** □Safety □Donut □Auto. Other

**Driller:** Wayne

**Logged by:** J. Pruett

**Backfilled with:** cuttings/bentonite

**Completion Depth:** 35 ft

**Depth to GW During Drilling:** 5 ft

**After Drilling:** 45 ft

**Log:** 10 ft

**To pick:** 45 ft

**Coil Drill:**

**After hours:**

**After hours:**
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Blows/6&quot;</th>
<th>REC/L.G. or (RQD)</th>
<th>Description of Material</th>
<th>PP or TV ksf</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>19</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>17</td>
<td>17</td>
<td></td>
<td>top 12&quot; grey fine-med fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>bottom 5&quot; grey med. coarse sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>above 10 ft</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Boring terminated at 35 ft in med-coarse sand per instructions.
## Exploration Log

**REITZ & JENS, INC.**  
**CONSULTING ENGINEERS**

**Job Title:** Ameren Labadie  
**Location:** Franklin, MO

---

**DEPTH**  | **SAMPLE**  | **SPT Blows/6"**  | **REC/LEG.**  | **DESCRIPTION OF MATERIAL**  | **PP or TV**  | **LAB TESTS ASSIGNED**  | **REMARKS**  
--- | --- | --- | --- | --- | --- | --- | ---  
65.9  | 65-1  | 22  | 17"  | brown silica clay/roots  | 15  | 1.5  |  
57.2  | 65-2  | 12"  | 24"  | grey clay light loam, fine roots  | 1.0  |  
55.3  | 65-3  | 12  | 18"  | saturated tan silty fine sand  |  
55.4  | 65-4  | 2  | 18"  | Same  |  
55.7  | 65-5  | 2  | 18"  | tan fine-med fine sand  |  
55.6  | 65-6  | 2  | 18"  | tan grey fine-med sand  |  
55.7  | 65-7  | 15  | 18"  | grey fine sand  |  
55.8  | 65-8  | 14  | 18"  | Same  |  
55.9  | 65-9  | 67  | 18"  | grey med-coarse sand  |  

---

**Drilling Company:** Terra Drill  
**Drilling Method:** HSH/mud Roto  
**SPT Hammer:**  
**Driller:** Wayne  
**Logged by:** J. Powed  
**Backfilled with:** cuttings/bentonite  

---

**Completion Depth:** 95 ft  
**Depth to GW:** 6.5 ft  
**Samples:** 55  
**After Drilling:**  
**To prime:**  
**After____ hours:**  

---

**Remarks:**  
6.5 hit water on rods  
Switch to mud Roto after 55-4 mixed mud
<table>
<thead>
<tr>
<th>DEPTH ft</th>
<th>SAMPLE</th>
<th>SPT Blows/ft</th>
<th>REC/LG or (ROD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>3310</td>
<td>244</td>
<td>18&quot;</td>
<td>grey coarse sand, gravel to 1/2&quot;</td>
</tr>
<tr>
<td>35</td>
<td>33.11</td>
<td>236</td>
<td>12&quot;</td>
<td>grey coarse sand, gravel to 1&quot;</td>
</tr>
<tr>
<td>40</td>
<td>33.12</td>
<td>288</td>
<td>18&quot;</td>
<td>grey coarse sand, gravel to 1/8&quot;</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td>boring terminated at 45' in grey coarse sand per instructions</td>
</tr>
</tbody>
</table>

REMARKS:
- 41, 42, 43 1/2" layers of stiff gravel
- Rig bouncing

---

LAB TESTS ASSIGNED:
- PP or TV
- ksf
- w
- V_s
- LL
- PL
- Cu, Silt, LV, Other

---

REMARKS:
- Drill method, DWH, etc.
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Blows/6&quot;</th>
<th>REC/L.G. or (ROD%)</th>
<th>Description of Material</th>
<th>PF or TV ksf</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>SS-1</td>
<td>2</td>
<td></td>
<td>brown silty clay/roots</td>
<td>.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>brown silty clay w/ fine roots</td>
<td>1.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>ST-2</td>
<td></td>
<td></td>
<td>tan fine sand</td>
<td>1.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>SS-3</td>
<td>135</td>
<td>18&quot;</td>
<td>tan fine sand (moist) (free water in spoon)</td>
<td>1.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SS-4</td>
<td>365</td>
<td>18&quot;</td>
<td>tan fine-mixed sand</td>
<td>1.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>SS-5</td>
<td>222</td>
<td>18&quot;</td>
<td>same</td>
<td>1.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SS-6</td>
<td>555</td>
<td>18&quot;</td>
<td>tan &amp; grey mixed-fine-coarse sand</td>
<td>1.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SS-7</td>
<td>689</td>
<td>18&quot;</td>
<td>tan fine-mixed sand</td>
<td>1.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>SS-8</td>
<td>96</td>
<td>18&quot;</td>
<td>grey fine-mixed fine sand</td>
<td>1.95</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**
- Stop 11/11/09
- Run auger to 50' for casing
- Mixed & continue drilling
- Bentonite chips

**Drilling Company:** Terra Drill
**Drilling Method:** HSP/mud to
**SPT Hammer:** Safety
**Driller:** Wayne
**Logged by:** J. Pevet
**Backfilled with:** COE bentonite grout to 2'

**Completion Depth:** 107.7 ft
**Depth to GW:** During Drilling 5 ft
**After Drilling:** 12 ft
**After____ hours ______ ft**
**After____ hours ______ ft**
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Blows/6&quot;</th>
<th>Rec/LG or (ROD%)</th>
<th>Description of Material</th>
<th>PPG or TV ksf</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>54.9</td>
<td>4 3/6</td>
<td>8&quot;</td>
<td>Grey coarse sand w/gravel  to 5/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>55-10</td>
<td>7 4/6</td>
<td>10</td>
<td>Same gravel to 3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>55-11</td>
<td>4 6/9</td>
<td>14</td>
<td>Grey gravelly coarse sand, gravel/rock,rag 8&quot; to 3/8&quot;, trace fine sand (sieved spoon)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>55-12</td>
<td>3 9/12</td>
<td>18</td>
<td>Top 6&quot; grey medium-coarse sand next 4&quot; gravel to 3/8&quot;, bottom 8&quot; grey medium-coarse sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>55-13</td>
<td>5 8/17</td>
<td>17</td>
<td>Top 5&quot; gravel to 3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>55-14</td>
<td>5 7/5</td>
<td>15</td>
<td>Grey coarse sand w/gravel to 3/8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**
- Coarse sand & return
- 61'4" gravelly drilling
- Rig bouncing 37'8" - 37'0"medium-coarse sand in mud return
- 72.5' 3" layer stiff mud 50' over drilling

**Notes:**
- 50.5' 5/15' heavy gravel
- 51.5' very stiff drilling
- 12" 500 - 600' bit hole caved up 3' or
- Drill back to fine sandy drilling
- 55' rods clogged
- Cleared out bit hole caved to 3' or
- Dump mud advance augers to 50'
- Loading w/drilling mud
- Before each auger, hole open to 4'.
<table>
<thead>
<tr>
<th>Depth</th>
<th>Sample</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG or (RQD%)</th>
<th>Description of Material</th>
<th>PP or TV ksf</th>
<th>LAB Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td></td>
<td></td>
<td></td>
<td>Grey coarse sand, w/gravel to 3/8&quot; (Gravel mostly in top 4&quot;)</td>
<td></td>
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</tr>
<tr>
<td>70</td>
<td>53-15</td>
<td>26.10</td>
<td>17&quot;</td>
<td>Grey coarse silt, silt, sand, gravel</td>
<td></td>
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<tr>
<td>90</td>
<td>55-17</td>
<td>5.99</td>
<td>8&quot;</td>
<td>Grey coarse silt, silt, sand, gravel</td>
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<tr>
<td>100</td>
<td>55-18</td>
<td>8.19</td>
<td>11</td>
<td>Same</td>
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<tr>
<td>DEPTH ft</td>
<td>SAMPLE</td>
<td>SPT Blows/ft²</td>
<td>REC. G. or (RQD%)</td>
<td>DESCRIPTION OF MATERIAL</td>
<td>PP or TV ksf</td>
<td>LAB TESTS ASSIGNED</td>
<td>REMARKS</td>
</tr>
<tr>
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<td>105.2</td>
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<td>107.7</td>
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<td>110.5</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td>5519</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Remarks:**
- Pile 101 @ 24'
- 50' Hole to 60' Pile 6 Bay
- 60' - 90' Pile 6 Bay 6 Ralph 30 Gal Water
- Fill to 92" 3" Screws
- Pile 1 1/2 Bay Between Chips
**EXPLORATION LOG**

**REITZ & JENS, Inc.**
**CONSULTING ENGINEERS**

**Job Title:** Ameren Lubadie

**Location:** Franklin Co./Mo

**Coord.:**

**E**

**N**

**Datum:**

---

<table>
<thead>
<tr>
<th>DEPTH ft</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC./G. OR (ROD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>55.1</td>
<td>23</td>
<td>12</td>
<td>brown silty clay w/roots</td>
<td>1.5</td>
<td>1.95</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>55.2</td>
<td>16</td>
<td>22</td>
<td>brown silty clay w/roots</td>
<td>1.4</td>
<td>1.95</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>55.3</td>
<td>13</td>
<td>18</td>
<td>tan fine - med finesand (bottom)</td>
<td>1.4</td>
<td>1.95</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>55.4</td>
<td>22</td>
<td>18</td>
<td>tan fine - med finesand</td>
<td>1.4</td>
<td>1.95</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>55.5</td>
<td>23</td>
<td>18</td>
<td>tan fine sand /siltinite</td>
<td>1.4</td>
<td>1.95</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>55.6</td>
<td>54</td>
<td>16</td>
<td>tan fine sand /siltinite</td>
<td>1.4</td>
<td>1.95</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>55.7</td>
<td>35</td>
<td>17</td>
<td>top 6' grey silty finesand</td>
<td>1.4</td>
<td>1.95</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>55.8</td>
<td>47</td>
<td>12</td>
<td>grey gravelly coarse sand, gravel to ½&quot;</td>
<td>1.4</td>
<td>1.95</td>
<td></td>
</tr>
</tbody>
</table>

**Drilling Company:** Terra Drill

**Drilling Method:** HSH mudroto

**SPT Hammer:**
- Safety
- Donut
- Auto
- Other

**Driller:** Wayne

**Logged by:** Jrue

**Completion Depth:** 50 ft

**Depth to GW: During Drilling:** 6.5 ft

After Drilling: 

**After** hours ft

**After** hours ft

**Backfilled with:** cuttings/bentonite
<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows/ft</th>
<th>RQD of</th>
<th>DESCRIPTION OF MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>46.9</td>
<td>8.12</td>
<td>14</td>
<td>grey fine-medsand, 2&quot; seam lig/weathered coal</td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td>grey coarse sand w/1/4&quot; gravel in tip of spoon</td>
</tr>
<tr>
<td>40</td>
<td>45.10</td>
<td>3.5</td>
<td>2</td>
<td>grey med-coarse sand, gravel to 3/4&quot;</td>
</tr>
<tr>
<td>45</td>
<td>45.11</td>
<td>4.5</td>
<td>19</td>
<td>grey fine-medsand, gravel to 3/4&quot;</td>
</tr>
<tr>
<td>50</td>
<td>46.12</td>
<td>6.1</td>
<td>15</td>
<td>boring terminated at 50', in fine-med sand</td>
</tr>
</tbody>
</table>

**REMARKS**
- 47' heavy gravelly drilling
- In fine-med sand per instructions
<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LOG (ROD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV (ksf)</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>S1-1</td>
<td>14&quot;</td>
<td></td>
<td>brown silt clay w/roots</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
<td>tan fine sand w/roots</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.75</td>
<td></td>
<td></td>
<td></td>
<td>(bottom)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>S5-2</td>
<td>11&quot;</td>
<td>18&quot;</td>
<td>brown silt silt clay</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>top 3&quot; sandy silt clay</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.5</td>
<td></td>
<td></td>
<td></td>
<td>bottom 0.5&quot; brown silt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>S5-3</td>
<td>24&quot;</td>
<td>24&quot;</td>
<td>grey silt clay, light</td>
<td>6.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td>limo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>S5-4</td>
<td>0.02</td>
<td>18&quot;</td>
<td>brown, grey silt clay,</td>
<td>6.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td>limo</td>
<td>5.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td>trace fine sand</td>
<td>5.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>S5-5</td>
<td>23&quot;</td>
<td>23&quot;</td>
<td>grey fine sand</td>
<td>6.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td>bottom</td>
<td>5.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>S5-6</td>
<td>6&quot;</td>
<td>13&quot;</td>
<td>grey fine sand</td>
<td>6.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>S5-7</td>
<td>6.4</td>
<td>13&quot;</td>
<td>grey fine-med sand</td>
<td>6.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>S5-8</td>
<td>4.8</td>
<td>16&quot;</td>
<td>grey fine silt finesand</td>
<td>6.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Drilling Company: Terra Drill
Drilling Method: HSA/mud Roto
SPT Hammer: [ ]Safety [ ]Donut [ ]Auto. Other
Driller: Wayne
Drill Rig: 950 ATV
Logged by: J. Rueck
Backfilled with: cuttings/bentonite

Completion Depth: 45 ft
Depth to GW: During Drilling 7 ft
After Drilling 8 ft
After _ hours 8 ft
After _ hours 8 ft
<table>
<thead>
<tr>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
</tr>
<tr>
<td>35</td>
</tr>
<tr>
<td>40</td>
</tr>
<tr>
<td>45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample</th>
<th>SPT Blows/6&quot;</th>
<th>REC/L.G. or (RDG/%)</th>
<th>Description of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>55.9</td>
<td>35</td>
<td>13&quot;</td>
<td>Grey coarse sand, gravel to 3/8&quot;</td>
</tr>
<tr>
<td>55.10</td>
<td>35</td>
<td>15&quot;</td>
<td>Grey coarse sand, gravel to 3/4&quot;</td>
</tr>
<tr>
<td>55.11</td>
<td>68.24</td>
<td>12&quot;</td>
<td>Grey fine-coarse sand, gravel to 1&quot;</td>
</tr>
</tbody>
</table>

**REMARKS**
- 41-42' Stiff Drilling Rig bouncing
- Boring terminated at 45' Fine coarse sand per instructions.
### Exploration Log

**Job Title:** Ameren Labadie  
**Location:** Franklin Co., Mo.  
**Datum:**

<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG. (OR RQD)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>57.1</td>
<td></td>
<td></td>
<td>brown silty clay w/ roots</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>55.2</td>
<td>123</td>
<td>18&quot;</td>
<td>brown silty clay, limonite, cor rotted stubble</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>57-3</td>
<td>45</td>
<td>18&quot;</td>
<td>greybrown brown silty clay, light limo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>55-2</td>
<td>335</td>
<td>18&quot;</td>
<td>tan fine-med fine sand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>55-5</td>
<td>335</td>
<td>18&quot;</td>
<td>tan fine sand w/3&quot; grey fine sand (mid spoon)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>55-6</td>
<td>235</td>
<td>18&quot;</td>
<td>grey coarse sand w/ gravel to 3/8&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>55-8</td>
<td>351</td>
<td>18&quot;</td>
<td>grey coarse sand</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

- H1 + water 3' 5' on rods
- No recovery - pushed spoon for sample
- Switch to mud Roto after 57-3/55-3
- Mix mud continue drilling

**Drilling Company:** Terra Drill  
**Completion Depth:** 35 ft

**Depth to GW: During Drilling:** 35 ft

**Drill Rig:** 550 ATV  
**After Drilling:**

**Logger:** B. Prue  
**After hours:**

**Backfilled with:** cuttings/berm concrete

**Logging:**

- Water 3' 5' on rods
- No recovery - pushed spoon for sample
- Switch to mud Roto after 57-3/55-3
- Mix mud continue drilling

**Additional Notes:**

- Grey coarse sand w/ gravel to 3/8"
<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG or (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
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<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>55-9</td>
<td>95</td>
<td>15&quot;</td>
<td>grey medium-coarse sand gravel to 1/2&quot; (top 4&quot;)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Boring terminated at 35' in medium-coarse sand per instructions
- Hole caved in after 55'-8" and was redrilled flushed to top 55-9
<table>
<thead>
<tr>
<th>DEPTH ft</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/AG. OR (ROD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP OF TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>S1-2</td>
<td>18¾'</td>
<td>tan (moist) silty fine sand</td>
<td>tan fine sand</td>
<td>1.0</td>
<td></td>
<td>5.5' hit water on rods</td>
</tr>
<tr>
<td>5</td>
<td>S1-3</td>
<td>2¾'</td>
<td>saturated tan silty fine sand</td>
<td>tan fine sand</td>
<td>.75</td>
<td></td>
<td>switch to mud rotor after 55-3</td>
</tr>
<tr>
<td>10</td>
<td>S5-4</td>
<td>2¾'</td>
<td>tan fine sand</td>
<td>tan fine sand</td>
<td>.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>S5-5</td>
<td>5½'</td>
<td>tan fine-med fine sand</td>
<td>tan fine-med sand</td>
<td>.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>S5-6</td>
<td>3½'</td>
<td>tan fine-med fine sand</td>
<td>tan fine-med sand</td>
<td>.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>S5-7</td>
<td>6½'</td>
<td>grey fine-med sand</td>
<td>grey fine-med sand</td>
<td>.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>S5-8</td>
<td>4½'</td>
<td>grey fine sand w/gravel</td>
<td>grey fine sand</td>
<td>.75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Drilling Company:** Teff Drilling  
**Drilling Method:** HSA  
**SPT Hammer:** Safety  
**Driller:** Wayne  
**Rig:** T550 ATV  
**Logged by:**  
**Backfilled with:** Laktans bentonite  

**Completion Depth:** 35 ft  
**Depth to GW During Drilling:** 5.5' ft  
**After Drilling:** 
- After _____ hours _____ ft  
- After _____ hours _____ ft
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Blows/5&quot;</th>
<th>Rec/Lg. or (ROD%)</th>
<th>Description of Material</th>
<th>PP or TV kaf</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>55.9</td>
<td>45.8</td>
<td>10&quot;</td>
<td>grey fine-med sand w/gravel to 1/4&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

boring terminated at 35' in fine-med sand per instructions
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample</th>
<th>SPT Blows/6&quot;</th>
<th>Rec/Lg. or (RQD)%</th>
<th>Description of Material</th>
<th>PP or TV (kcal)</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S51</td>
<td>23</td>
<td>18&quot;</td>
<td>brown to grey, brown, silty clay, roots</td>
<td>2.5</td>
<td></td>
<td>hit water 5.5' on tube</td>
</tr>
<tr>
<td>5</td>
<td>S5-2</td>
<td>13&quot;</td>
<td></td>
<td>tan clay, grey, silty sand (saturated) bottom of tube</td>
<td></td>
<td></td>
<td>switch to mud, roto after S7-4 mix mud, continue drilling</td>
</tr>
<tr>
<td>10</td>
<td>S7-4</td>
<td>19&quot;</td>
<td></td>
<td>saturated tan finesand (freewater in tube)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>S8-5</td>
<td>35-7</td>
<td>18&quot;</td>
<td>tan fine-med finesand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>S8-6</td>
<td>8-15</td>
<td>18&quot;</td>
<td>grey fine-med finesand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>S5-7</td>
<td>7-12-14</td>
<td>18&quot;</td>
<td>grey coarse sands/ gravel to 3/4&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

Completion Depth: 45' ft
Depth to GW: During Drilling 5.5' ft
After Drilling 17' ft
After 14 hours 12 ft
Backfilled with:
<table>
<thead>
<tr>
<th>DEPTH ft</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC. L.G. or (RQD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>grey coarse sand w/gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td>grey coarse sand, gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td>grey coarse sand w/gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td>grey coarse sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55.9</td>
<td>341</td>
<td></td>
<td></td>
<td>grey coarse sand w/gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55.10</td>
<td>435</td>
<td></td>
<td></td>
<td>grey coarse sand w/gravel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55.16</td>
<td>589</td>
<td></td>
<td></td>
<td>grey coarse sand</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

boring terminated in grey coarse sand at 45' PER INSTRUCTIONS

* hole caved 10' after 65'-10'
* flushed w/mud, continued drilling
* replaced catcher in spoon, after 55'-9", cold one
  * bored
* rods bit clogged after 55'-10'
  * cleaned, flushed rods
  * bbl hole caved to 90', switch back to HSA
  * Rogers to case hole to 35'
  * switchback to mud rotor to keep hole open for sampling + drilling
  * mix new mud, switch back to mud rotor after casing
  * hole to 35' w/HSA's
  * hole stayed open to 35' after setting HSA's
  * bit jammed when drilling past 35', was pulled, cleaned, before continuing to drill
<table>
<thead>
<tr>
<th>DEPTH ft</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG. OR (ROD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>55.1</td>
<td>023</td>
<td>18º</td>
<td></td>
<td>brown siltic clay w/roots</td>
<td>2.5</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>55.2</td>
<td>19º</td>
<td></td>
<td></td>
<td>grey tansy fine sand</td>
<td>5.7R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55.3</td>
<td>18º</td>
<td></td>
<td></td>
<td>saturated tansy fine sand</td>
<td>7º</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55.4</td>
<td>18º</td>
<td></td>
<td></td>
<td>tan fine-med fine sand</td>
<td>4.1º</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55.5</td>
<td>18º</td>
<td></td>
<td></td>
<td>tan sily fine sand</td>
<td>4.1º</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55.6</td>
<td>18º</td>
<td></td>
<td></td>
<td>grey fine-med sand</td>
<td>4.1º</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55.7</td>
<td>18º</td>
<td></td>
<td></td>
<td>grey fine-coarse sand, w/gravel to 1/2&quot;</td>
<td>4.1º</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55.8</td>
<td>18º</td>
<td></td>
<td></td>
<td>grey coarse sand, gravel to 3/4&quot;</td>
<td>4.1º</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Drilling Company:** Terra Drill  
**Drilling Method:** HSH (mud)  
**SPT Hammer:** □Safety □Donut □Auto □Other  
**Driller:** Wayne  
**Logged by:** J. Pruett  
**Backfilled with:** cuttings/bentonite  

Completion Depth: **40'** ft  
Depth to GW During Drilling **6.5'** ft  
**55' samples** After Drilling **30'** ft  
**After hours**  
**After** hours **ft**
<table>
<thead>
<tr>
<th>DEPTH (ft)</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC./LG. or (ROD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>65.9</td>
<td>355</td>
<td>15&quot;</td>
<td></td>
<td>grey coarse sand, gravel</td>
<td>0' 1/2&quot;</td>
<td></td>
<td>hole not sampling</td>
</tr>
<tr>
<td>65.10</td>
<td>367</td>
<td>8&quot;</td>
<td></td>
<td>grey coarse sand, gravel</td>
<td>40 1/4&quot;</td>
<td></td>
<td>thicker mud</td>
</tr>
<tr>
<td>63.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>669 missing</td>
</tr>
</tbody>
</table>

Boring terminated at 40'.

In course sand per instructions.
**EXPLORATION LOG**

**CONSULTING ENGINEERS**

Job Title: Am Lobadie  
Location: Franklin MO

**Coord.:** E

**Elevation:**

**Datum:**

**Boring No.:** B-176  
**Sheet:** 1 of 2  
**Date:** 1-19-2010

<table>
<thead>
<tr>
<th>DEPTH ft</th>
<th>SAMPLE</th>
<th>SPT Bends/ft</th>
<th>REC/LG. (RCD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV (psi)</th>
<th>LAB TESTS ASSIGNED</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>55-1</td>
<td>2 3/8</td>
<td>16''</td>
<td>grey med-H clay limo</td>
<td>6.5</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>55-2</td>
<td>3 1/8</td>
<td>17''</td>
<td>grey silt clay</td>
<td>6.0</td>
<td>N</td>
</tr>
<tr>
<td>10</td>
<td>55-3</td>
<td>15 1/26''</td>
<td></td>
<td>grey med-H clay (moist)</td>
<td>6.1</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>55-4</td>
<td>0 1/2</td>
<td>17''</td>
<td>grey med-H clay, w/grey clay</td>
<td>6.5</td>
<td>N</td>
</tr>
<tr>
<td>15</td>
<td>55-5</td>
<td>15 1/26''</td>
<td></td>
<td>grey fine-med finesand</td>
<td>6.0</td>
<td>N</td>
</tr>
<tr>
<td>20</td>
<td>55-6</td>
<td>7 6/7</td>
<td>14''</td>
<td>grey fine-med finesand</td>
<td>6.0</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>55-7</td>
<td>6 1/2</td>
<td>16''</td>
<td>grey</td>
<td>6.0</td>
<td>N</td>
</tr>
<tr>
<td>25</td>
<td>55-8</td>
<td>6 1/8</td>
<td>18''</td>
<td>grey w/2'' organic seam</td>
<td>6.0</td>
<td>N</td>
</tr>
</tbody>
</table>

**REMARKS**

- High water in 1'' or 3' blowers, while mixing mud getting water
- Change inside of tube 55-5
- Switch to mud rotor at 13.5 after 55-4

**Drilling Company:** Terra Drill  
**Drilling Method:** HSB/mud Roto  
**SPT Hammer:** Donut

**Driller:** John  
**Drill Rig:** 550 ATV  
**Logged by:** J.P. Seitz

Completion Depth: 50 ft  
Depth to GW: During Drilling: 11' ft  
After Drilling: ________ ft  
After ______ hours: ________ ft  
After ______ hours: ________ ft

Backfilled with cuttings/bentonite
<table>
<thead>
<tr>
<th>Depth</th>
<th>Sample</th>
<th>SPT Blows/ft</th>
<th>REG/LG. or (RQD%)</th>
<th>Description of Material</th>
<th>PP or TV ksf</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>grey, fine-med. sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td>organic seam (bottom of spoon)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-9</td>
<td>338</td>
<td></td>
<td></td>
<td>grey, coarse gravelly sand, gravel to 3/4&quot; lignite nodules</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-10</td>
<td>535</td>
<td></td>
<td></td>
<td>blue-grey clay, trace fine sand, 1.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-11</td>
<td>435</td>
<td></td>
<td></td>
<td>grey fine-med. fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-12</td>
<td>781</td>
<td></td>
<td></td>
<td>boring terminated at 50' in fine-med. fine sand per instructions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**
- 36'-37' Rough drilling
- 3/8-1/4" gravel in my return 38.5' white flushing hole prior to 55-10 spoon of 10" shell 7" pulled spoon twice & used bit to flush hole before taking 55-10
- 55-11 8' blow in while pulling bit & placing spoon, pulled spoon 8' pulled bit & of flush hole
- Clay sandy clay at 35' white flushing hole prior to attempting spoon
- 47.5' out of clay layer
<table>
<thead>
<tr>
<th>Depth</th>
<th>Sample</th>
<th>SPT Blows/&quot;</th>
<th>Rec. Leg or RQD%</th>
<th>Description of Material</th>
<th>PP tv ksf</th>
<th>Lab Tests Assigned</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>ST-1</td>
<td>24/4</td>
<td>80</td>
<td>Grey brown med. HP clay, trace fine roots, topy</td>
<td>1.5</td>
<td>0.5</td>
<td>ST-2 soft push, hit water, 5' after ST-2</td>
</tr>
<tr>
<td></td>
<td>ST-2</td>
<td>34/7</td>
<td></td>
<td>Top 6&quot; grey brown sandy clay</td>
<td>1.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>ST-5</td>
<td>23/24</td>
<td>127</td>
<td>Grey + grey sandy clay (moist)</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>ST-6</td>
<td>0/6</td>
<td>12</td>
<td>Grey slightly clayey sand, (saturated)</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>ST-7</td>
<td>34/12</td>
<td>12</td>
<td>Grey fine medium sand, trace clayey sand</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>ST-8</td>
<td>33/9</td>
<td>14</td>
<td>Grey fine medium sand</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>ST-9</td>
<td>33/9</td>
<td>11</td>
<td>Grey medium coarse sand</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Completion Depth: 60' ft
Depth to GW: During Drilling: 5' ft
After Drilling: ______ ft
After ____ hours ______ ft

Drilling Company: Terra drill
Drilling Method: HSR/mud Roto
SPT Hammer: □ Safety □ Donut □ Auto. Other
Driller: John
Drill Rig: S50 ATV
Logged by: ______
Backfilled with: cuttings/bentonite
<table>
<thead>
<tr>
<th>DEPTH ft</th>
<th>SAMPLE</th>
<th>SPT Blows/ft</th>
<th>REC./LG. or (RQD %)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td>15</td>
<td>8'</td>
<td>grey med-coarse sand,</td>
<td></td>
<td></td>
<td>rods clogged after 55-10, pull, flush rods, continue drilling</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+ trace gravel to 3' 8&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>55-11</td>
<td>a4y</td>
<td>14'</td>
<td>grey fine-med fine sand</td>
<td></td>
<td></td>
<td>attempted</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>same</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>55-12</td>
<td>23 3/4</td>
<td>16'</td>
<td>grey coarse gravel/3/4&quot; gravel in bottom</td>
<td></td>
<td></td>
<td>39' coarse sand/ fine gravel in mud return</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>22</td>
<td>10'</td>
<td>grey coarse gravel/3/4&quot; gravel in bottom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>55-13</td>
<td>22</td>
<td>10'</td>
<td>grey fine-med fine sand</td>
<td></td>
<td></td>
<td>5/8 bit clogged, pull rods, cleanout bit</td>
</tr>
<tr>
<td>60</td>
<td>55-14</td>
<td>379</td>
<td>14'</td>
<td>grey fine-med fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Boring terminated at 60' in fine-med fine sand per instructions.
<table>
<thead>
<tr>
<th>DEPTH</th>
<th>SAMPLE</th>
<th>SPT Bows/6&quot;</th>
<th>REC.A.G. (ROD%)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>55-1</td>
<td>11</td>
<td>17&quot;</td>
<td>grey brown mud, clay, trace fine roots</td>
<td>1.0</td>
<td>Yd, Vd, LL, Pl, Qu, Shev, UU, Others</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>57-2</td>
<td>10&quot;</td>
<td>1/20&quot;</td>
<td>tan grey silty fine sand limo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>57-3</td>
<td>0.4</td>
<td>18&quot;</td>
<td>grey brown clay to sandy clay</td>
<td>0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>57-4</td>
<td>20&quot;</td>
<td>1/40&quot;</td>
<td>grey fine saturated sand (free water in tube)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>57-5</td>
<td>36</td>
<td>18&quot;</td>
<td>saturated grey fine to fine - med fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>57-6</td>
<td>38</td>
<td>16&quot;</td>
<td>grey fine - med fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>57-7</td>
<td>34</td>
<td>17&quot;</td>
<td>grey med sand w/trace fine - coarse sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>57-8</td>
<td>36</td>
<td>15&quot;</td>
<td>grey fine - med fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Drilling Company: **Terra Drill**
Drilling Method: HSA/ mud Roto
SPT Hammer: □ Safety □ Donut □ Auto. Other
Driller: John
Drill Rig: SS0 PTV
Logged by: JsRehef
Backfilled with: cuttings, berms and fill

Completion Depth: 35 ft
Depth to GW: During Drilling 10 ft
After Drilling 10 ft
After ___ hours ___ ft
After ___ hours ___ ft
<table>
<thead>
<tr>
<th>DEPTH</th>
<th>SAMPLE</th>
<th>SPT Blows/6&quot;</th>
<th>REC/LG. (RQD %)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>PP or TV ksf</th>
<th>LAB TESTS ASSIGNED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>grey med-coarse sand, trace fine sand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>56.9</td>
<td>56.9</td>
<td>10'</td>
<td>boring terminated at 35' in med-coarse sand per instructions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**

coarse sand
in mud

when flushing
bore at 35'

arresting

56.9
CPT Boring Record

Client: Amerigo
Job Name: Laverniz
Job #: Amerigo - CPTER
Date: 10/28/07
CPT #: 841 4274
Test #: C-11
File Name: LabData C-11

Project Folder:

Arrival Time: 9:40
Departure Time: 10:45
Logger: Catt / Kik
Driller: John (Tech DAY)

Zero Data
Pat: 12000
12.264 12.289

Start Time:
Q: 12:52
U: 12:52
FS: 12.55

End Time:
AQ: 81
AU: -42
AFS: -136

Drilling Notes
Exp: 600
Depth: 35'

Conf: 92.74

Standing @ 4'

Buried 7' from ground AT:

Comp.: 3.46
Tec.: 3.46 + 5.12 = 34.78

• PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Ameren
Job Name: Crafton

Job#: CPT# 4274 Test#: A C-13

Date: 10/28/09 File Name: Crafton C-13

Project Folder: Crafton CPT Data (Desktop)

Arrival Time: 8:00 AM Departure Time: 9:30

Logger: CWC/IK Driller: John Gates

Zero Data
Start Time: 8:35 Q: 12570 U: 12264 FS: 12409

End Time: 9:15 ΔQ: 0.22 ΔU: 10 ΔFS: C97

Drilling Notes

Confirmation Boring for B-13 Target Depth: 501' CONE: 4274

AT ~ 42' Tilt Angle Maxed out @ 25°/in

Terminated at ~ 41.8' due to high load and tilt angle

☑ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amerson  
Job Name: Labadie Wall

Job#:  
Date 10-23-09

CPT#:  
Test#: C-16

File Name: Labadie C-16

Project Folder:  

Arrival Time: 2:45  
Departure Time: 4:20

Logger: K. Korw  
Driller: John Gates

Zero Data  
Start Time: 3:37  
U: 12 238  
End Time: 4:08  
ΔQ: -5°  
ΔU: 7  
ΔFS: 7°

Drilling Notes

Jason Study had to go help 2/1hr
Termination @ 35'  
Done for Day

☑ PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
Client: American URF
Job Name: LAB0912 C-18

CPT Boring Record

Job #: Date: 10/28/09
CPT#: 4274 Test #: C-18

File Name: LAB0912 C-18

Project Folder:

Arrival Time: 11:10 Departure Time: 12:15
Logger: Driller: [name]

Zero Data

Page: 12600 1224 12289
Start Time: 11:30 Q: 12.44 U: 12.25 FS: 12.23 C
End Time: 12:00 AQ: -61 AU: C3 ΔFS: -36

Drilling Notes

Exp. Dray: 1:35

Core: 4274

Boring Offset ~12°N due to water pooling

Probe 7-9m down at 353°A as planned

12:25 - 1:15 Lunch Break

PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
PROBE HOLE (~2" Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: A
Job #: 63
CPT #: 623 4274
Test #: C-23
File Name: 623-4274 C-23

Date: 10/28/09

Arrival Time: 2:35
Departure Time: 5:35
Logger: Cerv
Driller: John

Zero Data

Start Time: 2:55 Q: 12571 U: 12257 FS: 12842
End Time: 3:30 AQ: 41 AU: -76 AFS: -510

Drilling Notes

Expected Depth: 35' 25' 4274

Buried 4' below at 35'; as expected

Marked off next hour

Fished for. Pay after review

PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Andrew V. 
Job Name: CASAD18 UWL
Job#: 
Date: 10/28/07
CPT# 4274 Test # C-25
File Name: CASAD18 C-25
Project Folder: 

Arrival Time: 1:20 Departure Time 2:33
Logger: C.K Driller: (Tapca Drill)

Zero Data
PRO: 12644 12784 12784
Start Time: 1:40 Q: 1259 U: 12263 FS: 12198
End Time: 2:10 ΔQ: 75 ΔU: 3 ΔFS: 40

Drilling Notes

Expected Depth: 35'

Core: 4274

Due to water, probe offset from stage 16', West

First: 1st data taken, off 1st stage

Boring terminated at

CMOVAH: 34.4'
Actual: 34.4 + 1.0 = 35.4'

☐ PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Americin
Job Name: Labodis UWL

Job#: Date 10-23-09
CPT# 4274 Test # C-28
File Name: Labodis C-28

Project Folder:
Arrival Time: 11:13 Departure Time 11:15
Logger: K. Cook Driller: John Gates

Zero Data
Start Time: 12:22  Q: 12.64 U: 12.219 FS: 12.55
End Time: 12:55 ΔQ: 43 ΔU: 1 ΔFS: 290

Drilling Notes
Fed lunch from 11:45 to 12:15
Terminated @ 35'

☑ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AMIRIL UG

Job Name: CABADIG C-30

Job#: 80-30 4274

CPT#: 80-30 4274

Test #: C-30

File Name: CABADIG C-30

Project Folder:

Arrival Time: 6/28/01 3:55

Departure Time: 8:35

Logger: CAVU

Driller: JOHIO (Tamba OEC)

Zero Data

Perm. 6/29/01 12:08

Q: 12.547

U: 120.744

FS: 129.75

Start Time: 7:45

End Time: 8:05

ΔQ: 35

ΔU: -29

ΔFS: 11

Drilling Notes

TARGET D 6:71 - 35

GOOD 4274

Boring terminated at 35.3'

☑ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AmecWash ~ Job Name: Collodi Cave
Job#: 832 ~ Date: 11/4/09
CPT# 4274 ~ Test #: C-32
File Name: LACROSSE C-32
Project Folder: 11-4-09
Arrival Time: 7:15 ~ Departure Time: 
Logger: (w) ~ Driller: John (Topper Dickey)
Zero Data
Start Time: 8:10 ~ Q: 12731/12.18 ~ U: 12285/447.3 ~ FS: 12086/122.9
End Time: ~ AQ: ~ AU: ~ AFS: 
Drilling Notes

ARRIVED ON SITE AT 7:00

1-FUELED UP RIG AND MOVED FROM C-92

TARGET DEPTH: 35' ~ 4/2
COVE: 8274 11/14

Climb 1 MPA
FS 11 KPA
Test Failed A 2.5'
Changin friction reduced rupture C-32A

☑ PROBE HOLE (~2'Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
**CPT Boring Record**

Client: Ankeny UT  
Job Name: CAPROAR 105

Job#:  
Date: 11/4/09

CPT# C-32A  
Test #: C-32A

File Name: LABNote C-32A

Project Folder: 11/4/09

Arrival Time: 8:15  
Departure Time: 9:50

Logger: CW  
Driller: John G(3pm - 5pm)

**Zero Data**

Start Time: 9:05  
Q: 1276/12,18  
U: 12294/14675  
FS: 12198/12215

End Time: 9:35  
AQ: -51  
Q: 0  
U: 156/5.6  
FS: 83/0.8

**Drilling Notes**

Taper: Diameter: 35'  
Convo: 427y

Q min: 0.3MM  
FS min: 15 kPa

Q reset: N/A  
Weight C-32

Probe removed at 55.5' as planned.

☐ PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
## CPT Boring Record

<table>
<thead>
<tr>
<th>Client: A</th>
<th>Job Name: L</th>
<th>Job#:</th>
<th>Date: 10/21/09</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPT#: C-34</td>
<td>Test #: C-34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>File Name: L</td>
<td>Project Folder:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrival Time: 06:50</td>
<td>Departure Time: 10:30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logger: C</td>
<td>Driller: JOHN (Terra Probe)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>End Time: 10:10 AQ: 64</td>
<td>ΔU: -7 ΔFS: -8.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Drilling Notes

- Target Depth: 35'
- Core: 4274
- No Holes!
- Sample for ISW - for Pump Test.

- 2# TRM, Fenneman for dry.

☑️ PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Anderson
Job Name: Labrador UWL
Job#: 
Date: 10-22-09
CPT#: 4274
Test #: CPT-37
File Name: Labrador C-37
Project Folder: 
Arrival Time: 
Departure Time: 
Logger: K. Koch
Driller: John

Zero Data
Start Time: Q: 12335 U: 12270 FS: 12750
End Time: ΔQ: 146 / 0.0118 ΔU: 35 / 0.00285 ΔFS: 298 / 0.023

Drilling Notes
Refusal @ ≈ 40.5'

1 MPa = 10 tons/ft²

✓ PROBE HOLE (~2”Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client:  *Amoco*  
Job Name:  *Labardie UW*  
Job #:  
Date:  *10-23-09*  
CPT #:  *CST 4294*  
Test #:  *C-39*  
File Name:  *Labardie C-39*  
Project Folder:  
Arrival Time:  *8:10*  
Departure Time:  *9:40*  
Logger:  *K. Kacher*  
Driller:  *John Gates*  

Zero Data
Start Time:  *8:44*  
Q:  *12577*  
U:  *12222*  
FS:  *12156*  
End Time:  *9:10*  
ΔQ:  *0.0287*  
ΔU:  *-1.5*  
ΔFS:  *0.5*  

Drilling Notes

*Had to Pause at 27' ISL
Termination @ 35°*

☑ PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: [Name]  Job Name: [Name]
Job#:  Date 10-23-09
CPT# 441  Test # C-41
File Name: [File Name]  C-41
Project Folder:
Arrival Time: 9:45  Departure Time: 11:02
Logger: K. Koch  Driller: John Gates
Zero Data
Start Time: 10:15  Q: 12615  U: 12227  FS: 12184
End Time: 10:48  AQ: -41  ΔU: 8  ΔFS: 128
Drilling Notes

Terminated @ 35'

[Handwritten note: PROBE HOLE (~2" Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.]
CPT Boring Record

Client: WJG 02  
Job Name: UWL

Job#:  
Date 1/21/09

CPT# 4294  
Test # C-44

File Name: L-4294  
L-44

Project Folder:

Arrival Time: 8:45  
Departure Time 10:00

Logger: CW  
Driller: JOHN (7 NONA NAME)

Zero Data

Start Time: 9:45  
Q: 12.555 / 12.01 m  
U: 12295 / 466.8 ft  
FS: 127.76 / 423 ft

End Time: 9:50  
Q: 13 / 0.04 m³  
U: -2 / -0.2 ft  
FS: 65 / -0.7

Drilling Notes

Excavated Depth: 35'  
Cone: 4774

Average Resistance: 700 psf (ES)  
2900 psi (N)

Boring Terminated at 35' as per contract

☐ PROBE HOLE (-2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amgen Oh  Job Name: LabSite OwC
Job#:  CPT# C-46  4274  Test # C-46
File Name: LabSite c-46
Project Folder:
Arrival Time: 10:00  Departure Time 11:35
Logger: C-46  Driller: John (Tom Baza)

Zero Data
Start Time: 10:30  Q: 125.83  11.77 m  U: 12285  967 kPa  FS: 13601  132 kPa
End Time: 11:10  AQ: 94  10.09  ΔQ: 21  0  ΔU: -1  0  ΔFS: -6.3  -6.3

Drilling Notes

Expected Depth: 50'
Core: 4274

AMP  Q: 0.5
AMP  FS: 10

Tip Deflection 25°/1mm at 446'

PROBE HOLE (2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Andrew CE  
Job Name: Lamois One  
Job#:  
Date: 11/2/09  
CPT#: C-46A  
Test #: C-46A  
File Name: C-46A  
Drilling Notes:

Drill: 50'  
Cone: C-46A  
Completion Bowens 5' Offset 5' from C-46  
11:45 - 12:30  

Drill At: 1 MPa  
FS at: 5 MPa  

PROBE HOLE (-2'@) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: America Oil
Job Name: 190806 WU
Job #: Test #
CPT #: C-48 Test # C-48
File Name: LAB002-4 C-48
Project Folder:
Arrival Time: 1:35
Departure Time: 2:35
Logger: CWC
Driller: Loan (7-1/2' Drill)

Zero Data
Start Time: 1:35
Q: 12637/1.0
U: 2264/4665
FS: 1283/124
End Time: 2:35
AQ: -33/-0.03
AU: 25/1.0
AFS: 935/1.4

Drilling Notes
TARGET Depth: 35'
C.R.: 4274

~ MUD Q = 0.1 MPA
~ MIN FS = 16 kPA

Buried through as placed at 35'

☑ PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Aminow UR  
Job Name:  
Job#:  
Date: 11/2/07  
CPT#: E50 4274  
Test #: C-50  
File Name: LAB505 C-50  
Project Folder:  
Arrival Time: 2:45  
Departure Time: 4:00  
Logger: case  
Driller: JOHNI (10000 BP)  
Zero Data  
Start Time: 3:10  
Q: 12545/12.0 MPa  
U: 12271/1666 kPa  
FS: 12756/129.7 kPa  
End Time: 3:45  
AQ: 58/0.86  
ΔU: -16/0.7  
ΔFS: 29.32/0.8  
Drilling Notes

Top 5'  Depth: 50'  
Cone: 4274  

Qmin: 0.4 MPa  
FSmin: 15 KPa  

PROBE HOLE (-2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AMERICAN UCE
Job Name: C1AB307b UCE
Job#: C00 4274
CPT# C00
Test # C00
File Name: C00
Project Folder: C00

Arrival Time: 7:45
Departure Time: 8:50
Logger: C00
Driller: JOHN GAIN (Training)

Zero Data
Start Time: 8:10 Q: 12C 90/12.14 U: 1299.3/1467.6 FS: 12199/1241.6
End Time: 8:35 AQ: 146/0.138 ΔU: 110 ΔFS: 920/9.9

Drilling Notes
TARGE D: 35’
GME: 4274

FS: 10

2’ Hole Terminated at 8’ due to refusal

1’00 Above on Site, Move Rig to Gas CP Rig

PROBE HOLE (~2’Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Antia Antia 09  Job Name: Lagoa 09
Job#: Date 11/26/09
CPT# 62 4274  Test # C-62
File Name: Lagoa C-62
Project Folder:
Arrival Time: 8:55  Departure Time 10:00
Logger: CWL  Driller: John Costa (720-308-2062)
Zero Data
Start Time: 9:45 Q: 12701/12,154  U: 12290/467.3  FS: 12/62/123.6
End Time: 9:45 ΔQ: -62/-0.0584 ΔU: -2/-0.4 ΔFS: 305/30
Drilling Notes

Probe to Tip Before Pushing
Pause for攻st Morn 771 Angle

Bottomed at 35.9' as planned

PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: ABE #1  UTc  Job Name: LABORATORY CHEMICALS
Job#:  Date: 11-06-07
CPT#: 4274  Test #: C-67
File Name: C-67  Project Folder: 11-06-09
Arrival Time: 10:05  Departure Time: 11:15
Logger: CW  Driller: JOHN GATES (Three Drees)

Zero Data
Start Time: T 10:30  Q: 12706/121.58  U: 12289/4678  FS: 12169/173.6
End Time: 11:00  AQ: -601/-0.0545  AU: 581/1.6  AFS: 249/2.5

Drilling Notes
- TARGET DP @ 35' COR: 4274
- QMIN: 0.0
- FSMIN 7.0
- EXHA
  AND: A GLYCEMIE AFTER PUTTING TOGETHER
  PROBING TERMINATED AT 35.2' AS PLANNED
  11:15 TO LUNA

☑ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AMERICAN
Job Name: LABOR DEW

Job#: ______________________  Date: 12/28/07

CPT# C-66A  Test#: C-66A

File Name: LABOR DEW C-66A

Project Folder: 12-28-07

Arrival Time: 11:05
Departure Time: 

Logger: CWL Driller: JAMES DITTMER

Zero Data

Start Time: 11:30 Q: 12.720  U: 12.22
End Time: 12:00 ΔQ: -71 / -0.063 ΔU: -180 / -11 ΔFS: 26 / 0.3

Drilling Notes

Come 4274
Target Depth: 35'

C-66: Refused at 23.4' was not refused at time

Q new 0.8 mpa
FS new 106.8 kpa 0.9 kpa

Offset N 5' North of C-66

Boothe Thinned out 34.7' due to refusal

PROBE HOLE (-2"") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Andren UE  
Job Name: LARSEN UE
Job#:  
Date: 9-7-09
CPT# 1476  
Test #: C-66
File Name: LARSEN C-66
Project Folder: 9-7-09
Arrival Time: 11:45  
Departure Time: 1:15
Logger: CVC  
Driller: JOHN Garnes (714-020-2478)
Zero Data
Start Time: 12:30  Q: 12558/12,04  U: 12261/1466.3  FS: 1275/13.8  
End Time: 12:50  AQ: 7/0.0100  ΔU: -6.02  ΔFS: 169/1.7
Drilling Notes
TARGET Depth: 35'
Core: 4574

First Time Setting August 1, VCP, stiff, AT 90°
Remark: August as Could Not Pull up

Second Time Setting August, became soft
At n=12

O max: 0.3 MPa
FS min: 10 kPa

Boring terminated at 23.4' due to TCT
Refuse

✓ PROBE HOLE (-2°) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client:  
Job Name:  
Job#:  
Date: 17/6/01
CPT#: 4274  
Test#: C-68
File Name: LAB 076  
Project Folder: LAB 076  
Arrival Time: 1:20  
Departure Time: 2:25
Logger: Cev  
Driller: John Goeß (Team Data)

Zero Data
Start Time: 1:45  
Q: 1268/12, 139  
U: 1228/146, 0  
FS: 1.0117/1.23, 2
End Time: 2:10  
AQ: -61/0.0922  
AU: 6.50/1.23, 7  
ΔFS: 299/3.5

Drilling Notes

 comma: 4274  
10' 35'
Q mt = 0.3 Mpa  
15 mt = 10 kPa

Reason Terminated: A 35.3' As planned

Pore Pressure Zero, seems high, possibly lost fluid during hand cut.

☐ PROBE HOLE (~2"") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Andrew UE
Job Name: LABAPE UWE
Job#: C-70
CPT# 840 4274 Test # C-70
File Name: LABAPE C-70
Project Folder: 11-07-09
Arrival Time: 2:30
Departure Time: 3:35
Logger: CM
Driller: John GP 25

Zero Data
Start Time: 2:30 Q: 12.08/12.16 U: 12.62/4.61 FS: 12116/123.2
End Time: 3:35 AQ: -90/-0.0861 AU: 7.01 AF: 5.53/5.6

Drilling Notes

(End: 4) 74
Target 0' 67" Plant 3' Expansion

Q max = 0.8 MPa
T strain = 10 kPa

Hard Anvils, Break S' UP, STIFF
Faced simt @ 0.1

Boring terminated at 35'3" as planned

Moved '70' N, '200' F, '100' E for

"""

PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AMR 200
Job #: CABACF
Job Name: CABACF
Date 11/3/09
CPT# 474 4274 Test #: C-74
File Name: CABACF C-74

Project Folder:
Arrival Time: 7:35
Departure Time: 8:35
Logger: [Signature]
Driller: John (Trans Data)

Zero Data
Start Time: 8:15
End Time: 8:50

Drilling Notes

TARGET Depth: 35'
Come: 4074

Probe: [Signature]
Probe Termination: 55.3
Test Acid Return no Planes

☐ PROBE HOLE (-2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amireo 08  
Job Name: LABA002_0

Job#:  
Date: 11/3/07

CPT# C-76  
Test#: C-76

File Name: LABA002_C-76

Project Folder:

Arrival Time: 9:00  
Departure Time: 10:05

Logger: Cove  
Driller: John (7000 ft/sec)

Zero Data

Start Time: 9:25  
Q: 12.1  
U: 123.8  
FS: 123.8  
End Time: 9:55  
AQ: -15  
ΔU: 13  
ΔFS: 15

Drilling Notes

TARGET DFPM: 85'

Approx. 0.5 mma

Bores to terminate at 85.3' as planned

☑ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amerfin UC  
Job Name: LABA012-2

Job#:  
Date: 11/8/09

CPT#: C-78  
Test #: C-78

File Name: LABA012- C-78

Project Folder:  
Arrival Time: 10:15  
Departure Time: 11:30

Logger: WC  
Driller: John (From Perez)

Zero Data

Start Time: 6:40  Q: 2597/12.02  U: 123/0/468 0  FS:1305S / 132.6
End Time: 11:10  ΔQ: 7/0.07  ΔU: -75/ -5.6  ΔFS: -50 / -5.6

Drilling Notes

TAEGI  Dpnly 35'  
Core: 4774

nQnU: 0.5  
ΔFS min.: 75

Problem: Terminated at 35.2' as planned

Lunch 11:30 - 12:00

☑ PROBE HOLE (~2') THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: American Oil

Job Name: C-79

Job#: 4274

Date: 11-5-07

CPT#: C-79

Test #: C-79

File Name: C-79

Project Folder: 11-05-07

Arrival Time: 2:30

Departure Time: 4:00

Logger: Casey

Driller: John Gars (7000 Delta)

Zero Data

Start Time: 3:15

End Time: 3:40

Drilling Notes

7-85'1-12-16.0 35'

\(c_{uv} = 0.74\)

\(Q_{uv} = 0.5 \text{ MPa}\)

\(F_{uv} = 10 \text{ kPa}\)

Boring terminated at 35.3' as planned

4:00 0.5 psi for Day

☑ PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amphenol UK  
Job Name: C-80

Job#:  
Date: 11-5-07

CPT#: 4274  
Test #: C-80

File Name: Labnote C-80

Project Folder: 11-05-07

Arrival Time: 1:40  
Departure Time: 2:45

Logger:  
Driller: John C. Baker (Terry Davis)

Zero Data

Start Time: 2:05  
AO: 12.84/12.13  
U: 12298/4675  
FS: 21.25/23.5

End Time: 2:35  
AQ: -134/-0.128  
AU: .8/.3  
AFS: 776/7.9

Drilling Notes

Target: 35'

Core: 4274

Qtril: 0.5 MA
FSmil: 12. KO

Drill stopped at 35.3' as planned

☑ PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amelen UE  Job Name: Labored Owe
Job#:  Date 11-5-09
CPT# 4274  Test # C-81
(No file name)  Labored C-81
Project Folder:
Arrival Time: 12:30  Departure Time 1:30
Logger: Owe  Driller: John Gouzos 7/7/09

Zero Data
Start Time: 12:55  Q: (2643) 12.096  U: 120 78/467.7  FS: 120 78/124.1
End Time: 1:20  ΔQ: 5.0067  ΔU: 0.1  ΔFS: 2/12/1.1

Drilling Notes

Target Depth: 35'
Core: 4274

0 min 0.5 mm
10 min 15 mm

OFFSET FROM P-810 7 N

Boring Terminated at 35.2' as planned

PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Andrew WE
Job Name: LAB078

Job#: 482
Date: 11-5-09

CPT#: 482
Test #: C-82

Filename: Lab078 C-82
Project Folder: 11-05-09

Arrival Time: 10:10
Departure Time: 11:20

Logger: CWC
Driller: John Gaes (TerraDeco)

Zero Data
Start Time: 10:35 Q: 12.61/12.677 U: 1238/968.9 FS: 1230/1251
End Time: 11:05 ΔQ: -27/-0.0277 ΔU: -2/-0.1 ΔFS: 61/67

Drilling Notes
- Tap 6ft
- Depth: 35'
- Can: 4974

- Q: 0.5 MPA
- FS: 15 MPA

- Becon tilt sensor at 35° as plane 0

- Lat: 11:30 - 12:30

PROBE HOLE (-2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AMERICAN UE
Job Name: LAB Note O.W.

Job#: Date 11-5-09
CPT# 4274 Test# C-84
File Name: LAB Note C-84
Project Folder: 11-05-09

Arrival Time: 9:55 Departure Time 10:05
Logger: CW Driller: JOHN (FRANK BOWERS)

Zero Data
End Time: 1555 AQ: -87/-0.0281 AU: -4/-0.2 AFS: 261/2.7

Drilling Notes
TARGET DPTH: 35'
CNS: 4274

Qv 0.2 MPa
F-Sq 15 kPa

Bottom Terminated as planned at 35.5'

☑ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Andrew CF
Job Name: LABADIE CWC

Job#: _______ Date: 11-5-09
CPT# DSC 4279 Test#: C-86

File Name: LABADIE C-86
Project Folder: / 11-05-09

Arrival Time: 7:30? Departure Time 8:15
Logger: CWC Driller: John Gozzi (700-94 Base)

Zero Data
Start Time: 8:05 Q: 12.625/12.09 U: -2.31/9.46 S2; FS: 12357/125.6
End Time: 9:30 AQ: 9/0.0115 A: -10/-0.3 AFS: 103/1.0

Drilling Notes

TARGET DEPTH 135'

Cone: 4279

Qmax: 0.4 Mpa
FSmax: 15 kPa

7:00 Home on site. Need Pos for C-100

SOIL TERMINATED AS PLANNED AT 35.'

☑ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amilco Corp  
Job Name: LABADIE C-89
Job#:  
Date 11/3/09
CPT# C-89  4274  
Test #: C-89
File Name: LABADIE C-89
Project Folder:  
Arrival Time: 12:15  
Departure Time: 1:30
Logger: CWC  
Driller: John Cannon Driving
Zero Data
Start Time: 12:40  Q: 125.5' 12.01  U: 129.0' 467.3  FS: 130.44  72.8
End Time: 1:15  AQ: 50  0.658'  DU: -210  DFS: -352 / -3.6
Drilling Notes

Trench Depth: 35'
Core: 42.74
17.25' Rig Shot Down Unexpectedly

Qmen: 0.5
FSmen: 15

Boring Terminated at 35' as planned

PROBE HOLE (~2Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amherst, OR  
Job Name: [Redacted] UWL

Job#:  
Date: 11/3/09

CPT#: 4274  
Test #: C-91

File Name: [Redacted] C-91

Project Folder:

Arrival Time: 1:35  
Departure Time: 2:40

Logger: CWC  
Driller: [Redacted] (704-540-4700)

Zero Data

Start Time: 2:00  
Q: 1270; 12.15  
U: 1229; 9477  
FS: 1217; 1257

End Time: 2:30  
AQ: -23 -0.0201  
DU: 24 0.9  
DFS: 22 0.2

Drilling Notes

TARGET Depth: 35-

Cone: 4274

\[\text{[Redacted]}\]

Boring terminated as planned @ 35.8

☐ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amoehue

Job Name: Cabasse

Job#: 4274

CPT#: 4274

Test #: C-92

Date: 11/3/09

File Name: Cabasse C-92

Project Folder:

Arrival Time: 2:45

Departure Time: 9:06

Logger: ccc

Driller: John (70002, 00500)

Zero Data

Start Time: 3:15 Q: 12718/12.17 U: 12292/467.5 FS: 2147/123.5

End Time: 3:45 Q: -48/-0.045 U: 14/0.5 AFS: 85/0.8

Drilling Notes

TARGET Depth: 50'

Q = 12718  MPA

TILT Refuse Finished for Day

PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: ANZEH O\E  
Job Name: LABAP784 C-94
Job#:  
Date: 11/4/07
CPT#: C-94  
Test #: C-94
File Name: LABAP784 C-94
Project Folder: 11-4-09
Arrival Time: 10:25  
Departure Time: 11:25
Logger: C-94  
Driller: JOHN GARR (TerraForce)

Zero Data
Start Time: 11:05  Q: 12751/12.20  U: 12298/467.7  FS: 12121/123.2
End Time: 11:10  AQ: 501/0.0468  AU: 436/15.9  AFS: 113/1.1

Drilling Notes

Target Depth: 35'
CPT#: C-974

Ωmin 0.5 MPa
FS min 10 kPa

Boring terminated at 35' as planned

11:25 to 12:00 Lunch Time

☑ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amfam Inc. Job Name: Cabridge Owf
Job #: C-9C Date 11/4/09
CPT #: C-9C Test #: C-9C
File Name: Cabridge C-9C
Project Folder: 11-04-09
Arrival Time: 12:05? Departure Time 1:15
Logger: Owf Driller: John Grow (Tek Radar Inc.)

Zero Data
Start Time: 12:35 Q: 1270'/12.155 U: 12290/367.4 FS: 12157/123.6
End Time: 1:00 AQ: -74/-0.67 ΔU: 321/11.7 ΔFS: 72/0.7

Drilling Notes
TARGET Depth: 35'

COW: 72.74

Switching back to original target

Qmin: 0.3 MPa
FS max: 10 kPa

Boring terminated at 33' due to TLT

Angie Reeser

PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Aminco Inc.  Job Name: LAB_078  CWL
Job#:  Date: 11/4/09
CPT#: 4274  Test #: C-08
File Name: LAB_078  C-08
Project Folder: 11-4-09
Arrival Time: 1:20  Departure Time: 2:30
Logger: CWL  Driller: John Stites (Texas Design)

Zero Data
Start Time: 1:40  Q: 2601 12.66  U: 2779/96.70  FS: 12494/12.70
End Time: 2:10  ΔQ: -471 0.042  ΔU: 10 0.4  ΔFS: 682/4.8

Drilling Notes

Depth: 35'
Core: 4274

- Min: 0.5 mPa
- Sm: 10 kPa

* Started boring at 14" below surface due to STRUCTURAL PROBLEM

Logging Terminated as planned at:
- Compress: 34.2'
- Axial: 34.2' + 1.2' = 35.4'

PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: ANL
Job Name: C-180174
Job#: 4274 4274
Date: 11/4/09
CPT#: 4274 4274
Test#: C-100

File Name: C-100
Project Folder: 110409
Arrival Time: 8:35
Departure Time: 9:00
Logger: WC
Driller: John Chang (Trip Date)

Zero Data
Start Time: 3:05 Q: 12732 / 1.8 U: 1279 / 1.874 FS: 12185 / 1233
End Time: 3:35 AQ: ____________ AU: ____________ AFS: ____________

Drilling Notes
TARGET Depth: 60'
 Cone: 4274
For Predrill very stiff soil time at 7' (Anchors)
Q min: 0.5 MPa
F-S min: 10 kPa

Tip tightened after 1st zero tot

Runout Timed at 8.19' due to
Tilt reversal, gravity at 8.19'
Error message upon pause "signal lost"

ND connection at end for zero tot

4:00 Durr for Day

☑️ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amgen WEF
Job Name: LAB4274
Job#: 4274
Date: 11/09/09
CPT#: 4274
Test #: C-103

File Name: LAB4274 C-103
Project Folder: 11-09-09

Arrival Time: 9:10
Departure Time: 10:20
Logger: CW
Driller: JOHN GUTRAS (728-243-2210)

Zero Data
Start Time: 9:35 Q: 269/17,133 U: 229.3/467.6 FS: 12180/12300
End Time: 10:05 AQ: -24/0,020 AU: 6/0.2 AFS: 221/2.2

Drilling Notes
Target Depth: 35'
Core: 9274

Q max: 0.1 MPa
FS max: 10 ksi

Due to high installation tightness AFS 15'

TERMINATED: 35.1

PROBE HOLE (1.2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Andrew Inc.  
Job Name: LaBelle Crk
Job#:  
Date: 11/07/09
CPT# 4274  
Test # C-105
File Name:  
Project Folder: 11-09-09
Arrival Time: 8:00  
Departure Time: 9:05
Logger: Cux  
Driller: Jonn Gates (Terra Drax)
Zero Data
Start Time: 8:25  
End Time: 8:55
Q: 0.1267  
AQ: -0.05
12.14  
0.05
U: 12.95 / 467.5  
Δ: 1.7 / 0.2
μ: 1205 / 23.0  
ΔFS: 508 / 5.7
Drilling Notes

Cone 4274
TARGET 30' 35'

Data 0.3 MPa
FS: 10 kPa

Boiling Terminated at 35.5' as planned

We arrived a 7:00
Some Gates arrive @ 7:30
Fouled up rig sect.

☑ PROBE HOLE (-2”Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: American Wood
Job Name: WABana 28 Own
Job#: 4274
CPT#: C-106
Date: 11/09/09
Test #: C-106
File Name: WABana C-106
Project Folder: 11-09-09
Arrival Time: 10:18
Departure Time: 11:40
Logger: Dave
Driller: John L. B. (12190 Dm.

Zero Data
Start Time: Q: 12711/12.16
U: 12.94/14.67
End Time: AQ: -7.3/-0.069
ΔU: 4/0.1
ΔFS: 205/1.1

Drilling Notes
Thayfeo! 35’

Core 1 474

Qmin: 0.5 m
FSmin: 0.1

ORFST TO 6” NORTH OF P-106

Current Termination AT 35.2’ as planned

11:45 Supervised for lunch

☑ PROBE HOLE (~2”) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Ameren UE

Job Name: C-107

Job#: Test #:

CPT# 4214 L-107

File Name: C-107

Project Folder: 11-09-09

Arrival Time: 11:45

Departure Time: 1:25

Logger: CW

Driller: John Graves (Test Data)

Zero Data

Start Time: 12:50

Q: 12.728/12.18

U: 1220/467.1

FS: 1267/12.56

End Time: 1:15

Q: -16.1/-0.1530

U: 21/0.6

FS: 677/71

Drilling Notes

TARGET Depth '35' at: 4.97 q

Qmax: 0.5 MPa

PS max: 1.5 kPA

12:00

Sand only to 12:30

Boring terminated at 22.9' due to test made refuse, move forward 10' (East)

PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
**CPT Boring Record**

Client:  
Job Name:  
Job#:  
Date: 11/09/09  
CPT#: C-107A  
Test #: C-107A  
File Name:  
Project Folder: 4-09-09/  
Arrival Time: 1:25  
Departure Time: 2:35  
Logger: CWC  
Driller: John G. (Matt Dunn)  
Zero Data  
Start Time: 1:45  
Q: 1266 / 12116  
U: 1236 / 6475  
FS: 1235 / 1235  
End Time: 2:15  
AQ: 35 / 0.0335  
AU: 9 / 0.1  
AFS: 400 / 4.2

Drilling Notes:

OFFSET 10' EAST OF C-07

TARGET DEPTH: 35'
CWC 4274

Qmn: 0.8 m/s
FSm: 1015 P

 boring terminated at 38.3' AS HND

10' of 4/6505, 4/6505 been run pulled
out of soil.

PROBE HOLE (-2'Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Garcia UA
Job Name: Labraza CLV

Job#: C-1074
Date: 11/9/09
CPT#: C-1074
Test #: C-1074

File Name: Labraza C-109
Project Folder: 11-09-09

Arrival Time: 2:30
Departure Time: 3:25
Logger: Core
Driller: John Gates (Terra Danco)

Zero Data
Start Time: 215
Q: 126.88/12.139
U: 12288/4673
FS: 12141/1234

End Time: 315
ΔQ: -148/-0.140
ΔU: 5/0.2
ΔFS: 837/85

Drilling Notes

TARGET DEPTH: 35' AFTER: 34' 1/04

Qmax: 0.3 MPA
FSmax: 5/901/01

Boring terminated at 35' as planned

☑ PROBE HOLE (~2"") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Andrew UE  
Job Name:  
Job#:  
Date 11/9/09 to 11/10/09  
CPT# 84774  
Test # C-111  
File Name:  
Project Folder:  
Arrival Time: 11/9/09 3:30  
Departure Time 11/9/09 8:15  
Logger: Cast  
Driller: Jon  
Zero Data 11/10/09  
Start Time: 7:30  
Q: 0.297/12.15  
U: 1297/467.7  
FS: 1225/12.85  
End Time: 7:55  
AQ: -123/-0.1124  
AU: 60/12.5  
AFS: 97/1.0  
Drilling Notes

Tossed  
Depth: 35'  
Comm: 90 74

11/9/09 SET AUGERS IN GRUND, PREPARED TO PUSH CONE TOMORROW 11/10/09

3:45 AUGERS IN READY FOR TOMORROW

11/10/09 7:00 AM ZOEK 5 ON SITE SET UP
TO PUSH CONE

Comm: 03/14
FS: 9.4 7 HR

ROD REACH 34.9 FT DUE TO AUGER FAILING, AND HIST ACID REFUSAL

15' OF AUGERS IN GRUND

☐ PROBE HOLE (-2'Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: ANZENVE
Job Name: C-8890

Job#: 4294
Date 11/10/09
Test #: C-113

File Name: Labnote_113
Project Folder: /11-10-09/

Arrival Time: 8:20
Departure Time: 9:45
Logger: CWC
Driller: JOHN GAIAS (TIPRO DEXC)

Zero Data
Start Time: 7:00
End Time: 9:30

Drilling Notes
TARGET DEPT: 35' CONE 4/274
QMIN: 0.3 MM
PERM: 10/AA

PROBE HOLE (-2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: American UEC  
Job Name:  Colorado UWC

Job#:  
Date: 11/11/09

CPT#: E-117  
Test #: C-117

File Name:  Colorado E-117  
Project Folder:  11-11-09

Arrival Time:  7:30  
Departure Time:  9:05

Logger:  K. Kael  
Driller:  John

Zero Data

Start Time:  8:20  
Q:  12583; 12.04  
U:  1227; 46.76  
FS:  12774; 187.8

End Time:  8:55  
AQ:  -8; 0.0057  
AU:  4; 0.2  
AFS:  101; 1.1

Drilling Notes

Target Depth 35'
Termination Depth 35.24'

No Problems; gravelly area between 25-30

☑ PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AMERICAN VSF
Job Name: CABLES VSF
Job#: 4274
Date: 11/10/09
CPT#: C-119
Test #: C-119
File Name: LABORGS C-119
Project Folder: 11-10-09
Arrival Time: 2:50
Departure Time: 4:00
Logger: CEE
Driller: JON GATES (TERRA DRAIN)

Zero Data
Start Time: 9:15
Q: 12,706/12,156
U: 1,2292/467.5
FS: 12,111/12,51
End Time: 4:45
AQ: -100/-3.96
AU: -571/21.0
AFS: 67/0.4

Drilling Notes
TARGET DEPTH: 35'
CONE: 42.74

- Anso 0.3mm
- Smrk 8 KPA

- Bore cerrantly below JSO, terminate T QT

- TQT changes drastically 4T-20'

- Bore terminated at 35'10" as planned

☑️ PROBE HOLE (-2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amgen UOE
Job Name: LABOOTE UOE
Job#: 4274
Date: 11/10/09
CPT#: C-121
Test #: C-121
File Name: LABOOTE C-121
Project Folder: 11-10-09
Arrival Time: 11:45
Departure Time: 2:45
Logger: CW
Driller: John Gartes
Inter Data
Zero Data
Start Time: 2:05
Q: 12661/12.11
U: 12283/467.7
FS: 12148/12.54
End Time: 2:30
AQ: -60/-0.058
ΔU: 520/19.2
ΔFS: 1221/1.2

Drilling Notes

Target Depth: 35'
Conf: 42.7'

Min: 0.6 MPa
FS: 35'

Boring terminated at 35.1' as planned

Heavy rain in hours

Probe hole (2" Ø) through shallow fine grain soils backfilled with dry bentonite granules.
CPT Boring Record

Client: Amtrak
Job Name: Lasabt\'e
Job#: 4274
CPT#: C-123
Date: 11/10/09
Test #: C-123

File Name: Lasabt\'e C-123
Project Folder: 11-10-09

Arrival Time: 12:20
Departure Time: 1:40
Logger: CIVL
Driller: John Gates (Terra Data)

Zero Data
Start Time: 12:55
End Time: 1:35
Q: 12.58/12.11
U: 122.92/67.5
FS: 121.42/128.4
ΔQ: -17/-0.044
ΔU: 68/17.8
ΔFS: 17/0.2

Drilling Notes
TARGET Depth 35'
Cons: 474

Quen: 0.3
FSmin: 10 kPa

Boring Terminated at 35' as planned

PROBE HOLE (-2\'\(\)) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Anheuser-Busch
Job#: 4247
CPT#: C-125
Test#: C-125

File Name: LABANDE_C-125
Project Folder: 11-10-09

Arrival Time: 00:00
Departure Time: 12:15
Logger: Cox
Driller: John Gates (Terra Design)

Zero Data
Start Time: 10:30
End Time: 11:00

Drilling Notes

TARGET DEPTH: 15'
DATE: 4/27/9

Q: 12.686/12.14
U: 12.300/46.75
FS: 12.180/125.8

ΔQ: -97/-0.0899
ΔU: -41-0.8
ΔFS: 85/0.9

Drilled Terminated As Planned

COMPUTER DEPTH: 35.07

ACN = 35.07 + 0.50 = 35.57

11:30 to 12:00 Lunch

PROBE HOLE (-2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amherst, NE  Job Name: Labrador UWL
Job#:  CPT#: 4274  Date: 11-11-09  Test #: C-129
File Name: Labrador C-129
Project Folder: 11-11-09
Arrival Time: 9:15  Departure Time: 10:15
Logger: K. Kocher  Driller: John Gates

Zero Data
Start Time: 9:35  Q: 126.70, 12.122  U: 123.04; 467.0  FS: 126.02, 128.1
End Time: 10:05  ΔQ: -52.7, -0.049  ΔU: 122.5, 4.5  ΔFS: 290, 2.9

Drilling Notes
- Probes Depth 35'
- Boring Terminated @ 35.2

☐ PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: American  Job Name: Lobato C-131
Job#:  Date 11-11-09
CPT# 4274  Test # C-131
File Name: Lobatos C-131
Project Folder: 11-11-09
Arrival Time: 10:25  Departure Time
Logger: K. Koch  Driller: John Gates

Zero Data
Start Time: 10:40  Q: 12715; 12.166  U: 12302; 4.67  FS: 12150; 123.6
End Time: 11:10  ΔQ: -198; 0.1799  ΔU: -49; -1.7  ΔFS: 4.36; 4.5

Drilling Notes

Target Depth 35
Termination Depth 35.2

☐ PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Andrew UE  Job Name: Labadie UW
Job#:  Date 11-11-09
CPT# 4274  Test # C-133
File Name: Labadie C-133
Project Folder: 11-11-09
Arrival Time: 12:20  Departure Time 1:25
Logger: K. Kohr  Driller: John Gates

Zero Data
Start Time: 12:40  Q: 12.45; 12.09  U: 12290; 467.4  FS: 12485; 126.4
End Time: 1:15  ΔQ: -177; -0.166  ΔU: 10; -0.6  ΔFS: 447; 4.6

Drilling Notes

Target Depth 35'
Gravel @ 22'-23'
@ 24.5'-27'
Boring Terminated @ 35.1'

☑ PROBE HOLE (-2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: American UC  
Job Name: Labrador UWL

Job #:  
Date: 11-11-09

CPT #: 4274  
Test #: C-135

File Name: Labrador C-135

Project Folder: 11-11-09

Arrival Time: 1:40  
Departure Time:  
Logger: K. Kal  
Driller: John Gates

Zero Data

Start Time: 2:30  
Q: 12499; 11.956  
U: 12893; 462.3  
FS: 13087; 133.0

End Time: 2:50  
AQ: 37; 0.6383  
ΔU: -30; -1.1  
ΔFS: -96; -4.6

Drilling Notes

Target Depth 50'  
Boring Terminated due to high Angle & HighLoad  
@ 19.1'

OFFSET & Drill C-135A

☑ PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amecra WE  Job Name: Labrador UWL
Job#:  Date: 11-11-09
CPT# 4274  Test #: C-135A
File Name: Labrador C-135A
Project Folder: U-11-09
Arrival Time:  Departure Time: 
Logger: K. Kocher  Driller: John Gates

Zero Data
Start Time: 3:20  Q: 1254  U: 12287  FS: 1267; 128.8
End Time:  4:00  ΔQ: 12  ΔU: 23; 0.7  ΔFS: 11; 0.1

Drilling Notes

Tread Depth 50'
Very stiff hard from 18' to 20.5'
Till Jumpee Around from 19.5' to 21.5'
Being terminated at 31.7'

☐ PROBE HOLE (-2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: American UE  Job Name: Lakhdar UWL
Job#:  Date: 11-12-09
CPT#: 4274  Test #: C-137
File Name: Lakhdar C-137
Project Folder: 11-12-09
Arrival Time: 8:05  Departure Time: 9:15
Logger: L. Keh  Driller: John Gates

Zero Data
Start Time: 8:15  Q: 12799; 12.227  U: 12285; 467.3  FS: 12130; 123.3
End Time: 9:00  ΔQ: -212; -0.209  ΔU: 32; 141.5  ΔFS: 22; 0.3

Drilling Notes:
- Target Depth 35'
- Began pulling out Augers @ 34.6'
- Terminated Padi @ 34.8'

☐ PROBE HOLE (-2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Aaron NE  
Job Name: Labrador C-139

Job#:  
Date: 11-12-09

CPT# 4274  
Test #: C-139

FileName: Labrador C-139

Project Folder: 11-12-09

Arrival Time: 12:20  
Departure Time: 1:25

Logger: K. Kahe  
Driller: John Gaba

Zero Data

Start Time: 12:46  
Q: 12672; 12.1844  
U: 12273; 466.8  
FS: 12236; 124.4

End Time: 1:15  
ΔQ: -109; -0.1033  
ΔU: 5; 0.2  
ΔFS: 223; 2.3

Drilling Notes

Target Depth 35

Logger Finds @ 22.4", Boring Terminated

PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amazon WE 
Job Name: Lakeside UWL 
Job#: 
Date: 11-12-09 
CPT#: 4274 
Test #: C-139A 
File Name: Lakeside C-139A 
Project Folder: 11-12-09 
Arrival Time: 1:25 
Departure Time: 2:55 
Logger: K. Kol 
Driller: John Gates 

Zero Data

Start Time: 2:00 
Q: 1266.4, 12.1158 
U: 12263; 446.3 
FS: 12219; 124.2 
End Time: 2:35 
AQ: -28.0, 0.0250 
AU: 17.0, 0.8 
AFS: -17.0, 0.2 

Drilling Notes

Target Depth 36’

Boeing terminated @ 32.2’ due to tall Angle

☑ PROBE HOLE (-2”Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: American NC  
Job Name: Labadie UWL
Job#:                     Date 11-13-09
CPT# 4274  
Test # C-143
File Name: Labadie C-143
Project Folder: 11-13-09

Arrival Time: 12:30  
Departure Time 1:40
Logger: K. Kal  
Driller: John Gates

Zero Data
Start Time: 1:00  
Q: 1265; 12.1081  
U: 12245; 465.8  
FS: 12424; 126.3
End Time: 1:30  
AQ: -28; -0.0263  
AU: -5; -0.2  
AFS: -75; -0.8

Drilling Notes

Target Depth 35'
Probe terminated @ 35.1'

☐ PROBE HOLE (~2”Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: American WE  
Job Name: Labrador WNL

Job#:  
Date: 11-13-09

CPT#: 4274  
Test #: C-145

File Name: Labrador C-145

Project Folder: 11-13-09

Arrival Time: 9:25  
Departure Time: 10:20

Logger: K. Kerm  
Driller: John Gatos

Zero Data

Start Time: 9:40  Q: 1266.1; 12.1378  U: 1275.5; 466.1  FS: 12350; 125.5
End Time: 10:10  ΔQ: 0.87  ΔU: -0.0804  ΔU: 8j 0.3  ΔFS: 180j 1.8

Drilling Notes

Target Depth 35’
Boring terminated C-25” due to Tilt Angle in gravel

Offset & Drill C-145A

☐ PROBE HOLE (~2”Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: America NC  
Job Name: Lacombe NC

Job#:  
Date: 11-13-09

CPT#: 4294  
Test#: C-145A

File Name: Lacombe C-145A  
Project Folder: 11-13-09

Arrival Time: 10:20  
Departure Time: 10:30

Logger: K. Kel  
Driller: John Gates

Zero Data

Start Time: 10:45  Q: 12724; 12.1723  U: 12253; 466.1  FS: 12142; 173.4
End Time: 11:25  ΔQ: -25; 0.0249  ΔU: 0; 0.1  ΔFS: 55; 0.6

Drilling Notes

Tried Depth 35'

Boring Terminated @ 35.1'

Gravel from 22' to 27'

☐ PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: American NE  
Job Name:  
Job#:  
Date: 11-12-09  
CPT#: 4274  
Test #: C-147  
File Name: Labrador C-147  
Project Folder: 11-12-09  
Arrival Time: 3:15  
Departure Time:  
Logger: K. Koch  
Driller: John Gates  

Zero Data  
Start Time: 3:30  
Q: 12582; 12.6374  
U: 12263; 466.4  
FS: 12535;127.4  
End Time: 3:55  
ΔQ: 16; 0.015  
ΔU: -3; 0.1  
ΔFS: 55; 0.6  

Drilling Notes  
Target Depth 35'  
Terminated @ 23' 6" due to Tilt Angle & Tip Loading.  

Off Soft & Repunch C-147A  

Drops from B-134 to C-147 due to Soft Conditions  

PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Arabian U2

Job #: 

Job Name: Labrakum

Date: 11-13-09

CPT #: 4274

Test #: C-147A

FileName: Labrakum C-147A

Project Folder: 11-13-09

Arrival Time: 7:00

Departure Time: 9:15

Logger: K. Koh

Driller: John Goto

Zero Data

Start Time: 8:30

Q: 12686; 12139

U: 12260; 466.4

FS: 12252; 1245

End Time: 9:00

ΔQ: 63; -0.003

ΔU: -1; 0.0

ΔFS: -65; -0.6

Drilling Notes

Target Depth 35'

Boom terminated @ 24.8' Due to Tilt Auger augerwell

PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Andrew  
Job Name: Labadee C-149

Job #:  
Date: 12/23/07  
CPT #: 4274  
Test #: C-149

File Name: Labadee C-149  
Project Folder: 11-23-07

Arrival Time: 7:30  
Departure Time: 9:40  
Logger: Cee  
Driller: James

Zero Data

Start Time: 8:55  
Q: 12.76  
Q: 12.70  
U: 1246  
V: 485.6  
FS: 12180  
12189

End Time: 9:15  
AQ: -31  
-0.066  
AU: 481.8  
AFS: 31/0.9

Drilling Notes

Pecked CP C65 8-8.5m 2ft. More

Tubes: 0.1m 25

Depth: 4274

Rebar 5 x 20

Boring Terminated at 35.4 m 110 ft

✓ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amcor NE                      Job Name: Labadie C-151
Job#:                                     Date: 11-12-09
CPT# 4274                                Test #: C-151
File Name: Labadie C-151
Project Folder: 11-12-09
Arrival Time: 10:00               Departure Time: 11:20
Logger: K. Koch                Driller: John Gates

Zero Data
Start Time: 10:15   Q: 12691; 12.1426   U: 12295; 467.2   FS: 12102; 123.0
End Time: 11:00   ∆Q: Readings good but Problem Button on partially

Drilling Notes
Target Depth: 35'  
End Depth: 35.4'

Note: Drive from P-138 to C-151 for access
Very wet in all directions!

☐ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
## CPT Boring Record

**Client:** Amoreen UE  
**Job Name:** Lakeville UWC

**Job #:**  
**Date:** 11-13-09

**CPT #:** 4274  
**Test #:** C-157

**File Name:** Lakeville C-157  
**Project Folder:** 11-13-09

**Arrival Time:** 1:55  
**Departure Time:** 3:00

**Logger:** K. Koter  
**Driller:** John Gates

### Zero Data

<table>
<thead>
<tr>
<th>Start Time</th>
<th>Q:</th>
<th>126.66; 12.187</th>
<th>U: 12337; 465.4</th>
<th>FS: 12288; 124.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>End Time</td>
<td>ΔQ:</td>
<td>-25; 0.0249</td>
<td>ΔU: 0; -0.0</td>
<td>ΔFS: -125; -1.3</td>
</tr>
</tbody>
</table>

### Drilling Notes

- Tapped @ 35°
- Boring terminated in gravel @ 235°, Till Angle

---

PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Ameren UE  
Job Name: Laborite UWL

Job#:  
Date: 11-13-09

CPT# 4224  
Test # C-157A

File Name: Laborite .157A
Project Folder: 11-23-09

Arrival Time: 8:00  
Departure Time:  

Logger: K. Kal  
Driller: John Gates

Zero Data
Start Time: 3:25  
Q: 12645, 120976  
U: 12234, 4462  
FS: 12182, 123.8
End Time:  
ΔQ:  
ΔU:  
ΔFS:

Drilling Notes

Target Depth 35'
Boeing Terminal @ 31.1'  
Strike Angle

☑ PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amcasan \textit{Inc.} \hspace{1cm} Job Name: Lab Date \textit{Inc.}

Job#: \hspace{1cm} Date: 11/16/2009

CPT#: C-159 \hspace{1cm} Test#: C-159

File Name: \textit{C-159} \hspace{1cm} Project Folder: 11-16-09

Arrival Time: 8:45 \hspace{1cm} Departure Time: 10:40

Logger: \textit{C-159} \hspace{1cm} Driller: John Gries (Terra Cotta Data)

Zero Data

Start Time: 9:15 \hspace{1cm} Q: 0.684/12.137 \hspace{1cm} U: 12258/4661 \hspace{1cm} FS: 121.56/122.3

End Time: \hspace{1cm} \Delta Q: -2.29/0.216 \hspace{1cm} \Delta U: 5/0.1 \hspace{1cm} \Delta FS: 925/9.4

Drilling Notes

- Target Depth: 35'
- \textit{C-159} 4774

- QAQ: 0.3 Maf
- Fe\textit{2+}: 0.068

- Boring Terminated at 35.2' as planned

- Job
- 8:00 Arrives on site, gets sized up, move RTQ

- After hole filled up to 405

- \checkmark PROBE HOLE (~2\textdegree) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amforan  
Job Name:  
Job#:  
Date: 12/23/09  
CPT#:  
Test#: C-161  
File Name:  
Project Folder:  
Arrival Time: 9:00  
Departure Time: 11:00  
Logger:  
Driller: James Dittemar

Zero Data
Start Time: 10:00  
Q: 12745/12.19  
U: 1252/405.8  
FS: 12145/12.35  
End Time: 10:40  
AQ: -98/0.086  
ΔU: -1441/-5.1  
ΔFS: 30/0.2

Drilling Notes

CONF: 4074  
Target Depth: 55'

Amph: 0.5 MPa  
FS20: 500/1000

Soil terminated at 30.3' due to test refusal

☐ PROBE HOLE (~2’Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AMERIPROject Name: CO BORING
Job #: C-165 Test #: C-165
CPT #: 4274 Date: 12/28/09

File Name: LABOR T C-165
Project Folder: 12-28-09

Arrival Time: 9:00 Logger: Carl Departure Time: 10:45
Driller: DANNY DIENZER

Zero Data
Start Time: 9:14 Q: 1,281/1,266 U: 1,274/466,7 FS: 1,2089/1228
End Time: 10:10 ΔQ: -102 -0.096 ΔU: -127 -4.9 ΔFS: 10/6.1

Drilling Notes

ARRIVE ON SITE 7:30, MARK PREP FOR
LST HOLE FILL UP

Comp 1 4234
Target Depth: 35

Q 331 0.714
FS 25 0.314

Drilling was completed at 22.1 ft below

PROBE HOLE (~2"2) THROUGH SHALLOW FINE
GRAIN SOILS BACKFILLED WITH DRY BENTONITE
GRANULES.
CPT Boring Record

Client: América
Job Name: LABOR DE CNC
Job#: 4274
Test #: C-166
Date: 12/22/09

File Name: LABOR DE CNC
Project Folder: 11-22-09
Arrival Time: 10:00
Departure Time: 11:30
Logger: CNC
Driller: James

Zero Data
Start Time: 10:50
Q: 0.75/12.189
U: 12.50/45.7
FS: 12.27/12.2
End Time: 11:20
ΔQ: -0.91/0.08
ΔU: -9/0.2
ΔFS: 65/0.6

Drilling Notes

Target: 35'
Conf: 42.4

Q max: 1.0 m
PSAT: 510 kPa

Termination: 35.6' N5.4 W

☐ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAN GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AMEREN UE  
Job Name: LABOTE CWC

Job#:                  Date 11/16/09
CPT#  C 68  4274 Test # C 168
File Name: L18001C C 168
Project Folder: /11-16-09 /
Arrival Time: 10:30 Departure Time 11:45
Logger: CWC Driller: John Gates (7.7 MDA Drill)

Zero Data
Start Time: 11:00 Q: 125 18/11.755 U: 1252/465 FS: 12692/129.0
End Time: 11:30 AQ: 135/0.1370 AU: 0/0 AFS: -45.4/-9.6

Drilling Notes

Test 1 Depth: 35'
Cone: C 4274

Qmin: 0.2 MPa
FSmin: 141kPa

Rotary Termination at 34.0' Due to
TSP Pressure Refusal AO DC7 Refusal

11:45 pulled up 12:00 Started Survery

☐ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AMEREN UE  Job Name: LABORFE URE
Job#:  C-168A  Test #: C-168A
CPT#  4274  Date: 11-16-07
File Name: LABORFE C-168A
Project Folder: 11-16-07
Arrival Time: 12:30  Departure Time: 2:30
Logger: JOHAN DRILLER: GATES (TEPOD ORE)
Driller: JOHN GATES (TEPOD ORE)

Zero Data
Start Time: 11:45  Q: 12,71/5 12.54  U: 122.81/46.32  FS: 12/18/12.32
End Time: 2:15  AQ: -9 10.095  AU: 70.4  AFS: 29/0.3

Drilling Notes

\[ \text{Top: 45'  Depth: 25'  } \]
\[ \text{Conf. 42.74  } \]
\[ \text{Conf. 12/00 - 12/30  } \]

Quick & Osum

Satur. Test: 51%  Satur. Test: 51%

North

Offset N  East of C-168

PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amenex UE
Job Name: LABADIE CULC

Job#: Date 11-16-09
CPT# 4294 Test # C-170
File Name: LABADIE C-170

Project Folder: 11-16-09

Arrival Time: 07:40 Departure Time
Logger: Culf Driller: John Gambo (Team Lead)

Zero Data
Start Time: 3:15 Q: 0.662 / 12.116 U: 120.238 / 463.0 FS: 12103 / 123.0
End Time: 2:45 AQ: 16/0.0163 AU: 20 / 0.7 AFS: 14/0.1

Drilling Notes
TARGET DEPTH 35′
Core: 4274

Quikr: 0.5 Snd
FS: 10 Kpsi
Pause at 35′

Boring Termination at 35.2′ as planned

PROBE HOLE (~2″) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AMEREN  Job Name: LABORIE OWL

Job#:  Date: 12/23/09
CPT# R-172  Test #: C-172
File Name: LABORIE C-172

Project Folder: 12-33-09
Arrival Time: 11:30  Departure Time: 12:40
Logger: Cluc  Driller: James Pettigrew

Zero Data
Start Time: 11:55  Q: 1266/12.12  U: 12:24/945.5 FS: 121.26
End Time: 12:35  ΔQ: -14/ -0.012  ΔU: 1177/43.0  ΔFS: 35/0.3

Drilling Notes

Core: 4D74  Target Depth: 35'

Q: 0.5  F: 26.0

Power and Changes, Plug is not concentric to outlet well.

Buried TFE conduit at 35' as planned

☐ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Aebra Fm
Job Name: C-174
Job#: 4274
Date: 12/23/07
Test # C-174
File Name: Aebra Fm C-174
Project Folder: 12-23-09
Arrival Time: 12:45
Departure Time: 1:45
Logger: Jae
Driller: James Dettmar

Zero Data
Start Time: 11:10
Q: 12693 12.14
U: 12938 96.2 6 12/25
End Time: 11:35
ΔQ: -86 -0.079
ΔU: -44 / 1.4
ΔFS: 22/03

Drilling Notes

Core: 4074
Target Depth: 35'

Qmax: 0.5 MDA
F5ma: 5 kPA

Rounding Terminated at 53' due to

PROBE HOLE (~2") THROUGH SHALLOW-FINE
GRANITE SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AMEREN  
Job Name: LABARDEE OWR

Job#:  
CPT#: E-178 4274

File Name: LABARDEE C-178

Project Folder: 11-22-09

Arrival Time: 8:55  
Departure Time: 10:20

Logger:  
Driller: James

Zero Data

Start Time: 9:30  
End Time: 10:25

Q: 12775  A: 272  U: 12768  FS: 12/9/1235

AQ: -132  -0.12  ΔU: 294/9.9  AF: 84/0.9

Drilling Notes

TARGET Dpth: 35'

Q: 4274

NO DATA: 9' 10' 13' 14' 15' 16' 17' 18' 19' 20' 21' 22' 23' 24' 25' 26' 27' 28' 29' 30' 31' 32' 33' 34' 35'

Q: 10

FS: 9.71  SKPA

PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS, BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AMEC

Job Name: Labote C-180

Job #: 4274

Test #: C-180

Date: 12/22/09

File Name: Labote C-180

Project Folder: 12-22-09

Arrival Time: 2:10

Departure Time: 5:30

Logger: CLR

Driller: James

Zero Data

Start Time: 7:50

Q: 1274/12.188

U: 1225/466.1

FS: 12127/123.3

End Time: 8:10

AQ: -71/-0.068

ΔU: 6/0.2

ΔFS: 12/0.1

Drilling Notes

Corb: 42.34

Target Dpth: 33'

Q shp: 0.4 m³

FS shp: 8 kPa

Probe terminated at 35.1 as planned.

☑ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amenia 
Job Name: Cab 052 C-24

Job#: CPT# Date: 12/22/07

CPT# 4274 Test#: C-182

File Name: Cab 052 C-182

Project Folder: 12-22-07

Arrival Time: 3:40
Departure Time:

Logger: Jw Driller: James

Zero Data

Start Time: 4:05 Q: 12.794/12.19 U: 1220/466.0 FS: 1137/127.1
End Time: 4:30 AQ: -82/0.05 ΔU: -4/0.2 ΔFS: 2/0.0

Drilling Notes

Target Depth: 35'
Cone: 4274


Qmn: 0.5 mpa
5 min:

No Data 1/2" to 2.5" Cone Problem
C1
(No Data was collected for 1.5 to 2.5")

Boring terminated at:
Cone: 34.5'
Active: 35.5' ND

Demolished site at 5:00 Rm

PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: A. HFFW  
Job Name: LAB025LAB

Job#: 4274  
Date 12/23/2009

CPT# 4274  
Test # C-184

File Name: LAB025 C-184

Project Folder: 12-31-09

Arrival Time: 3:30 (12-23-09)  
Departure Time 8:15 (12-24-09)

Logger: CWC  
Driller: James D. James

Zero Data

Start Time: 7:15 Q: 12.763/12.21  
U: 12.944/665.5 FS: 12.189/12.95

End Time: 8:15 AQ: -921.08  
AU: 238/98  
AFS: 22/10.2

Drilling Notes

Set Augers 12/24/09 to 4:00

LEFT SITE 4:30 12/25/09

AP Roved on site 12/29/09 7:00

Tape 4274

Pressure: 25'

On: 0.04 MPa

Foam 2100

Boothing temperature at 35.2' as placed

☑ PROBE HOLE (-2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Ameren
Job Name: C-186
Job#: C-186
CPT# C-186
Date 2/23/09
Test # C-186
File Name: CALM 174 C-186
Project Folder: 1/12-23-09
Arrival Time: 2:00
Departure Time: 3:20
Logger: Cur
Driller: James Dettmener
Zero Data
Start Time: 2:30 Q: 12577/12.04 U: 12246/46.57 FS: 12157/1235
End Time: 3:00 AQ: 110/0.105 ΔU: -4/-0.3 ΔFS: 13/0.2
Drilling Notes

Core: 4774
Target Depth: 35'

Q max: 0.5 mpa
15 mpa: 6 kpa

Boring terminated at 35.1' as planned

PROBE HOLE (2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AmFarr
Job Name: Carbor blend
Date: 12/22/09
CPT# C-190 Test # C-190
File Name: Carbor C-190
Project Folder: 11-22-09
Arrival Time: 11:45 Departure Time: 1:00
Logger: CW Driller: J. V. 
Zero Data
Start Time: 12:15 Q: 173/12.20 U: 2252/465.6 FS: 10/24/123.2
End Time: 12:45 AQ: -105/-0.096 ΔU: 452/16.3 ΔFS: 38/0.9
Drilling Notes

Twist Depth: 35'
Cem: 47.7'

Q: 0.3 Mpa
T-Shear: 5.0 kPa

Backup to FRW at 35' as planned.

☐ PROBE HOLE (~2"") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: Amsen
Job Name: L850016

Job#: D4FT
Date: 12/22/09
CPT#: 4274
Test #: C-192

File Name: L850016 C-192
Project Folder: 12-328-091

Arrival Time: 1:05
Departure Time: 2:10
Logger: Jmi5
Driller: Jmi5

Zero Data
Start Time: 1:30
Q: 12783 / 12.72
U: 12255 / 466.0
FS: 12/27 / 123.2
End Time: 2:10
AQ: -82 / -0.076
AU: 691.24
ΔFS: 12 / 0.1

Drilling Notes

TARGET 10 conv. 35'
CE: 40374

Qm = 0.7 MPa
1.5 MPa GCR

Bartle Foundation AT 35.3' AS OHM-

PROBE HOLE (-2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client:  A-2028  
Job Name: Labrore  

Job#:  
Date: 12/24/09  

CPT#: 5499  4274  
Test #: C-194  

File Name: Labrore C-194  
Project Folder: 12-24-09  

Arrival Time: 8:50  
Departure Time: 10:00  

Logger: Cem  
Driller:  

Zero Data  

Start Time: 9:15  
Q: 175.5  
U: 2243  
FS: 1356  

End Time: 9:45  
AQ: -12.1  0.08  
AU: -54  2.0  
AFS: 8.0  

Drilling Notes  

TARGET DEPTH 35'  

Cem 4274  

Probe TTBmered at 35.3 as Plans  

Probe Hole (2-0) through shallow fine grain soils backfilled with dry bentonite granules.
CPT Boring Record

Client: A Meiben

Job#: 4274

CPT#: C546

Test #: 1.19.09

File Name: 1A546.1.19.09

Project Folder:

Arrival Time: 10:17

Departure Time: 11:30

Logger: CMA

Driller: James Detman

Zero Data

Start Time: 10:20

Q: 120

U: 12:31/46.3

FS: 12:14/4.4

End Time: 11:00

AQ: 0.47

AU: -123/-4.7

ΔFS: -1/-0.1

Drilling Notes

\[ \text{Depth: 33,5 ft.} \]

\[ \text{Min.: 42.5 ft.} \]

\[ \text{Q: 0.3 in.} \]

\[ \text{FS: 5.0 kPa} \]

\[ \text{Place:} \]

\[ \text{Very high Pup Raw 30° (300 kN)} \]

\[ 1130 \text{ Left Site} \]

\[ \text{PROBE HOLE (2\'Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.} \]
CPT Boring Record

Client: A
Job Name: UWE
Job #: 12/22/09
CPT # 4274
Test #: 0-198
File Name: C-198
Project Folder: 12-22-09
Arrival Time: 7:30
Departure Time: 8:45
Logger: C
Driller: James

Zero Data
Start Time: 6:00
Q: 12766/12.21
U: 12286/465.7
FS: 12125/123.2
End Time: 9:30
AQ: -149/-0.138
AU: 52/41
AFS: 122/1.2

Drilling Notes

APPR on 5/7
SET Depth 85'
Cas. 92.74

Q: 0.0 MPa
FS: 9 kPa

TIP RETURN AT 35' as planned

PROBE HOLE (~2"Ø) THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.
CPT Boring Record

Client: AMERICAN  Job Name: La Brea  UWL
Job#:  CPT-200  Date: 12/31/09
CPT#  CPT-200  Test#:  C2100
File Name: CPT-200  C2100
Project Folder: 12-31-09
Arrival Time: 2:35 pm  Departure Time 5:00
Logger: WC  Driller: John Goff

Zero Data
Start Time: 3:40  Q: 127.42/12.1923  U: 12270/466.6  FS: 12122/123.2
End Time: 4:30  AQ: -190/-0.17  AU: -01/1.2  AFS: 394/8.1

Drilling Notes
ON SITE: 1:00 PM  OFF 1:00  RTU ECT
Multi to HOLE 2:00?

Cmt: 14294

Qmin 4.1 kPa  0.2 MPA
FS 500  8.0 KPA

AT 40° N 0.5° 0± 20‰  P10 17180

Due to Soft Soil Burned Extension to
GS6 - 0.5° GS1
Test PERUSCO
Cons: GS6
PEAC: GS1

Site Site 3:30

☐ PROBE HOLE (~2") THROUGH SHALLOW FINE GRAIN SOILS BACKFILLED WITH DRY BENTONITE GRANULES.